



**TOSHIBA**

Selection Guide 2025

# MOSFETs



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# I Small Signal MOSFETs

## 1. Over 500mA Series MOSFETs (Semi-Power Type)

Package Dimensions (unit: mm)





CST3C	CST3 (SOT-883)	VESM (SOT-723)	UFM (SOT-323F)	ES6 (SOT-563)	UF6 (SOT-363F)	WCSP6C
Bottom View	Bottom View					Bottom View
0.8 x 0.6	1.0 x 0.6	1.2 x 1.2	2.0 x 2.1	1.6 x 1.6	2.0 x 2.1	1.5 x 1.0

### P-Channel Single MOSFET

Package	Part Number	V <sub>DS</sub> (V)	V <sub>GS</sub> (V)	I <sub>D</sub> (A)	R <sub>DS(ON)</sub> max (mΩ)						Q <sub>g</sub> typ. (nC)	C <sub>iss</sub> typ. (pF)	Note	
					V <sub>GS</sub> = -1.2 V	V <sub>GS</sub> = -1.5 V	V <sub>GS</sub> = -1.8 V	V <sub>GS</sub> = -2.5 V	V <sub>GS</sub> = -4 V	V <sub>GS</sub> = -4.5 V				V <sub>GS</sub> = -10 V
CST3C	SSM3J64CTC	\$ -12	+/-10	-1	11300	1310	890	560	-	370	-	-	50	
	SSM3J65CTC	\$ -20	+/-10	-0.7	11300	1550	1070	700	-	500	-	-	48	
CST3	SSM3J56ACT	\$ -20	+/-8	-1.4	4000	900	660	480	-	390	-	1.6	100	
	SSM3J76CT ☆	\$ -20	+/-8	-1.4	4000	900	660	480	-	390	-	1.6	100	Low leakage current
	SSM3J65CT ☆	\$ -20	+/-10	-0.7	11300	1550	1070	700	-	500	-	-	48	
VESM	SSM3J66MFV #	\$ -20	+6/-8	-0.8	4000	900	660	480	-	390	-	1.6	100	
	SSM3J56MFV	\$ -20	+/-8	-0.8	4000	900	660	480	-	390	-	1.6	100	
	SSM3J76MFV ☆	\$ -20	+/-8	-0.8	4000	900	660	480	-	390	-	1.6	100	Low leakage current
WCSP6C	SSM6J771G	\$ -20	+/-12	-5	-	-	-	47.5	-	35	34.7 (@-8 V) 31 (@-8.5 V)	9.8	870	
ES6	SSM6J216FE	\$ -12	+/-8	-4.8	-	88.1	56	39.3	-	32	-	12.7	1040	
	SSM6J213FE	\$ -20	+/-8	-2.6	-	250	178	133	-	103	-	4.7	290	
	SSM6J215FE	\$ -20	+/-8	-3.4	-	154	104	79	-	59	-	10.4	630	
	SSM6J212FE	\$ -20	+/-8	-4	-	94	65.4	49	-	40.7	-	14.1	970	
	SSM6J207FE	\$ -30	+/-20	-1.4	-	-	-	-	491	-	251	-	137	
	SSM6J214FE	\$ -30	+/-12	-3.6	-	-	149.6	77.6	-	57	50	7.9	560	
UFM	SSM3J132TU	\$ -12	+/-6	-5.4	94	39	29	21	-	17	-	33	2700	
	SSM3J135TU	\$ -20	+/-8	-3	-	260	180	132	-	103	-	4.6	270	
	SSM3J145TU #	\$ -20	+6/-8	-3	-	260	180	132	-	103	-	4.6	270	
	SSM3J134TU	\$ -20	+/-8	-3.2	-	240	168	123	-	93	-	4.7	290	
	SSM3J144TU #	\$ -20	+6/-8	-3.2	-	240	168	123	-	93	-	4.7	290	
	SSM3J130TU	\$ -20	+/-8	-4.4	-	63.2	41.1	31	-	25.8	-	24.8	1800	
	SSM3J140TU #	\$ -20	+6/-8	-4.4	-	63.2	41.1	31	-	25.8	-	24.8	1800	
	SSM3J133TU	\$ -20	+/-8	-5.5	-	88.4	56	39.7	-	29.8	-	12.8	840	
	SSM3J143TU #	\$ -20	+6/-8	-5.5	-	88.4	56	39.7	-	29.8	-	12.8	840	
	SSM3J112TU	\$ -30	+/-20	-1.1	-	-	-	-	790	-	390	-	86	
	SSM3J118TU	\$ -30	+/-20	-1.4	-	-	-	-	480	-	240	-	137	
	SSM3J117TU	\$ -30	+/-20	-2	-	-	-	-	225	-	117	-	280	
UF6	SSM6J422TU #	\$ -20	+6/-8	-4	-	99.6	67.8	51.4	-	42.7	-	12.8	840	
	SSM6J412TU	\$ -20	+/-8	-4	-	99.6	67.8	51.4	-	42.7	-	12.8	840	
	SSM6J424TU	\$ -20	+6/-8	-6	-	54	36	26	-	22.5	-	23.1	1650	
	SSM6J414TU	\$ -20	+/-8	-6	-	54	36	26	-	22.5	-	23.1	1650	
	SSM6J402TU	\$ -30	+/-20	-2	-	-	-	-	225	-	117	5.3	280	
	SSM6J410TU	\$ -30	+/-20	-2.1	-	-	-	-	393	-	216	2.9	120	
SSM6J401TU	\$ -30	+/-20	-2.5	-	-	-	-	145	-	73	16	730		

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# AEC-Q101 qualified, \$ With protection Zener diode between gate and source

UDFN6B (SOT-1220)	SOT-23F	S-Mini (SOT-346)	TSOP6F
Bottom View 			
2.0 x 2.0	2.9 x 2.4	2.9 x 2.5	2.9 x 2.8

## P-Channel Single MOSFET

Package	Part Number	V <sub>DSS</sub> (V)	V <sub>GSS</sub> (V)	I <sub>D</sub> (A)	R <sub>DS(ON)</sub> max (mΩ)						Q <sub>g</sub> typ. (nC)	C <sub>iss</sub> typ. (pF)	Note	
					V <sub>GS</sub> = -1.2 V	V <sub>GS</sub> = -1.5 V	V <sub>GS</sub> = -1.8 V	V <sub>GS</sub> = -2.5 V	V <sub>GS</sub> = -4 V	V <sub>GS</sub> = -4.5 V				V <sub>GS</sub> = -10 V
UDFN6B	SSM6J512NU	\$ -12	+/-10	-10	-	-	40.1	25.7	20.5 (@-3.6 V)	18.7	16.2 (@-8 V)	19.5	1400	
	SSM6J505NU	\$ -12	+/-6	-12	61	30	21	16	-	12	-	37.6	2700	
	SSM6J511NU	\$ -12	+/-10	-14	-	-	19.2	13.5	11.5 (@-3.6 V)	10	9.1 (@-8 V)	47	3350	
	SSM6J503NU	\$ -20	+/-8	-6	-	89.6	57.9	41.7	-	32.4	-	12.8	840	
	SSM6J502NU	\$ -20	+/-8	-6	-	60.5	38.4	28.3	-	23.1	-	24.8	1800	
	SSM6J501NU	\$ -20	+/-8	-10	-	43	26.5	19	-	15.3	-	29.9	2600	
	SSM6J507NU	\$ -30	+20/-25	-10	-	-	-	-	32	28	20	13.6	1150	
SOT-23F	SSM3J338R	\$ -12	+/-10	-6	-	-	45.3	27.9	21.9 (@-3.6 V)	20.2	17.6 (@-8 V)	19.5	1400	
	SSM3J327R	\$ -20	+/-8	-3.9	-	240	168	123	-	93	-	4.6	290	
	SSM3J377R	# \$ -20	+6/-8	-3.9	-	240	168	123	-	93	-	4.6	290	
	SSM3J331R	\$ -20	+/-8	-4	-	150	100	75	-	55	-	10.4	630	
	SSM3J371R	# \$ -20	+6/-8	-4	-	150	100	75	-	55	-	10.4	630	
	SSM3J328R	\$ -20	+/-8	-6	-	88.4	56	39.7	-	29.8	-	12.8	840	
	SSM3J378R	# \$ -20	+6/-8	-6	-	88.4	56	39.7	-	29.8	-	12.8	840	
	SSM3J355R	\$ -20	+/-10	-6	-	-	52.3	38.8	-	30.1	-	16.6	1030	
	SSM3J358R	\$ -20	+/-10	-6	-	-	49.3	32.8	27.7 (@-3.6 V)	25.3	22.1 (@-8 V)	38.5	1331	
	SSM3J334R	\$ -30	+/-20	-4	-	-	-	-	136	105	71	5.9	280	
	SSM3J374R	# \$ -30	+10/-20	-4	-	-	-	-	136	105	71	5.9	280	
	SSM3J340R	\$ -30	+20/-25	-4	-	-	-	-	86	73	45	6.2	492	
	SSM3J332R	\$ -30	+/-12	-6	-	-	144	72	-	50	42	8.2	560	
	SSM3J372R	# \$ -30	+6/-12	-6	-	-	144	72	-	50	42	8.2	560	
SSM3J356R	# \$ -60	+10/-20	-2	-	-	-	-	400	360	300	8.3	330		
SSM3J351R	# \$ -60	+10/-20	-3.5	-	-	-	-	184	164	134	15.1	660		
S-Mini	SSM3J325F	\$ -20	+/-8	-2	-	311	231	179	-	150	-	4.6	270	
	SSM3J375F	# \$ -20	+6/-8	-2	-	311	231	179	-	150	-	4.6	270	
	SSM3J352F	\$ -20	+/-12	-2	-	-	443	199	-	136	110	5.1	210	
	SSM3J353F	\$ -30	+20/-25	-2	-	-	-	-	274	232	150	3.4	159	
TSOP6F	SSM6J801R	\$ -20	+6/-8	-6	-	88.4	56	39.7	-	32.5	-	12.8	840	
	SSM6J825R	\$ -30	+10/-20	-4	-	-	-	-	86	73	45	6.2	492	
	SSM6J808R	# -40	+10/-20	-7	-	-	-	-	52	48	35	24.2	1020	

# AEC-Q101 qualified, \$ With protection Zener diode between gate and source




CST3 (SOT-883)	VESM (SOT-723)	SSM (SOT-416)	UFM (SOT-323F)	ES6 (SOT-563)	UF6 (SOT-363F)	WCSP6C
Bottom View 						Bottom View 
1.0 x 0.6	1.2 x 1.2	1.6 x 1.6	2.0 x 2.1	1.6 x 1.6	2.0 x 2.1	1.5 x 1.0

## N-Channel Single MOSFET

Package	Part Number	V <sub>DSS</sub> (V)	V <sub>GS</sub> (V)	I <sub>D</sub> (A)	R <sub>DS(ON)</sub> max (mΩ)						Q <sub>g</sub> typ. (nC)	C <sub>iss</sub> typ. (pF)	Note	
					V <sub>GS</sub> = 1.2 V	V <sub>GS</sub> = 1.5 V	V <sub>GS</sub> = 1.8 V	V <sub>GS</sub> = 2.5 V	V <sub>GS</sub> = 4 V	V <sub>GS</sub> = 4.5 V				V <sub>GS</sub> = 10 V
CST3	SSM3K56CT	\$ 20	+/-8	0.8	-	840	480	300	-	235	-	1	55	
	SSM3K56ACT	\$ 20	+/-8	1.4	-	840	480	300	-	235	-	1	55	
	SSM3K76CT ☆	\$ 20	+/-8	1.4	-	840	480	300	-	235	-	1	55	Low leakage current
VESM	SSM3K36MFV	\$ 20	+/-10	0.5	-	1520	1140	850	-	660	630 (@5V)	1.23	46	
	SSM3K56MFV	\$ 20	+/-8	0.8	-	840	480	300	-	235	-	1	55	
	SSM3K76MFV ☆	\$ 20	+/-8	0.8	-	840	480	300	-	235	-	1	55	Low leakage current
WCSP6C	SSM6K781G	12	+/-8	7	-	124	47.4	23.2	-	18	-	5.4	600	
SSM	SSM3K36FS	\$ 20	+/-10	0.5	-	1520	1140	850	-	660	630 (@5V)	1.23	46	
	SSM3K56FS	\$ 20	+/-8	0.8	-	840	480	300	-	235	-	1	55	
	SSM3K76FS ☆	\$ 20	+/-8	0.8	-	840	480	300	-	235	-	1	55	Low leakage current
ES6	SSM6K217FE	\$ 40	+/-12	1.8	-	-	400	248	218 (@3.6V) 211 (@4.2V)	208	195 (@8V)	1.1	130	
UFM	SSM3K36TU	\$ 20	+/-10	0.5	-	1520	1140	850	-	660	630 (@5V)	1.23	46	
	SSM3K62TU	\$ 20	+/-8	0.8	432	139	89	68	-	57	-	2	177	
	SSM3K122TU	\$ 20	+/-10	2	-	304	211	161	123	-	-	3.4	195	
	SSM3K121TU	\$ 20	+/-10	3.2	-	140	93	63	48	-	-	5.9	400	
	SSM3K123TU	\$ 20	+/-10	4.2	-	66	43	32	28	-	-	13.6	1010	
	SSM3K127TU	\$ 30	+/-12	2	-	-	286	167	123	-	-	1.5	123	
	SSM3K116TU	\$ 30	+/-12	2.2	-	-	-	135	-	100	-	-	245	
	SSM3K131TU	30	+/-20	6	-	-	-	-	-	41.5	27.6	10.1	450	
	SSM3H137TU	\$ 34	+/-20	2	-	-	-	-	295	280	240	3	119	Built-in Active Clamp Zener
	SSM3K2615TU	# \$ 60	+/-20	2	-	-	-	580 (@3.3V)	440	-	300	6	150	
	SSM3K341TU	# \$ 60	+/-20	6	-	-	-	-	69	51	36	9.3	550	T <sub>ch</sub> = 175 °C
SSM3K361TU	# \$ 100	+/-20	3.5	-	-	-	-	-	92	69	3.2	430	T <sub>ch</sub> = 175 °C	
UF6	SSM6K405TU	\$ 20	+/-10	2	-	307	214	164	126	-	-	3.4	195	
	SSM6K404TU	# \$ 20	+/-10	3	-	147	100	70	55	-	-	5.9	400	
	SSM6K403TU	# \$ 20	+/-10	4.2	-	66	43	32	28	-	-	16.8	1050	
	SSM6K406TU	# \$ 30	+/-20	4.4	-	-	-	-	-	38.5	25	12.4	490	
	SSM6K407TU	# \$ 60	+/-20	2	-	-	-	-	440	-	300	6	150	

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# AEC-Q101 qualified, \$ With protection Zener diode between gate and source





SOT-23F	TSOP6F	UDFN6B (SOT-1220)
		
2.9 x 2.4	2.9 x 2.8	2.0 x 2.0

Bottom View

## N-Channel Single MOSFET

Package	Part Number	V <sub>DSS</sub> (V)	V <sub>GSS</sub> (V)	I <sub>D</sub> (A)	R <sub>DS(ON)</sub> max (mΩ)							Q <sub>g</sub> typ. (nC)	C <sub>iss</sub> typ. (pF)	Note
					V <sub>GS</sub> = 1.2 V	V <sub>GS</sub> = 1.5 V	V <sub>GS</sub> = 1.8 V	V <sub>GS</sub> = 2.5 V	V <sub>GS</sub> = 4 V	V <sub>GS</sub> = 4.5 V	V <sub>GS</sub> = 10 V			
UDFN6B	SSM6K518NU	\$ 20	+/-8	6	-	108	74	45	-	33	-	3.6	410	
	SSM6K517NU	\$ 30	+12/-8	6	-	-	82	53	-	39.1	-	3.2	310	
	SSM6K504NU	\$ 30	+/-20	9	-	-	-	-	-	26	19.5	4.8	620	
	SSM6K513NU		30	+/-20	15	-	-	-	-	12	8.9	7.5	1130	
	SSM6K516NU	\$ 30	+20/-12	6	-	-	-	-	-	64	46	2.5	280	
	SSM6K514NU		40	+/-20	12	-	-	-	-	17.3	11.6	7.5	1110	
	SSM6K388NU	★	60	+/-20	2	-	-	-	-	98	82	TBD	TBD	
	SSM6K389NU	★	60	+/-20	2	-	-	-	-	200	155	TBD	TBD	
	SSM6K341NU	\$ 60	+/-20	6	-	-	-	-	69	51	36	9.3	550	
	SSM6K387NU	★	100	+/-20	2	-	-	-	-	200	125	3.6	242	
	SSM6K361NU	\$ 100	+/-20	3.5	-	-	-	-	92	69	3.2	430		
SOT-23F	SSM3K344R	\$ 20	+/-8	3	-	232	139	91	-	71	-	2	153	
	SSM3K345R	\$ 20	+/-8	4	-	108	74	45	-	33	-	3.6	410	
	SSM3K324R	\$ 30	+/-12	4	-	-	109	72	-	56	-	2.2	200	
	SSM3K376R	# \$ 30	+12/-8	4	-	-	109	72	-	56	-	2.2	200	
	SSM3K336R	\$ 30	+/-20	3	-	-	-	-	-	140	95	1.7	126	
	SSM3K333R		30	+/-20	6	-	-	-	-	42	28	3.4	436	
	SSM3K335R	\$ 30	+/-20	6	-	-	-	-	-	56	38	2.7	340	
	SSM3K347R	\$ 38	+/-20	2	-	-	-	-	480	410	340	2.5	86	Built-in Active Clamp Zener
	SSM3K337R	\$ 38	+/-20	2	-	-	-	-	200	176	150	3	120	Built-in Active Clamp Zener
	SSM3K339R	\$ 40	+/-12	2	-	-	390	238	208 (@3.6 V) 201 (@4.2 V)	198	185 (@8 V)	1.1	130	
	SSM3K357R	\$ 60	+/-12	0.65	-	-	-	2400 (@3 V)	-	1800 (@5 V)	-	1.5	43	Built-in Gate-Drain Zener
	SSM3K2615R	\$ 60	+/-20	2	-	-	-	580 (@3.3 V)	440	-	300	6	150	
	SSM3K388R	★	60	+/-20	2	-	-	-	-	98	82	TBD	TBD	
	SSM3K389R	★	60	+/-20	2	-	-	-	-	200	155	TBD	TBD	
	SSM3K318R	\$ 60	+/-20	2.5	-	-	-	-	-	145	107	7	235	
	SSM3K341R	# \$ 60	+/-20	6	-	-	-	-	69	51	36	9.3	550	T <sub>ch</sub> = 175 °C
SSM3K387R	★	100	+/-20	2	-	-	-	-	200	125	3.6	242		
SSM3K361R	# \$ 100	+/-20	3.5	-	-	-	-	-	92	69	3.2	430	T <sub>ch</sub> = 175 °C	
TSOP6F	SSM6K824R	\$ 20	+/-8	6	-	108	74	45	-	33	-	3.6	410	
	SSM6K818R		30	+/-20	15	-	-	-	-	12	8.9	7.5	1130	
	SSM6K804R		40	+/-20	12	-	-	-	-	18	12	7.5	1110	
	SSM6K388R	★	60	+/-20	2	-	-	-	-	98	82	TBD	TBD	
	SSM6K389R	★	60	+/-20	2	-	-	-	-	200	155	TBD	TBD	
	SSM6K809R	# \$ 60	+/-20	6	-	-	-	-	69	51	36	9.3	550	T <sub>ch</sub> = 175 °C
	SSM6K387R	★	100	+/-20	2	-	-	-	-	200	125	3.6	242	
	SSM6K810R	# \$ 100	+/-20	3.5	-	-	-	-	-	92	69	3.2	430	T <sub>ch</sub> = 175 °C
SSM6K819R	# \$ 100	+/-20	10	-	-	-	-	-	36.4	25.8	8.5	1110	T <sub>ch</sub> = 175 °C	







★ Under Development (The specification is subject to change without notice.)  
# AEC-Q101 qualified, \$ With protection Zener diode between gate and source

ES6 (SOT-563)	UF6 (SOT-363F)	UDFN6 (SOT-1118)	DFN2020(WF)
		Bottom View 	Bottom View 
1.6 x 1.6	2.0 x 2.1	2.0 x 2.0	2.0 x 2.0

## Dual MOSFET

Package	Polarity	Part Number	V <sub>DS</sub> (V)	V <sub>GS</sub> (V)	I <sub>D</sub> (A)	R <sub>DS(on)</sub> max (mΩ)						Q <sub>g</sub> typ. (nC)	C <sub>iss</sub> typ. (pF)	Note	
						V <sub>GS</sub>   = 1.2 V	V <sub>GS</sub>   = 1.5 V	V <sub>GS</sub>   = 1.8 V	V <sub>GS</sub>   = 2.5 V	V <sub>GS</sub>   = 4 V	V <sub>GS</sub>   = 4.5 V				V <sub>GS</sub>   = 10 V
ES6	P-ch x2	SSM6P41FE	\$ -20	+/-8	-0.72	-	1040	670	440	-	300	-	1.76	110	
		SSM6P56FE	\$ -20	+/-8	-0.8	4000	900	660	480	-	390	-	1.6	100	
		SSM6P76FE ☆	\$ -20	+/-8	-0.8	4000	900	660	480	-	390	-	1.6	100	Low leakage current
	N-ch x2	SSM6N36FE	\$ 20	+/-10	0.5	-	1520	1140	850	-	660	630 (@5V)	1.23	46	
		SSM6N56FE	\$ 20	+/-8	0.8	-	840	480	300	-	235	-	1	55	
		SSM6N76FE ☆	\$ 20	+/-8	0.8	-	840	480	300	-	235	-	1	55	Low leakage current
	N-ch + P-ch	SSM6L14FE	\$ 20	+/-10	0.8	-	600	450	330	-	240	-	2	90	
SSM6L56FE		\$ 20	+/-8	0.8	-	840	480	300	-	235	-	1	55		
			\$ -20	+/-8	-0.8	4000	900	660	480	-	390	-	1.6	100	
UDFN6	P-ch x2	SSM6P47NU	\$ -20	+/-8	-4	-	242	170	125	-	95	-	4.6	290	
		SSM6P69NU	\$ -20	+6/-12	-4	-	-	157	76	-	56	45	6.74	480	
		SSM6P49NU	\$ -20	+/-12	-4	-	-	157	76	-	56	45	6.74	480	
	N-ch x2	SSM6N61NU	\$ 20	+/-8	4	-	108	74	45	-	33	-	3.6	410	
		SSM6N55NU	\$ 30	+/-20	4	-	-	-	-	-	64	46	2.5	280	
		SSM6N67NU	\$ 30	+12/-8	4	-	-	82	53	-	39.1	-	3.2	310	
		SSM6N68NU	\$ 30	+12/-8	4	-	-	180	117	-	84	-	1.8	129	
		SSM6N57NU	\$ 30	+/-12	4	-	-	82	53	-	39.1	-	3.2	310	
	N-ch + P-ch	SSM6N58NU	\$ 30	+/-12	4	-	-	180	117	-	84	-	1.8	129	
		SSM6L61NU	\$ 20	+/-8	4	-	108	74	45	-	33	-	3.6	410	
			\$ -20	+/-12	-4	-	-	157	76	-	56	45	6.74	480	
DFN2020 (WF)	N-ch x2	XSM6N65NW ★ #	\$ 30	+20/-12	4	-	-	-	-	64	-	2.5	280	Automotive equipment	
		XSM6N67NW ★ #	\$ 30	+12/-8	4	-	-	82	53	-	39.1	-	3.2	310	
UF6	P-ch x2	SSM6P39TU	\$ -20	+/-8	-1.5	-	-	430	294	213	-	-	6.4	250	
		SSM6P40TU	\$ -30	+/-20	-1.4	-	-	-	-	403	-	226	2.9	120	
	N-ch x2	SSM6N36TU	\$ 20	+/-10	0.5	-	1520	1140	850	-	660	630 (@5V)	1.23	46	
		SSM6N62TU	\$ 20	+/-8	0.8	456	173	120	98	-	85	-	2	177	
		SSM6N39TU	\$ 20	+/-10	1.6	-	247	190	139	119	-	-	7.5	260	
		SSM6N24TU	\$ 30	+/-12	0.5	-	-	-	180	-	145	-	-	245	
	N-ch + P-ch	SSM6N40TU	\$ 30	+/-20	1.6	-	-	-	-	182	-	122	5.1	180	
		SSM6L39TU	\$ 20	+/-10	1.6	-	247	190	139	119	-	-	7.5	260	
		SSM6L12TU	\$ -20	+/-8	-1.5	-	-	430	294	213	-	-	6.4	250	
			\$ -20	+/-12	-0.5	-	-	-	430	260	-	-	-	218	
SSM6L40TU	\$ 30	+/-20	1.6	-	-	-	-	182	-	122	5.1	180			
			\$ -30	+/-20	-1.4	-	-	-	403	-	226	2.9	120		

☆ New Products, ★ Under Development (The specification is subject to change without notice.)  
# AEC-Q101 qualified, \$ With protection Zener diode between gate and source

US6 (SOT-363)	TSOP6F	TCSPA- 172101	TCSPAC- 153001	TCSPED- 302701	TCSPAG- 341501
					
Bottom View	Bottom View	Bottom View	Bottom View	Bottom View	Bottom View
2.0 x 2.1	2.9 x 2.8	2.14 x 1.67	2.98 x 1.49	3.0 x 2.74	3.37 x 1.47

## Dual MOSFET

Package	Polarity	Part Number	V <sub>DSS</sub> or V <sub>SSS</sub> (V)	V <sub>GSS</sub> (V)	I <sub>D</sub> or I <sub>S</sub> (A)	R <sub>DS(ON)</sub> max or R <sub>SS(ON)</sub> max (mΩ)							Q <sub>g</sub> typ. (nC)	C <sub>iss</sub> typ. (pF)	Note
						V <sub>GS</sub>   = 1.2 V	V <sub>GS</sub>   = 1.5 V	V <sub>GS</sub>   = 1.8 V	V <sub>GS</sub>   = 2.5 V	V <sub>GS</sub>   = 4 V	V <sub>GS</sub>   = 4.5 V	V <sub>GS</sub>   = 10 V			
US6	N-ch x 2	SSM6N43FU	\$ 20	+/-10	0.5	-	1520	1140	850	-	660	630 (@5 V)	1.23	46	
TSOP6F	N-ch x 2	SSM6N357R	\$ 60	+/-12	0.65	-	-	-	2400 (@3 V)	-	1800 (@5 V)	-	1.5	43	Built-in Gate- Drain Zener
		SSM6N815R	\$ 100	+/-20	2	-	-	-	-	180	142	103	3.1	290	
		SSM6N813R	# \$ 100	+/-20	3.5	-	-	-	-	-	154	112	3.6	242	T <sub>ch</sub> = 175 °C
	P-ch x 2	SSM6P816R	\$ -20	+/-10	-6	-	-	52.3	38.8	-	30.1	-	16.6	1030	
	N-ch + P-ch	SSM6L807R	\$ 30	+/-12	4	-	-	82	53	-	39.1	-	3.2	310	
SSM6L820R		# \$ 30	+12/-8	4	-	-	82	53	-	39.1	-	3.2	310		
			\$ -20	+6/-12	-4	-	-	157	76	-	56	45	6.7	480	
TCSPA- 172101	N-ch x 2	SSM6N951L	\$ 12	+/-8	8	-	-	-	10	5.5 (@3.8 V)	5.1	-	26	-	Drain common
TCSPAC- 153001	N-ch x 2	SSM10N954L	\$ 12	+/-8	13.5	-	-	-	6.1	2.85 (@3.8 V)	2.75	-	25	-	Drain common
TCSPED- 302701	N-ch x 2	SSM14N956L ☆	\$ 12	+/-8	20	-	-	-	3.2	1.5 (@3.8 V)	1.35	-	76	-	Drain common
TCSPAG- 341501	N-ch x 2	SSM10N961L ☆	\$ 30	+/-20	14	-	-	-	-	-	17.6	12.8	8.8	-	Drain common






☆ New Products

# AEC-Q101 qualified, \$ With protection Zener diode between gate and source



## 2. Less than 500mA Series MOSFETs (Standard Type)








Package Dimensions (unit: mm)

CST3C	CST3 (SOT-883)	VESM (SOT-723)	SSM (SOT-416)	UFM (SOT-323F)	USM (SOT-323)	S-Mini (SOT-346)
Bottom View	Bottom View					
0.8 x 0.6	1.0 x 0.6	1.2 x 1.2	1.6 x 1.6	2.0 x 2.1	2.0 x 2.1	2.9 x 2.5

### P-Channel Single MOSFET

Package	Part Number	V <sub>DSS</sub> (V)	V <sub>GSS</sub> (V)	I <sub>D</sub> (A)	R <sub>DS(ON)</sub> max (Ω)							Note
					V <sub>GS</sub> = -1.2 V	V <sub>GS</sub> = -1.5 V	V <sub>GS</sub> = -1.8 V	V <sub>GS</sub> = -2.5 V	V <sub>GS</sub> = -4 V	V <sub>GS</sub> = -4.5 V	V <sub>GS</sub> = -10 V	
CST3C	SSM3J35CTC	\$ -20	+/-10	-0.25	20	4	2.9	2.1	-	1.4	-	
	SSM3J78CTC ☆	\$ -20	+/-10	-0.25	20	4	2.9	2.1	-	1.4	-	Low leakage current
CST3	SSM3J35CT	\$ -20	+/-10	-0.1	44	22	-	11	8	-	-	
	SSM3J16CT ●	\$ -20	+/-10	-0.1	-	45	-	12	8	-	-	⇒ SSM3J35CT
	SSM3J15CT	\$ -30	+/-20	-0.1	-	-	-	32	12	-	-	
VESM	SSM3J35MFV	\$ -20	+/-10	-0.1	44	22	-	11	8	-	-	⇒ SSM3J35AMFV
	SSM3J36MFV	\$ -20	+/-8	-0.33	-	3.6	2.7	1.6 (@-2.8V)	-	1.31	-	⇒ SSM3J56MFV
	SSM3J35AMFV	\$ -20	+/-10	-0.25	20	4	2.9	2.1	-	1.4	-	
	SSM3J78MFV ☆	\$ -20	+/-10	-0.25	20	4	2.9	2.1	-	1.4	-	Low leakage current
	SSM3J15FV	\$ -30	+/-20	-0.1	-	-	-	32	12	-	-	
SSM	SSM3J35FS	\$ -20	+/-10	-0.1	44	22	-	11	8	-	-	⇒ SSM3J35AFS
	SSM3J35AFS	\$ -20	+/-10	-0.25	20	4	2.9	2.1	-	1.4	-	
	SSM3J78FS ☆	\$ -20	+/-10	-0.25	20	4	2.9	2.1	-	1.4	-	Low leakage current
	SSM3J36FS	\$ -20	+/-8	-0.33	-	3.6	2.7	1.6 (@-2.8V)	-	1.31	-	
	SSM3J15FS	\$ -30	+/-20	-0.1	-	-	-	32	12	-	-	
UFM	SSM3J36TU	\$ -20	+/-8	-0.33	-	3.6	2.7	1.6 (@-2.8V)	-	1.31	-	
USM	SSM3J15FU	\$ -30	+/-20	-0.1	-	-	-	32	12	-	-	
S-Mini	SSM3J15F	\$ -30	+/-20	-0.1	-	-	-	32	12	-	-	
	2SJ305	\$ -30	+/-20	-0.2	-	-	-	4	-	-	-	
	SSM3J168F #	\$ -60	+10/-20	-0.4	-	-	-	-	2	1.9	1.55	





☆ New Products, ● Recommended Another New Product,  
# AEC-Q101 qualified, \$ With protection Zener diode between gate and source

CST3C	CST3 (SOT-883)	VESM (SOT-723)	SSM (SOT-416)	USM (SOT-323)	SOT23 (SOT-23)	S-Mini (SOT-346)
Bottom View 	Bottom View 					
0.8 x 0.6	1.0 x 0.6	1.2 x 1.2	1.6 x 1.6	2.0 x 2.1	2.9 x 2.4	2.9 x 2.5

## N-Channel Single MOSFET

Package	Part Number	V <sub>DSS</sub> (V)	V <sub>GSS</sub> (V)	I <sub>D</sub> (A)	R <sub>DS(ON)</sub> max (Ω)								Note
					V <sub>GS</sub> = 1.2 V	V <sub>GS</sub> = 1.5 V	V <sub>GS</sub> = 1.8 V	V <sub>GS</sub> = 2.5 V	V <sub>GS</sub> = 4 V	V <sub>GS</sub> = 4.5 V	V <sub>GS</sub> = 5 V	V <sub>GS</sub> = 10 V	
CST3C	SSM3K35CTC	\$ 20	+/-10	0.25	9	3.1	2.4	1.6	-	1.1	-	-	
	SSM3K78CTC ☆	\$ 20	+/-10	0.25	9	3.1	2.4	1.6	-	1.1	-	-	Low leakage current
	SSM3K15ACTC	\$ 30	+/-20	0.1	-	-	-	6	3.6	-	-	-	
	SSM3K79CTC ☆	\$ 30	+/-20	0.1	-	-	-	6	3.6	-	-	-	Low leakage current
	SSM3K72CTC	\$ 60	+/-20	0.15	-	-	-	5.7 (typ.)	-	4.7	4.4	3.9	
CST3	SSM3K16CT	\$ 20	+/-10	0.1	-	15	-	4	3	-	-	-	
	SSM3K35CT	\$ 20	+/-10	0.18	20	8	-	4	3	-	-	-	
	SSM3K37CT	\$ 20	+/-10	0.2	-	5.6	4.05	3.02	-	2.2	-	-	
	SSM3K77CT ☆	\$ 20	+/-10	0.2	-	5.6	4.05	3.1	-	2.2	-	-	Low leakage current
	SSM3K15CT ●	\$ 30	+/-20	0.1	-	-	-	7	4	-	-	-	⇒ SSM3K15ACT
	SSM3K15ACT	\$ 30	+/-20	0.1	-	-	-	6	3.6	-	-	-	
	SSM3K79CT ☆	\$ 30	+/-20	0.1	-	-	-	6	3.6	-	-	-	Low leakage current
VESM	SSM3K72KCT	\$ 60	+/-20	0.4	-	-	-	-	-	1.75	1.65	1.5	
	SSM3K16FV	\$ 20	+/-10	0.1	-	15	-	4	3	-	-	-	
	SSM3K35MFV	\$ 20	+/-10	0.18	20	8	-	4	3	-	-	-	⇒ SSM3K35AMFV
	SSM3K37MFV	\$ 20	+/-10	0.25	-	5.6	4.05	3.02	-	2.2	-	-	
	SSM3K77MFV ☆	\$ 20	+/-10	0.25	-	5.6	4.05	3.1	-	2.2	-	-	Low leakage current
	SSM3K35AMFV	\$ 20	+/-10	0.25	9	3.1	2.4	1.6	-	1.1	-	-	
	SSM3K78MFV ☆	\$ 20	+/-10	0.25	9	3.1	2.4	1.6	-	1.1	-	-	Low leakage current
SSM	SSM3K15AMFV	\$ 30	+/-20	0.1	-	-	-	6	3.6	-	-	-	
	SSM3K79MFV ☆	\$ 30	+/-20	0.1	-	-	-	6	3.6	-	-	-	Low leakage current
	SSM3K44MFV	\$ 30	+/-20	0.1	-	-	-	7	4	-	-	-	
	SSM3K16FS	\$ 20	+/-10	0.1	-	15	-	4	3	-	-	-	⇒ SSM3K37FS
	SSM3K35FS	\$ 20	+/-10	0.18	20	8	-	4	3	-	-	-	⇒ SSM3K35AFS
	SSM3K37FS	\$ 20	+/-10	0.2	-	5.6	4.05	3.02	-	2.2	-	-	
	SSM3K77FS ☆	\$ 20	+/-10	0.2	-	5.6	4.05	3.1	-	2.2	-	-	Low leakage current
SSM	SSM3K35AFS	\$ 20	+/-10	0.25	9	3.1	2.4	1.6	-	1.1	-	-	
	SSM3K78FS ☆	\$ 20	+/-10	0.25	9	3.1	2.4	1.6	-	1.1	-	-	Low leakage current
	SSM3K15FS ●	\$ 30	+/-20	0.1	-	-	-	7	4	-	-	-	⇒ SSM3K15AFS
	SSM3K44FS	\$ 30	+/-20	0.1	-	-	-	7	4	-	-	-	
	SSM3K15AFS	\$ 30	+/-20	0.1	-	-	-	6	3.6	-	-	-	
	SSM3K79FS ☆	\$ 30	+/-20	0.1	-	-	-	6	3.6	-	-	-	Low leakage current
	SSM3K72CFS	\$ 60	+/-20	0.17	-	-	-	-	-	4.7	4.4	3.9	
USM	SSM3K72KFS #	\$ 60	+/-20	0.3	-	-	-	-	-	1.75	1.65	1.5	
	SSM3K16FU	\$ 20	+/-10	0.1	-	15	-	4	3	-	-	-	
	SSM3K15FU	\$ 30	+/-20	0.1	-	-	-	7	4	-	-	-	⇒ SSM3K15AFU
	SSM3K15AFU	\$ 30	+/-20	0.1	-	-	-	6	3.6	-	-	-	
	SSM3K79FU ☆	\$ 30	+/-20	0.1	-	-	-	6	3.6	-	-	-	Low leakage current
	SSM3K48FU ●	\$ 30	+/-20	0.1	-	-	-	5.4	3.2	-	-	-	⇒ SSM3K15AFU
	SSM3K09FU	\$ 30	+/-20	0.4	-	-	-	1.7 (@3.3V)	1.2	-	-	0.7	
SOT23	SSM3K17FU	\$ 50	+/-7	0.1	-	-	-	40	20	-	-	-	
	SSM3K7002CFU	\$ 60	+/-20	0.17	-	-	-	-	-	4.7	4.4	3.9	
	SSM3K7002KFU #	\$ 60	+/-20	0.4	-	-	-	-	-	1.75	1.65	1.5	
	T2N7002AK	\$ 60	+/-20	0.2	-	-	-	-	-	4.7	4.4	3.9	
S-Mini	T2N7002BK	\$ 60	+/-20	0.4	-	-	-	-	-	1.75	1.65	1.5	
	SSM3K15F	\$ 30	+/-20	0.1	-	-	-	7	4	-	-	-	
	2SK2009	\$ 30	+/-20	0.2	-	-	-	2	-	-	-	-	
	SSM3K7002KF	# \$ 60	+/-20	0.4	-	-	-	-	-	1.75	1.65	1.5	

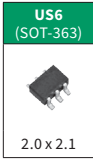
☆ New Products, ● Recommended Another New Product, # AEC-Q101 qualified, \$ With protection Zener diode between gate and source

ESV (SOT-553)	ES6 (SOT-563)	USV (SOT-353)	UF6 (SOT-363F)
			
1.6 x 1.6	1.6 x 1.6	2.0 x 2.1	2.0 x 2.1

## Dual MOSFET

Package	Polarity	Part Number	V <sub>DS</sub> (V)	V <sub>GS</sub> (V)	I <sub>D</sub> (A)	R <sub>DS(ON)</sub> max (Ω)								Note
						V <sub>GS</sub>   = 1.2 V	V <sub>GS</sub>   = 1.5 V	V <sub>GS</sub>   = 1.8 V	V <sub>GS</sub>   = 2.5 V	V <sub>GS</sub>   = 4 V	V <sub>GS</sub>   = 4.5 V	V <sub>GS</sub>   = 5 V	V <sub>GS</sub>   = 10 V	
ESV	P-ch x2	SSM5P16FE	\$ -20	+/-10	-0.1	-	45	-	12	8	-	-	-	
	N-ch x2	SSM5N16FE	\$ 20	+/-10	0.1	-	15	-	4	3	-	-	-	
		SSM5N15FE	\$ 30	+/-20	0.1	-	-	-	7	4	-	-	-	
ES6	P-ch x2	SSM6P35FE	\$ -20	+/-10	-0.1	44	22	-	11	8	-	-	-	⇒ SSM6P35AFE
		SSM6P35AFE	\$ -20	+/-10	-0.25	20	4	2.9	2.1	-	1.4	-	-	
		SSM6P78FE ☆	\$ -20	+/-10	-0.25	20	4	2.9	2.1	-	1.4	-	-	Low leakage current
		SSM6P36FE	\$ -20	+/-8	-0.33	-	3.6	2.7	1.6 (@-2.8V)	-	1.31	-	-	
		SSM6P15FE	\$ -30	+/-20	-0.1	-	-	-	32	12	-	-	-	
	N-ch x2	SSM6N16FE	\$ 20	+/-10	0.1	-	15	-	4	3	-	-	-	
		SSM6N35FE	\$ 20	+/-10	0.18	20	8	-	4	3	-	-	-	⇒ SSM6N35AFE
		SSM6N37FE	\$ 20	+/-10	0.25	-	5.6	4.05	3.02	-	2.2	-	-	
		SSM6N77FE ☆	\$ 20	+/-10	0.25	-	5.6	4.05	3.1	-	2.2	-	-	Low leakage current
		SSM6N35AFE	\$ 20	+/-10	0.25	9	3.1	2.4	1.6	-	1.1	-	-	
		SSM6N78FE ☆	\$ 20	+/-10	0.25	9	3.1	2.4	1.6	-	1.1	-	-	Low leakage current
		SSM6N44FE	\$ 30	+/-20	0.1	-	-	-	7	4	-	-	-	
		SSM6N15AFE	\$ 30	+/-20	0.1	-	-	-	6	3.6	-	-	-	
	SSM6N79FE ☆	\$ 30	+/-20	0.1	-	-	-	6	3.6	-	-	-	Low leakage current	
	SSM6N7002BFE	\$ 60	+/-20	0.2	-	-	-	-	-	3.3	2.6	2.1		
N-ch + P-ch	SSM6L35FE	\$ 20	+/-10	0.18	20	8	-	4	3	-	-	-		
	SSM6L36FE	\$ 20	+/-10	0.5	-	1.52	1.14	0.85	-	0.66	0.63	-		
USV	P-ch x2	SSM5P15FU	\$ -30	+/-20	-0.1	-	-	-	32	12	-	-	-	
	N-ch x2	SSM5N16FU	\$ 20	+/-10	0.1	-	15	-	4	3	-	-	-	
		SSM5N15FU	\$ 30	+/-20	0.1	-	-	-	7	4	-	-	-	
UF6	P-ch x2	SSM6P36TU	\$ -20	+/-8	-0.33	-	3.6	2.7	1.6 (@-2.8V)	-	1.31	-	-	
	N-ch + P-ch	SSM6L36TU	\$ 20	+/-10	0.5	-	1.52	1.14	0.85	-	0.66	0.63	-	
			\$ -20	+/-8	-0.33	-	3.6	2.7	1.6 (@-2.8V)	-	1.31	-	-	

☆ New Products, \$ With protection Zener diode between gate and source






## Dual MOSFET

Package	Polarity	Part Number	V <sub>DSS</sub> (V)	V <sub>GSS</sub> (V)	I <sub>D</sub> (A)	R <sub>DS(ON)</sub> max (Ω)							Note	
						V <sub>GS</sub>   = 1.2 V	V <sub>GS</sub>   = 1.5 V	V <sub>GS</sub>   = 1.8 V	V <sub>GS</sub>   = 2.5 V	V <sub>GS</sub>   = 4 V	V <sub>GS</sub>   = 4.5 V	V <sub>GS</sub>   = 5 V		V <sub>GS</sub>   = 10 V
US6	P-ch x2	SSM6P35FU	\$ -20	+/-10	-0.1	44	22	-	11	8	-	-	-	⇒ SSM6P35AFU
		SSM6P35AFU	\$ -20	+/-10	-0.25	20	4	2.9	2.1	-	1.4	-	-	
		SSM6P78FU ☆	\$ -20	+/-10	-0.25	20	4	2.9	2.1	-	1.4	-	-	Low leakage current
		SSM6P15FU	\$ -30	+/-20	-0.1	-	-	-	32	12	-	-	-	
	N-ch x2	SSM6N16FU	\$ 20	+/-10	0.1	-	15	-	4	3	-	-	-	
		SSM6N35FU	\$ 20	+/-10	0.18	20	8	-	4	3	-	-	-	⇒ SSM6N35AFU
		SSM6N35AFU	\$ 20	+/-10	0.25	9	3.1	2.4	1.6	-	1.1	-	-	
		SSM6N78FU ☆	\$ 20	+/-10	0.25	9	3.1	2.4	1.6	-	1.1	-	-	Low leakage current
		SSM6N37FU	\$ 20	+/-10	0.25	-	5.6	4.05	3.02	-	2.2	-	-	
		SSM6N77FU ☆	\$ 20	+/-10	0.25	-	5.6	4.05	3.1	-	2.2	-	-	Low leakage current
		SSM6N48FU ●	\$ 30	+/-20	0.1	-	-	-	5.4	3.2	-	-	-	⇒ SSM6N15AFU
		SSM6N44FU	\$ 30	+/-20	0.1	-	-	-	7	4	-	-	-	
		SSM6N15FU ●	\$ 30	+/-20	0.1	-	-	-	7	4	-	-	-	⇒ SSM6N15AFU
		SSM6N15AFU	\$ 30	+/-20	0.1	-	-	-	6	3.6	-	-	-	
		SSM6N79FU ☆	\$ 30	+/-20	0.1	-	-	-	6	3.6	-	-	-	Low leakage current
		SSM6N09FU	\$ 30	+/-20	0.4	-	-	-	1.7 (@3.3V)	1.2	-	-	0.7	
		SSM6N17FU	\$ 50	+/-7	0.1	-	-	-	40	20	-	-	-	
		SSM6N7002CFU	\$ 60	+/-20	0.17	-	-	-	-	-	4.7	4.4	3.9	
	SSM6N7002KFU #	\$ 60	+/-20	0.3	-	-	-	-	-	1.75	1.65	1.5		
	N-ch + P-ch	SSM6L35FU	\$ 20	+/-10	0.18	20	8	-	4	3	-	-	-	
\$ -20			+/-10	-0.1	44	22	-	11	8	-	-	-		
SSM6L09FU ●		\$ 30	+/-20	0.4	-	-	-	1.7 (@3.3V)	1.2	-	-	0.7	⇒ SSM6L40TU	
		\$ -30	+/-20	-0.2	-	-	-	6 (@-3.3V)	4.2	-	-	2.7		

☆ New Products, ● Recommended Another New Product, # AEC-Q101 qualified, \$ With protection Zener diode between gate and source

### 3. MOSFET with Diode

Package Dimensions (unit: mm)

ESV (SOT-553)	UFV (SOT-353F)	UDFN6 (SOT-1118)
		
1.6 x 1.6	2.0 x 2.1	2.0 x 2.0

Package	Polarity	Part Number	V <sub>DSS</sub> (V)	V <sub>GSS</sub> (V)	I <sub>D</sub> (A)	MOSFET							Diode				Note	
						R <sub>DS(ON)</sub> max (mΩ)							C <sub>iss</sub> typ. (pF)	V <sub>R</sub> (V)	I <sub>O</sub> (A)	V <sub>F</sub> max (V)		
						V <sub>GS</sub>   = 1.5 V	V <sub>GS</sub>   = 1.8 V	V <sub>GS</sub>   = 2.5 V	V <sub>GS</sub>   = 4 V	V <sub>GS</sub>   = 4.5 V	V <sub>GS</sub>   = 5 V	V <sub>GS</sub>   = 10 V				@I <sub>F</sub> (A)		
ESV	P-ch + SBD	SSM5G06FE	\$ -20	+/-10	-0.1	45000	-	12000	8000	-	-	-	11	12	0.1	0.5	0.1	
	N-ch + SBD	SSM5H06FE	\$ 20	+/-10	0.1	15000	-	4000	3000	-	-	-	9.3	12	0.1	0.5	0.1	
UFV	P-ch + SBD	SSM5G02TU	\$ -12	+/-12	-1	-	-	240	160	-	-	-	310	12	0.5	0.43	0.5	
		SSM5G09TU	\$ -12	+/-8	-1.5	-	-	200	130	-	-	-	550	12	0.5	0.43	0.5	
		SSM5G11TU	\$ -30	+/-20	-1.4	-	-	-	403	-	-	226	120	30 (¥)	0.7 (¥¥)	0.44	0.7 (¥¥)	
	N-ch + SBD	SSM5H16TU	\$ 30	+/-12	1.9	-	296	177	133	-	-	-	123	30	0.8	0.55	0.8	
	N-ch + Switching Diode	SSM5H90ATU	\$ 20	+/-10	2.4	-	-	89	65	-	-	-	200	80	0.1	1.2	0.1	
UDFN6	P-ch + SBD	SSM6G18NU	\$ -20	+/-8	-2	261	185	143	-	112	-	-	270	30	1	0.58	1	
	N-ch + SBD	SSM6H19NU	\$ 40	+/-12	2	-	390	238	208 (@3.6V) 201 (@4.2V)	198	-	185 (@8V)	130	40	0.5	0.57	0.5	

\$ With protection Zener diode between gate and source, ¥ V<sub>RRM</sub>, ¥¥ I<sub>F(AV)</sub>

## 4. Part Naming Conventions

### Small Signal MOSFET SSM / XSM Series

Ex.) SSM 3 K 329 \_ R  
 ① ② ③ ④ ⑤ ⑥

- |  |   |        |                    |       |        |  |         |  |         |  |         |  |         |  |          |  |         |  |         |       |           |  |          |  |             |  |            |  |                 |  |            |  |           |  |            |  |         |  |  |  |         |  |  |  |         |  |  |  |                    |  |  |  |                 |  |  |        |             |  |  |  |                 |  |  |  |                 |  |  |        |             |  |  |  |                 |
|--|---|--------|--------------------|-------|--------|--|---------|--|---------|--|---------|--|---------|--|----------|--|---------|--|---------|-------|-----------|--|----------|--|-------------|--|------------|--|-----------------|--|------------|--|-----------|--|------------|--|---------|--|--|--|---------|--|--|--|---------|--|--|--|--------------------|--|--|--|-----------------|--|--|--------|-------------|--|--|--|-----------------|--|--|--|-----------------|--|--|--------|-------------|--|--|--|-----------------|
| <p>① Small-Signal MOSFET<br/>         SSM: Initial of "Small-Signal MOSFET"<br/>         XSM: Initial of "Automotive Small-Signal MOSFET"</p> <p>② Pin count</p> <p>③ Polarity and internal configuration<br/>         K: N-channel, single<br/>         J: P-channel, single<br/>         N: N-channel, dual<br/>         P: P-channel, dual<br/>         L: N-channel and P-channel (dual)<br/>         E: N-channel and P-channel (pre-wired as a load switch)<br/>         H: N-channel and SBD (or Switching diode)<br/>         G: P-channel and SBD</p> | <p>④ Serial number of the products</p> <p>⑤ There may be a symbol that indicates chip change etc.</p> <p>⑥ Package</p> <table border="0"> <tr> <td>3-pin</td> <td>F: S-Mini</td> <td>5-pin</td> <td>F: SMV</td> </tr> <tr> <td></td> <td>FU: USM</td> <td></td> <td>FU: USV</td> </tr> <tr> <td></td> <td>FS: SSM</td> <td></td> <td>FE: ESV</td> </tr> <tr> <td></td> <td>FV: VESM</td> <td></td> <td>TU: UFV</td> </tr> <tr> <td></td> <td>TU: UFM</td> <td>6-pin</td> <td>G: WCSP6C</td> </tr> <tr> <td></td> <td>CT: CST3</td> <td></td> <td>L: Chip LGA</td> </tr> <tr> <td></td> <td>CTB: CST3B</td> <td></td> <td>(TCSP6A-172101)</td> </tr> <tr> <td></td> <td>CTC: CST3C</td> <td></td> <td>R: TSOP6F</td> </tr> <tr> <td></td> <td>R: SOT-23F</td> <td></td> <td>FU: US6</td> </tr> <tr> <td></td> <td></td> <td></td> <td>FE: ES6</td> </tr> <tr> <td></td> <td></td> <td></td> <td>TU: UF6</td> </tr> <tr> <td></td> <td></td> <td></td> <td>NU: UDFN6 / UDFN6B</td> </tr> <tr> <td></td> <td></td> <td></td> <td>NW: DFN2020(WF)</td> </tr> <tr> <td></td> <td></td> <td>10-pin</td> <td>L: Chip LGA</td> </tr> <tr> <td></td> <td></td> <td></td> <td>(TCSPAC-153001)</td> </tr> <tr> <td></td> <td></td> <td></td> <td>(TCSPAG-341501)</td> </tr> <tr> <td></td> <td></td> <td>14-pin</td> <td>L: Chip LGA</td> </tr> <tr> <td></td> <td></td> <td></td> <td>(TCSPED-302701)</td> </tr> </table> | 3-pin  | F: S-Mini          | 5-pin | F: SMV |  | FU: USM |  | FU: USV |  | FS: SSM |  | FE: ESV |  | FV: VESM |  | TU: UFV |  | TU: UFM | 6-pin | G: WCSP6C |  | CT: CST3 |  | L: Chip LGA |  | CTB: CST3B |  | (TCSP6A-172101) |  | CTC: CST3C |  | R: TSOP6F |  | R: SOT-23F |  | FU: US6 |  |  |  | FE: ES6 |  |  |  | TU: UF6 |  |  |  | NU: UDFN6 / UDFN6B |  |  |  | NW: DFN2020(WF) |  |  | 10-pin | L: Chip LGA |  |  |  | (TCSPAC-153001) |  |  |  | (TCSPAG-341501) |  |  | 14-pin | L: Chip LGA |  |  |  | (TCSPED-302701) |
| 3-pin  | F: S-Mini   | 5-pin  | F: SMV             |       |        |  |         |  |         |  |         |  |         |  |          |  |         |  |         |       |           |  |          |  |             |  |            |  |                 |  |            |  |           |  |            |  |         |  |  |  |         |  |  |  |         |  |  |  |                    |  |  |  |                 |  |  |        |             |  |  |  |                 |  |  |  |                 |  |  |        |             |  |  |  |                 |
|  | FU: USM   |        | FU: USV            |       |        |  |         |  |         |  |         |  |         |  |          |  |         |  |         |       |           |  |          |  |             |  |            |  |                 |  |            |  |           |  |            |  |         |  |  |  |         |  |  |  |         |  |  |  |                    |  |  |  |                 |  |  |        |             |  |  |  |                 |  |  |  |                 |  |  |        |             |  |  |  |                 |
|  | FS: SSM   |        | FE: ESV            |       |        |  |         |  |         |  |         |  |         |  |          |  |         |  |         |       |           |  |          |  |             |  |            |  |                 |  |            |  |           |  |            |  |         |  |  |  |         |  |  |  |         |  |  |  |                    |  |  |  |                 |  |  |        |             |  |  |  |                 |  |  |  |                 |  |  |        |             |  |  |  |                 |
|  | FV: VESM  |        | TU: UFV            |       |        |  |         |  |         |  |         |  |         |  |          |  |         |  |         |       |           |  |          |  |             |  |            |  |                 |  |            |  |           |  |            |  |         |  |  |  |         |  |  |  |         |  |  |  |                    |  |  |  |                 |  |  |        |             |  |  |  |                 |  |  |  |                 |  |  |        |             |  |  |  |                 |
|  | TU: UFM   | 6-pin  | G: WCSP6C          |       |        |  |         |  |         |  |         |  |         |  |          |  |         |  |         |       |           |  |          |  |             |  |            |  |                 |  |            |  |           |  |            |  |         |  |  |  |         |  |  |  |         |  |  |  |                    |  |  |  |                 |  |  |        |             |  |  |  |                 |  |  |  |                 |  |  |        |             |  |  |  |                 |
|  | CT: CST3  |        | L: Chip LGA        |       |        |  |         |  |         |  |         |  |         |  |          |  |         |  |         |       |           |  |          |  |             |  |            |  |                 |  |            |  |           |  |            |  |         |  |  |  |         |  |  |  |         |  |  |  |                    |  |  |  |                 |  |  |        |             |  |  |  |                 |  |  |  |                 |  |  |        |             |  |  |  |                 |
|  | CTB: CST3B  |        | (TCSP6A-172101)    |       |        |  |         |  |         |  |         |  |         |  |          |  |         |  |         |       |           |  |          |  |             |  |            |  |                 |  |            |  |           |  |            |  |         |  |  |  |         |  |  |  |         |  |  |  |                    |  |  |  |                 |  |  |        |             |  |  |  |                 |  |  |  |                 |  |  |        |             |  |  |  |                 |
|  | CTC: CST3C  |        | R: TSOP6F          |       |        |  |         |  |         |  |         |  |         |  |          |  |         |  |         |       |           |  |          |  |             |  |            |  |                 |  |            |  |           |  |            |  |         |  |  |  |         |  |  |  |         |  |  |  |                    |  |  |  |                 |  |  |        |             |  |  |  |                 |  |  |  |                 |  |  |        |             |  |  |  |                 |
|  | R: SOT-23F  |        | FU: US6            |       |        |  |         |  |         |  |         |  |         |  |          |  |         |  |         |       |           |  |          |  |             |  |            |  |                 |  |            |  |           |  |            |  |         |  |  |  |         |  |  |  |         |  |  |  |                    |  |  |  |                 |  |  |        |             |  |  |  |                 |  |  |  |                 |  |  |        |             |  |  |  |                 |
|  |   |        | FE: ES6            |       |        |  |         |  |         |  |         |  |         |  |          |  |         |  |         |       |           |  |          |  |             |  |            |  |                 |  |            |  |           |  |            |  |         |  |  |  |         |  |  |  |         |  |  |  |                    |  |  |  |                 |  |  |        |             |  |  |  |                 |  |  |  |                 |  |  |        |             |  |  |  |                 |
|  |   |        | TU: UF6            |       |        |  |         |  |         |  |         |  |         |  |          |  |         |  |         |       |           |  |          |  |             |  |            |  |                 |  |            |  |           |  |            |  |         |  |  |  |         |  |  |  |         |  |  |  |                    |  |  |  |                 |  |  |        |             |  |  |  |                 |  |  |  |                 |  |  |        |             |  |  |  |                 |
|  |   |        | NU: UDFN6 / UDFN6B |       |        |  |         |  |         |  |         |  |         |  |          |  |         |  |         |       |           |  |          |  |             |  |            |  |                 |  |            |  |           |  |            |  |         |  |  |  |         |  |  |  |         |  |  |  |                    |  |  |  |                 |  |  |        |             |  |  |  |                 |  |  |  |                 |  |  |        |             |  |  |  |                 |
|  |   |        | NW: DFN2020(WF)    |       |        |  |         |  |         |  |         |  |         |  |          |  |         |  |         |       |           |  |          |  |             |  |            |  |                 |  |            |  |           |  |            |  |         |  |  |  |         |  |  |  |         |  |  |  |                    |  |  |  |                 |  |  |        |             |  |  |  |                 |  |  |  |                 |  |  |        |             |  |  |  |                 |
|  |   | 10-pin | L: Chip LGA        |       |        |  |         |  |         |  |         |  |         |  |          |  |         |  |         |       |           |  |          |  |             |  |            |  |                 |  |            |  |           |  |            |  |         |  |  |  |         |  |  |  |         |  |  |  |                    |  |  |  |                 |  |  |        |             |  |  |  |                 |  |  |  |                 |  |  |        |             |  |  |  |                 |
|  |   |        | (TCSPAC-153001)    |       |        |  |         |  |         |  |         |  |         |  |          |  |         |  |         |       |           |  |          |  |             |  |            |  |                 |  |            |  |           |  |            |  |         |  |  |  |         |  |  |  |         |  |  |  |                    |  |  |  |                 |  |  |        |             |  |  |  |                 |  |  |  |                 |  |  |        |             |  |  |  |                 |
|  |   |        | (TCSPAG-341501)    |       |        |  |         |  |         |  |         |  |         |  |          |  |         |  |         |       |           |  |          |  |             |  |            |  |                 |  |            |  |           |  |            |  |         |  |  |  |         |  |  |  |         |  |  |  |                    |  |  |  |                 |  |  |        |             |  |  |  |                 |  |  |  |                 |  |  |        |             |  |  |  |                 |
|  |   | 14-pin | L: Chip LGA        |       |        |  |         |  |         |  |         |  |         |  |          |  |         |  |         |       |           |  |          |  |             |  |            |  |                 |  |            |  |           |  |            |  |         |  |  |  |         |  |  |  |         |  |  |  |                    |  |  |  |                 |  |  |        |             |  |  |  |                 |  |  |  |                 |  |  |        |             |  |  |  |                 |
|  |   |        | (TCSPED-302701)    |       |        |  |         |  |         |  |         |  |         |  |          |  |         |  |         |       |           |  |          |  |             |  |            |  |                 |  |            |  |           |  |            |  |         |  |  |  |         |  |  |  |         |  |  |  |                    |  |  |  |                 |  |  |        |             |  |  |  |                 |  |  |  |                 |  |  |        |             |  |  |  |                 |

# 5. Device Packages

## Surface Mount Type (Lead Type)

VESM (SOT-723) (1.2 x 1.2)		SSM (SOT-416) (1.6 x 1.6)		UFM (SOT-323F) (2.0 x 2.1)	
Package dimension	unit: mm	Package dimension	unit: mm	Package dimension	unit: mm
Land pattern example	unit: mm	Land pattern example	unit: mm	Land pattern example	unit: mm
USM (SOT-323) (2.0 x 2.1)		SOT23 (SOT-23) (2.9 x 2.4)		SOT-23F (2.9 x 2.4)	
Package dimension	unit: mm	Package dimension	unit: mm	Package dimension	unit: mm
Land pattern example	unit: mm	Land pattern example	unit: mm	Land pattern example	unit: mm
S-Mini (SOT-346) (2.9 x 2.5)		ESV (SOT-553) (1.6 x 1.6)		UFV (SOT-353F) (2.0 x 2.1)	
Package dimension	unit: mm	Package dimension	unit: mm	Package dimension	unit: mm
Land pattern example	unit: mm	Land pattern example	unit: mm	Land pattern example	unit: mm

USV (SOT-353) (2.0 x 2.1)	SMV (SOT-25) (2.9 x 2.8)	ES6 (SOT-563) (1.6 x 1.6)
Package dimension unit: mm 	Package dimension unit: mm 	Package dimension unit: mm 
Land pattern example unit: mm 	Land pattern example unit: mm 	Land pattern example unit: mm 

UF6 (SOT-363F) (2.0 x 2.1)	US6 (SOT-363) (2.0 x 2.1)	TSOP6F (2.9 x 2.8)
Package dimension unit: mm 	Package dimension unit: mm 	Package dimension unit: mm 
Land pattern example unit: mm 	Land pattern example unit: mm 	Land pattern example unit: mm 

## Surface Mount Type (Leadless Type)

CST3 (SOT-883) (1.0 x 0.6)	CST3C (0.8 x 0.6)	UDFN6 (SOT-1118) (2.0 x 2.0)
Package dimension unit: mm 	Package dimension unit: mm 	Package dimension unit: mm 
Land pattern example unit: mm 	Land pattern example unit: mm 	Land pattern example unit: mm 



<p><b>UDFN6B (SOT-1220) (2.0 x 2.0)</b></p> <p>Package dimension unit: mm</p> <p>Bottom View</p>	<p><b>WCSP6C (1.5 x 1.0)</b></p> <p>Package dimension unit: mm</p> <p>Bottom View</p>	<p><b>DFN2020(WF) (2.0 x 2.0)</b></p> <p>Package dimension unit: mm</p> <p>Bottom View</p>
<p>Land pattern example unit: mm</p>	<p>Land pattern example unit: mm</p>	<p>Land pattern example unit: mm</p>

<p><b>TCSP6A-172101 (2.14 x 1.67)</b></p> <p>Package dimension unit: mm</p> <p>Bottom View</p>	<p><b>TCSPAC-153001 (2.98 x 1.49)</b></p> <p>Package dimension unit: mm</p> <p>Bottom View</p>	<p><b>TCSPED-302701 (3.0 x 2.74)</b></p> <p>Package dimension unit: mm</p> <p>Bottom View</p>
<p>Land pattern example unit: mm</p>	<p>Land pattern example unit: mm</p>	<p>Land pattern example unit: mm</p>

<p><b>TCSPAG-341501 (3.37 x 1.47)</b></p> <p>Package dimension unit: mm</p> <p>Bottom View</p>
<p>Land pattern example unit: mm</p>

# II Power MOSFETs

## 1. Low-Voltage MOSFET Series

TSON Advance (3.3 x 3.3)



Circuit Configuration	Part Number	Absolute Maximum Ratings			R <sub>DS(ON)</sub> max (mΩ)									Q <sub>g</sub> typ. (nC)		C <sub>iss</sub> typ. (pF)	Remark
		V <sub>DS</sub> (V)	V <sub>GS</sub> (V)	I <sub>D</sub> (A)	V <sub>GS</sub>   = 10V	V <sub>GS</sub>   = 8V	V <sub>GS</sub>   = 6.5V	V <sub>GS</sub>   = 6V	V <sub>GS</sub>   = 4.5V	V <sub>GS</sub>   = 2.5V	V <sub>GS</sub>   = 2V	V <sub>GS</sub>   = 1.8V	V <sub>GS</sub>   = 10V	V <sub>GS</sub>   = 4.5V			
N-ch Note(1)	TPN11003NL	30	+/-20	31 <sup>SL</sup>	11	-	-	-	16	-	-	-	7.5	3.3	510	U-MOSVIII-H	
	TPN8R903NL	30	+/-20	37 <sup>SL</sup>	8.9	-	-	-	12.7	-	-	-	9.8	4.4	630	U-MOSVIII-H	
	TPN6R003NL	30	+/-20	56 <sup>SL</sup>	6	-	-	-	8.3	-	-	-	17	8.2	1050	U-MOSVIII-H	
	TPN5R203PL	30	+/-20	76 <sup>SL</sup>	5.2	-	-	-	6.4	-	-	-	22	10	1520	U-MOSIX-H	
	TPN4R303NL	30	+/-20	63 <sup>SL</sup>	4.3	-	-	-	6.3	-	-	-	14.8	6.8	1110	U-MOSVIII-H	
	TPN2R903PL	30	+/-20	122 <sup>SL</sup>	2.9	-	-	-	4.1	-	-	-	26	12	1780	U-MOSIX-H	
	TPN2R703NL	30	+/-20	90 <sup>SL</sup>	2.7	-	-	-	4.1	-	-	-	21	9.5	1600	U-MOSVIII-H	
	TPN1R603PL	30	+/-20	188 <sup>SL</sup>	1.6	-	-	-	2.5	-	-	-	41	20	2970	U-MOSIX-H	
	TPN7R504PL	40	+/-20	68 <sup>SL</sup>	7.5	-	-	-	10	-	-	-	24	12	1570	U-MOSIX-H	
	TPN3R704PL	40	+/-20	92 <sup>SL</sup>	3.7	-	-	-	6	-	-	-	27	13.3	1910	U-MOSIX-H	
	TPN2R304PL	40	+/-20	100 <sup>SL</sup>	2.3	-	-	-	4	-	-	-	41	19.4	2750	U-MOSIX-H	
	TPN2R805PL	45	+/-20	139 <sup>SL</sup>	2.8	-	-	-	5	-	-	-	39	19	2450	U-MOSIX-H	
	TPN22006NH	60	+/-20	21 <sup>SL</sup>	22	-	64	-	-	-	-	-	12	-	710	U-MOSVIII-H	
	TPN14006NH	60	+/-20	33 <sup>SL</sup>	14	-	41	-	-	-	-	-	15	-	1000	U-MOSVIII-H	
	TPN11006PL	60	+/-20	54 <sup>SL</sup>	11.4	-	-	-	18.1	-	-	-	17	9	1250	U-MOSIX-H	
	TPN11006NL	60	+/-20	37 <sup>SL</sup>	11.4	-	-	-	17	-	-	-	23	11.2	1500	U-MOSVIII-H	
	TPN7R506NH	60	+/-20	53 <sup>SL</sup>	7.5	-	16	-	-	-	-	-	22	-	1410	U-MOSVIII-H	
	TPN7R006PL	60	+/-20	76 <sup>SL</sup>	7	-	-	-	13.5	-	-	-	20	9.8	1440	U-MOSIX-H	
	TPN4R806PL	60	+/-20	105 <sup>SL</sup>	4.8	-	-	-	9.1	-	-	-	29	14	2130	U-MOSIX-H	
	TPN30008NH	80	+/-20	22 <sup>SL</sup>	30	-	-	-	-	-	-	-	11	-	710	U-MOSVIII-H	
	TPN19008QM	80	+/-20	38 <sup>SL</sup>	19	-	-	28	-	-	-	-	16	9.7 (@6V)	1020	U-MOSX-H	
	TPN13008NH	80	+/-20	40 <sup>SL</sup>	13.3	-	-	-	-	-	-	-	18	-	1230	U-MOSVIII-H	
	TPN12008QM	80	+/-20	60 <sup>SL</sup>	12.3	-	-	17.7	-	-	-	-	22	13.9 (@6V)	1280	U-MOSX-H	
	TPN8R408QM	80	+/-20	77 <sup>SL</sup>	8.4	-	-	12.4	-	-	-	-	28	17 (@6V)	1750	U-MOSX-H	
	TPN3300ANH	100	+/-20	21 <sup>SL</sup>	33	-	-	-	-	-	-	-	11	-	680	U-MOSVIII-H	
	TPN1600ANH	100	+/-20	36 <sup>SL</sup>	16	-	-	-	-	-	-	-	19	-	1230	U-MOSVIII-H	
TPN1200APL	100	+/-20	66 <sup>SL</sup>	11.5	-	-	-	20	-	-	-	24	12	1425	U-MOSIX-H		
TPN5900CNH	150	+/-20	18 <sup>SL</sup>	59	-	-	-	-	-	-	-	7	-	460	U-MOSVIII-H		
TPN4800CQH	150	+/-20	29 <sup>SL</sup>	48	59	-	-	-	-	-	-	11	9 (@8V)	800	U-MOSX-H		
TPN1110ENH	200	+/-20	13 <sup>SL</sup>	114	-	-	-	-	-	-	-	7	-	460	U-MOSVIII-H		
TPN2010FNH	250	+/-20	9.9 <sup>SL</sup>	198	-	-	-	-	-	-	-	7	-	460	U-MOSVIII-H		
N-ch	TPN6R303NC	30	+/-20	43 <sup>SL</sup>	6.3	-	-	-	8.4	-	-	-	24	-	1370	U-MOSVIII	
	TPN4R203NC	30	+/-20	53 <sup>SL</sup>	4.2	-	-	-	6.4	-	-	-	24	-	1370	U-MOSVIII	
	TPN2R203NC	30	+/-20	100 <sup>SL</sup>	2.2	-	-	-	3.6	-	-	-	34	-	2230	U-MOSVIII	
P-ch	TPCC8136	-20	+/-12	-9.4	-	-	-	-	16	22	37	60	-	36 (@5V)	2350	U-MOSVI	
	TPCC8137	-20	+/-12	-13	-	-	-	-	10	16	30	52	-	43 (@5V)	2990	U-MOSVI	
	TPCC8138	-20	+/-12	-18	-	-	-	-	7.5	11	21	42	-	63 (@5V)	4165	U-MOSVI	
	TPN4R712MD	-20	+/-12	-36	-	-	-	-	4.7	8.1	-	-	-	65 (@5V)	4300	U-MOSVI	
	TPCC8131	-30	+20/-25	-10	17.6	-	-	-	23	-	-	-	-	40	-	1700	U-MOSVI
	TPCC8104	-30	+20/-25	-20	8.8	-	-	-	12.4	-	-	-	-	58	-	2260	U-MOSVI
TPCC8105	-30	+20/-25	-23	7.8	-	-	-	10.4	-	-	-	-	76	-	3240	U-MOSVI	

§ With protection Zener diode between gate and source, <sup>SL</sup> I<sub>D(DC)</sub> (Silicon Limit)  
 Note(1) : High-speed switching type



## SOP-8 (5 x 6)

Circuit Configuration	Part Number	Absolute Maximum Ratings			R <sub>DS(ON)</sub> max (mΩ)		Q <sub>g</sub> typ. (nC)		C <sub>iss</sub> typ. (pF)	Remark
		V <sub>DSS</sub> (V)	V <sub>GSS</sub> (V)	I <sub>D</sub> (A)	V <sub>GS</sub>   = 10V	V <sub>GS</sub>   = 4.5V	V <sub>GS</sub>   = 10V	V <sub>GS</sub>   = 4.5V		
N-ch Note(1)	TP89R103NL	30	+/-20	15 <sup>SL</sup>	9.1	12.9	9.8	4.4	630	U-MOSVIII-H
	TP86R203NL	30	+/-20	19 <sup>SL</sup>	6.2	8.5	17	8.2	1050	U-MOSVIII-H
P-ch	TPC8129	-30	+20/-25	-9	22	28	39	-	1650	U-MOSVI
	TPC8125	-30	+20/-25	-10	13	17	64	-	2580	U-MOSVI
	TPC8134	-40	+20/-25	-5	52	66	20	-	890	U-MOSVI
	TPC8132	-40	+20/-25	-7	25	33	34	-	1580	U-MOSVI
	TPC8133	-40	+20/-25	-9	15	18	64	-	2900	U-MOSVI



## SOP Advance (5 x 6)

Circuit Configuration	Part Number	Absolute Maximum Ratings			R <sub>DS(ON)</sub> max (mΩ)						Q <sub>g</sub> typ. (nC)		C <sub>iss</sub> typ. (pF)	Remark
		V <sub>DSS</sub> (V)	V <sub>GSS</sub> (V)	I <sub>D</sub> (A)	V <sub>GS</sub>   = 10V	V <sub>GS</sub>   = 8V	V <sub>GS</sub>   = 6.5V	V <sub>GS</sub>   = 6V	V <sub>GS</sub>   = 4.5V	V <sub>GS</sub>   = 2.5V	V <sub>GS</sub>   = 10V	V <sub>GS</sub>   = 4.5V		
N-ch Note(1)	TPH11003NL	30	+/-20	32 <sup>SL</sup>	11	-	-	-	16	-	7.5	3.3	510	U-MOSVIII-H
	TPH8R903NL	30	+/-20	38 <sup>SL</sup>	8.9	-	-	-	12.7	-	9.8	4.4	630	U-MOSVIII-H
	TPH6R003NL	30	+/-20	57 <sup>SL</sup>	6	-	-	-	8.3	-	17	8.2	1050	U-MOSVIII-H
	TPH4R803PL	30	+/-20	90 <sup>SL</sup>	4.8	-	-	-	6.2	-	22	10	1520	U-MOSIX-H
	TPH4R003NL	30	+/-20	68 <sup>SL</sup>	4	-	-	-	6.2	-	14.8	6.8	1110	U-MOSVIII-H
	TPH3R203NL	30	+/-20	84 <sup>SL</sup>	3.2	-	-	-	4.7	-	21	9.5	1600	U-MOSVIII-H
	TPH3R003PL	30	+/-20	134 <sup>SL</sup>	3	-	-	-	4.2	-	50	24	2940	U-MOSIX-H
	TPH2R903PL	30	+/-20	124 <sup>SL</sup>	2.9	-	-	-	4.1	-	26	12	1780	U-MOSIX-H
	TPH2R003PL	30	+/-20	180 <sup>SL</sup>	2	-	-	-	2.6	-	86	41	4930	U-MOSIX-H
	TPH1R403NL	¥ 30	+/-20	150 <sup>SL</sup>	1.4	-	-	-	2.1	-	46	20	3400	U-MOSVIII-H
	TPHR9203PL	¥ 30	+/-20	280 <sup>SL</sup>	0.92	-	-	-	1.29	-	81	38	5800	U-MOSIX-H
	TPHR9003NL	¥ 30	+/-20	220 <sup>SL</sup>	0.9	-	-	-	1.4	-	74	32	5300	U-MOSVIII-H
	TPHR6503PL	¥ 30	+/-20	393 <sup>SL</sup>	0.65	-	-	-	0.89	-	110	52	7700	U-MOSIX-H
	TPH7R204PL	40	+/-20	72 <sup>SL</sup>	7.2	-	-	-	9.7	-	24	12	1570	U-MOSIX-H
	TPH6R004PL	40	+/-20	87 <sup>SL</sup>	6	-	-	-	8.4	-	30	15	2100	U-MOSIX-H
	TPH3R704PL	40	+/-20	92	3.7	-	-	-	6	-	27	13.3	1910	U-MOSIX-H
	TPH3R704PC	40	+/-20	118 <sup>SL</sup>	3.7	-	-	-	5.8	-	47	23	2780	U-MOSIX-H
	TPH2R104PL	40	+/-20	180 <sup>SL</sup>	2.1	-	-	-	3.1	-	78	37	4790	U-MOSIX-H
	TPH1R204PL	¥ 40	+/-20	246 <sup>SL</sup>	1.24	-	-	-	2.1	-	74	34	5500	U-MOSIX-H
	TPH1R204PB	40	+/-20	240 <sup>SL</sup>	1.2	-	-	1.96	-	-	62	-	4400	U-MOSIX-H (Low Spike)
	TPHR8504PL	¥ 40	+/-20	340 <sup>SL</sup>	0.85	-	-	-	1.4	-	103	49	7370	U-MOSIX-H
	TPHR7404PU	40	+/-20	400 <sup>SL</sup>	0.74	-	-	1.17	-	-	98	62 (@6V)	6960	U-MOSIX-H (Low Spike)
	TPH2R805PL	45	+/-20	150 <sup>SL</sup>	2.8	-	-	-	3.9	-	73	37	3980	U-MOSIX-H
	TPH1R405PL	45	+/-20	232 <sup>SL</sup>	1.4	-	-	-	2.3	-	74	36	4830	U-MOSIX-H
	TPH1R005PL	¥ 45	+/-20	280 <sup>SL</sup>	1.04	-	-	-	1.7	-	122	59	7700	U-MOSIX-H
	TPH14006NH	60	+/-20	34 <sup>SL</sup>	14	-	33	-	-	-	16	-	1000	U-MOSVIII-H

<sup>SL</sup> I<sub>D</sub>(DC) (Silicon Limit)

¥ The package can be selected according to your preference. For details, please contact your TOSHIBA sales representative.

Note(1) : High-speed switching type

# SOP Advance (5 x 6)



Circuit Configuration	Part Number	Absolute Maximum Ratings			R <sub>DS(ON)</sub> max (mΩ)								Q <sub>g</sub> typ. (nC)		C <sub>iss</sub> typ. (pF)	Remark
		V <sub>DSS</sub> (V)	V <sub>GSS</sub> (V)	I <sub>b</sub> (A)	V <sub>GSL</sub>   = 10 V	V <sub>GSL</sub>   = 8 V	V <sub>GSL</sub>   = 6.5 V	V <sub>GSL</sub>   = 6 V	V <sub>GSL</sub>   = 4.5 V	V <sub>GSL</sub>   = 2.5 V	V <sub>GSL</sub>   = 10 V	V <sub>GSL</sub>   = 4.5 V				
N-ch Note(1)	TPH11006NL	60	+/-20	40 <sup>SL</sup>	11.4	-	-	-	17	-	23	11.2	1500	U-MOSVIII-H		
	TPH9R506PL	60	+/-20	68 <sup>SL</sup>	9.5	-	-	-	15	-	21	11	1470	U-MOSIX-H		
	TPH7R506NH	60	+/-20	55 <sup>SL</sup>	7.5	-	19	-	-	-	31	-	1785	U-MOSVIII-H		
	TPH7R006PL	60	+/-20	79 <sup>SL</sup>	7	-	-	-	13.5	-	22	11	1440	U-MOSIX-H		
	TPH5R906NH	60	+/-20	71 <sup>SL</sup>	5.9	-	14	-	-	-	38	-	2340	U-MOSVIII-H		
	TPH4R606NH	60	+/-20	85 <sup>SL</sup>	4.6	-	11	-	-	-	49	-	3050	U-MOSVIII-H		
	TPH3R506PL	60	+/-20	135 <sup>SL</sup>	3.5	-	-	-	6.7	-	55	27	3400	U-MOSIX-H		
	TPH2R506PL	¥	60	+/-20	160 <sup>SL</sup>	2.5	-	-	-	4.4	-	60	32	4180	U-MOSIX-H	
	TPH2R306NH	¥	60	+/-20	130 <sup>SL</sup>	2.3	-	4.7	-	-	-	72	-	4700	U-MOSVIII-H	
	TPH1R306PL	¥	60	+/-20	260 <sup>SL</sup>	1.34	-	-	-	2.3	-	91	44	6250	U-MOSIX-H	
	TPH1R306P1		60	+/-20	260 <sup>SL</sup>	1.28	-	-	-	2.3	-	91	44	6250	U-MOSIX-H (Low Spike)	
	TPH2R608NH		75	+/-20	168 <sup>SL</sup>	2.6	-	-	-	-	-	72	-	4600	U-MOSVIII-H	
	TPH12008NH		80	+/-20	44 <sup>SL</sup>	12.3	-	-	-	-	-	22	-	1490	U-MOSVIII-H	
	TPH8R008NH		80	+/-20	63 <sup>SL</sup>	8	-	-	-	-	-	35	-	2300	U-MOSVIII-H	
	TPH4R008NH	¥	80	+/-20	100 <sup>SL</sup>	4	-	-	-	-	-	59	-	4100	U-MOSVIII-H	
	TPH2R408QM	¥	80	+/-20	200 <sup>SL</sup>	2.43	-	-	3.5	-	-	87	55 (@6V)	5870	U-MOSX-H	
	TPH1400ANH		100	+/-20	42 <sup>SL</sup>	13.6	-	-	-	-	-	22	-	1440	U-MOSVIII-H	
	TPH8R80ANH		100	+/-20	59 <sup>SL</sup>	8.8	-	-	-	-	-	33	-	2180	U-MOSVIII-H	
	TPH6R30ANL	§	100	+/-20	66 <sup>SL</sup>	6.3	-	-	-	10.3	-	55	27	3300	U-MOSVIII-H	
	TPH5R60APL		100	+/-20	110 <sup>SL</sup>	5.6	-	-	-	9.5	-	52	26	3300	U-MOSIX-H	
	TPH4R50ANH	¥	100	+/-20	93 <sup>SL</sup>	4.5	-	-	-	-	-	58	-	4000	U-MOSVIII-H	
	TPH4R10ANL		100	+/-20	92 <sup>SL</sup>	4.1	-	-	-	6.6	-	75	37	4850	U-MOSVIII-H	
	TPH3R70APL	¥	100	+/-20	150 <sup>SL</sup>	3.7	-	-	-	6.2	-	67	33	4850	U-MOSIX-H	
	TPH5900CNH		150	+/-20	18 <sup>SL</sup>	59	-	-	-	-	-	7	-	460	U-MOSVIII-H	
	TPH3300CNH		150	+/-20	29 <sup>SL</sup>	33	-	-	-	-	-	10.6	-	810	U-MOSVIII-H	
	TPH1500CNH	¥	150	+/-20	50 <sup>SL</sup>	15.4	-	-	-	-	-	22	-	1700	U-MOSVIII-H	
	TPH9R00CQH	¥	150	+/-20	108 <sup>SL</sup>	9	11	-	-	-	-	44	36 (@8V)	3500	U-MOSX-H	
TPH1110ENH		200	+/-20	13 <sup>SL</sup>	114	-	-	-	-	-	7	-	460	U-MOSVIII-H		
TPH6400ENH		200	+/-20	21 <sup>SL</sup>	64	-	-	-	-	-	11.2	-	810	U-MOSVIII-H		
TPH2900ENH		200	+/-20	36 <sup>SL</sup>	29	-	-	-	-	-	22	-	1700	U-MOSVIII-H		
TPH2010FNH		250	+/-20	10 <sup>SL</sup>	198	-	-	-	-	-	7	-	460	U-MOSVIII-H		
TPH1110FNH		250	+/-20	15 <sup>SL</sup>	112	-	-	-	-	-	11	-	810	U-MOSVIII-H		
TPH5200FNH		250	+/-20	27 <sup>SL</sup>	52	-	-	-	-	-	22	-	1700	U-MOSVIII-H		
N-ch	TPHR9003NC	30	+/-20	220 <sup>SL</sup>	0.9	-	-	-	1.4	-	75	32	5300	U-MOSVIII		
P-ch	TPH1R712MD	-20	+/-12	-60	-	-	-	-	1.7	2.7	-	182 (@5V)	10900	U-MOSVI		
	TPCA8131	-30	+20/-25	-13	17	-	-	-	22	-	40	-	1700	U-MOSVI		
	TPCA8128	-30	+20/-25	-34	4.8	-	-	-	6.7	-	115	-	4800	U-MOSVI		
	TPCA8120	-30	+20/-25	-45	3	-	-	-	4	-	190	-	7420	U-MOSVI		

<sup>SL</sup> I<sub>b(DC)</sub> (Silicon Limit)

§ With protection Zener diode between gate and source

¥ The package can be selected according to your preference. For details, please contact your TOSHIBA sales representative.

Note(1) : High-speed switching type



# SOP Advance (N) (4.9 x 6.1)

Circuit Configuration	Part Number	Absolute Maximum Ratings			R <sub>DS(ON)</sub> max (mΩ)						Q <sub>g</sub> typ. (nC)		C <sub>iss</sub> typ. (pF)	R <sub>th</sub> (ch-c) max (°C/W)	Remark
		V <sub>DS</sub> (V)	V <sub>CESS</sub> (V)	I <sub>D</sub> (A)	V <sub>GS</sub>   = 10V	V <sub>GS</sub>   = 8V	V <sub>GS</sub>   = 6.5V	V <sub>GS</sub>   = 6V	V <sub>GS</sub>   = 4.5V	V <sub>GS</sub>   = 2.5V	V <sub>GS</sub>   = 10V	V <sub>GS</sub>   = 4.5V			
N-ch Note(1)	TPH1R403NL1	30	+/-20	230 <sup>SL</sup>	1.4	-	-	-	2.1	-	46	20	3400	0.88	U-MOSVIII-H
	TPH1R403NL ¥	30	+/-20	150 <sup>SL</sup>	1.4	-	-	-	2.1	-	46	20	3400	1.95	U-MOSVIII-H
	TPHR9203PL1	30	+/-20	320 <sup>SL</sup>	0.92	-	-	-	1.29	-	81	38	5800	0.88	U-MOSIX-H
	TPHR9203PL ¥	30	+/-20	280 <sup>SL</sup>	0.92	-	-	-	1.29	-	81	38	5800	1.13	U-MOSIX-H
	TPHR9003NL1	30	+/-20	320 <sup>SL</sup>	0.9	-	-	-	1.4	-	74	32	5300	0.71	U-MOSVIII-H
	TPHR9003NL ¥	30	+/-20	220 <sup>SL</sup>	0.9	-	-	-	1.4	-	74	32	5300	1.6	U-MOSVIII-H
	TPHR6503PL1	30	+/-20	420 <sup>SL</sup>	0.65	-	-	-	0.89	-	110	52	7700	0.71	U-MOSIX-H
	TPHR6503PL ¥	30	+/-20	393 <sup>SL</sup>	0.65	-	-	-	0.89	-	110	52	7700	0.88	U-MOSIX-H
	TPH1R204PL1	40	+/-20	270 <sup>SL</sup>	1.24	-	-	-	2.1	-	74	34	5500	0.88	U-MOSIX-H
	TPH1R204PL ¥	40	+/-20	246 <sup>SL</sup>	1.24	-	-	-	2.1	-	74	34	5500	1.13	U-MOSIX-H
	TPHR8504PL1	40	+/-20	370 <sup>SL</sup>	0.85	-	-	-	1.4	-	103	49	7370	0.71	U-MOSIX-H
	TPHR8504PL ¥	40	+/-20	340 <sup>SL</sup>	0.85	-	-	-	1.4	-	103	49	7370	0.88	U-MOSIX-H
	TPH1R005PL ¥	45	+/-20	280 <sup>SL</sup>	1.04	-	-	-	1.7	-	122	59	7700	0.88	U-MOSIX-H
	TPH2R506PL ¥	60	+/-20	160 <sup>SL</sup>	2.5	-	-	-	4.4	-	60	32	4180	1.13	U-MOSIX-H
	TPH2R306PL1	60	+/-20	190 <sup>SL</sup>	2.3	-	-	-	4.2	-	60	32	4180	0.88	U-MOSIX-H
	TPH2R306NH1	60	+/-20	190 <sup>SL</sup>	2.3	-	4.7	-	-	-	72	-	4700	0.71	U-MOSVIII-H
	TPH2R306NH ¥	60	+/-20	130 <sup>SL</sup>	2.3	-	4.7	-	-	-	72	-	4700	1.6	U-MOSVIII-H
	TPH1R306PL1	60	+/-20	280 <sup>SL</sup>	1.34	-	-	-	2.3	-	91	44	6250	0.71	U-MOSIX-H
	TPH1R306PL ¥	60	+/-20	260 <sup>SL</sup>	1.34	-	-	-	2.3	-	91	44	6250	0.88	U-MOSIX-H
	TPH8R808QM	80	+/-20	79 <sup>SL</sup>	8.8	-	-	12.5	-	-	26	16 (@6V)	1750	1.37	U-MOSX-H
	TPH6R008QM	80	+/-20	107 <sup>SL</sup>	6	-	-	8.4	-	-	38	30 (@6V)	2500	1.11	U-MOSX-H
	TPH4R008QM	80	+/-20	140 <sup>SL</sup>	4	-	-	5.6	-	-	57	35 (@6V)	3750	0.88	U-MOSX-H
	TPH4R008NH1	80	+/-20	146 <sup>SL</sup>	4	-	-	-	-	-	59	-	4100	0.71	U-MOSVIII-H
	TPH4R008NH ¥	80	+/-20	100 <sup>SL</sup>	4	-	-	-	-	-	59	-	4100	1.6	U-MOSVIII-H
	TPH3R008QM	80	+/-20	170 <sup>SL</sup>	3	-	-	4.3	-	-	71	44 (@6V)	5090	0.8	U-MOSX-H
	TPH2R408QM ¥	80	+/-20	200 <sup>SL</sup>	2.43	-	-	3.5	-	-	87	55 (@6V)	5870	0.71	U-MOSX-H
	TPH4R50ANH1	100	+/-20	138 <sup>SL</sup>	4.5	-	-	-	-	-	58	-	4000	0.71	U-MOSVIII-H
	TPH4R50ANH ¥	100	+/-20	93 <sup>SL</sup>	4.5	-	-	-	-	-	58	-	4000	1.6	U-MOSVIII-H
	TPH3R70APL1	100	+/-20	170 <sup>SL</sup>	3.7	-	-	-	6.2	-	67	33	4850	0.71	U-MOSIX-H
	TPH3R70APL ¥	100	+/-20	150 <sup>SL</sup>	3.7	-	-	-	6.2	-	67	33	4850	0.88	U-MOSIX-H
	TPH3R10AQM	100	+/-20	180 <sup>SL</sup>	3.1	-	-	6	-	-	83	53 (@6V)	5180	0.71	U-MOSX-H
	TPH1500CNH1	150	+/-20	74 <sup>SL</sup>	15.4	-	-	-	-	-	22	-	1700	0.71	U-MOSVIII-H
TPH1500CNH ¥	150	+/-20	50 <sup>SL</sup>	15.4	-	-	-	-	-	22	-	1700	1.6	U-MOSVIII-H	
TPH1400CQH	150	+/-20	77 <sup>SL</sup>	14.1	17.3	-	-	-	-	31	25 (@8V)	2400	0.88	U-MOSX-H	
TPH1400CQ5 &	150	+/-20	77 <sup>SL</sup>	14.1	17.3	-	-	-	-	31	25 (@8V)	2400	0.88	U-MOSX-H (HSD)	
TPH1100CQ5 &	150	+/-20	90 <sup>SL</sup>	11.1	13.6	-	-	-	-	38	31 (@8V)	2830	0.8	U-MOSX-H (HSD)	
TPH9R00CQH ¥	150	+/-20	108 <sup>SL</sup>	9	11	-	-	-	-	44	36 (@8V)	3500	0.71	U-MOSX-H	
TPH9R00CQ5 &	150	+/-20	108 <sup>SL</sup>	9	11	-	-	-	-	44	36 (@8V)	3500	0.71	U-MOSX-H (HSD)	

<sup>SL</sup> I<sub>D</sub>(DC) (Silicon Limit)

¥ The package can be selected according to your preference. For details, please contact your TOSHIBA sales representative.

Note(1) : High-speed switching type  
& High Speed Diode type

## DSOP Advance ( 5 x 6 )



Circuit Configuration	Part Number	Absolute Maximum Ratings			R <sub>DS(ON)</sub> max (mΩ)		Q <sub>g</sub> typ. (nC)		C <sub>iss</sub> typ. (pF)	Remark
		V <sub>DSS</sub> (V)	V <sub>GSS</sub> (V)	I <sub>D</sub> (A)	V <sub>GS</sub>   = 10 V	V <sub>GS</sub>   = 4.5 V	V <sub>GS</sub>   = 10 V	V <sub>GS</sub>   = 4.5 V		
N-ch Note(1)	TPWR8503NL	30	+/-20	300 <sup>SL</sup>	0.85	1.3	74	32	5300	U-MOSVIII-H
	TPWR6003PL	30	+/-20	412 <sup>SL</sup>	0.6	0.84	110	52	7700	U-MOSIX-H
	TPWR8004PL	40	+/-20	340 <sup>SL</sup>	0.8	1.35	103	49	7370	U-MOSIX-H
	TPW1R005PL	45	+/-20	300 <sup>SL</sup>	0.99	1.65	122	59	7700	U-MOSIX-H
	TPW1R306PL	60	+/-20	260 <sup>SL</sup>	1.29	2.3	91	44	6250	U-MOSIX-H
	TPW2R508NH	75	+/-20	170 <sup>SL</sup>	2.5	-	72	-	4600	U-MOSVIII-H
	TPWAR008NH	80	+/-20	116	4	-	59	-	4100	U-MOSVIII-H
	TPW4R50ANH	100	+/-20	92	4.5	-	58	-	4000	U-MOSVIII-H
	TPW3R70APL	100	+/-20	150 <sup>SL</sup>	3.7	6.2	67	33	4850	U-MOSIX-H
	TPW1500CNH	150	+/-20	50 <sup>SL</sup>	15.4	-	22	-	1700	U-MOSVIII-H
TPW2900ENH	200	+/-20	36 <sup>SL</sup>	29	-	22	-	1700	U-MOSVIII-H	
TPW5200FNH	250	+/-20	27 <sup>SL</sup>	52	-	22	-	1700	U-MOSVIII-H	

## DPAK



Circuit Configuration	Part Number	Absolute Maximum Ratings			R <sub>DS(ON)</sub> max (mΩ)			Q <sub>g</sub> typ. (nC)		C <sub>iss</sub> typ. (pF)	Remark
		V <sub>DSS</sub> (V)	V <sub>GSS</sub> (V)	I <sub>D</sub> (A)	V <sub>GS</sub>   = 10 V	V <sub>GS</sub>   = 6 V	V <sub>GS</sub>   = 4.5 V	V <sub>GS</sub>   = 10 V	V <sub>GS</sub>   = 4.5 V		
N-ch Note(1)	TK3R1P04PL	40	+/-20	130 <sup>SL</sup>	3.1	-	4.3	60	30	4670	U-MOSIX-H
	TK6R7P06PL	60	+/-20	74 <sup>SL</sup>	6.7	-	11.1	26	13	1990	U-MOSIX-H
	TK4R4P06PL	60	+/-20	106 <sup>SL</sup>	4.4	-	7.1	48.2	23.9	3280	U-MOSIX-H
	TK6R9P08QM	80	+/-20	83 <sup>SL</sup>	6.9	9.6	-	39	24 (@6 V)	2700	U-MOSX-H
	TK5R1P08QM	80	+/-20	105 <sup>SL</sup>	5.1	7	-	56	34 (@6 V)	3980	U-MOSX-H
	TK110P10PL	100	+/-20	60 <sup>SL</sup>	10.6	-	16	33	17	2040	U-MOSIX-H
	TK7R7P10PL	100	+/-20	79 <sup>SL</sup>	7.7	-	11.5	44	21	2800	U-MOSIX-H
P-ch	TJ15P04M3	-40	+/-20	-15	36	-	48	26	-	1100	U-MOSVI

<sup>SL</sup> I<sub>D(PC)</sub> (Silicon Limit)

Note(1) : High-speed switching type



# TO-220

Circuit Configuration	Part Number	Absolute Maximum Ratings			R <sub>DS(ON)</sub> max (mΩ)				Q <sub>g</sub> typ. (nC)		C <sub>iss</sub> typ. (pF)	Remark
		V <sub>DSS</sub> (V)	V <sub>GSS</sub> (V)	I <sub>D</sub> (A)	V <sub>GS</sub>   = 10 V	V <sub>GS</sub>   = 8 V	V <sub>GS</sub>   = 6 V	V <sub>GS</sub>   = 4.5 V	V <sub>GS</sub>   = 10 V	V <sub>GS</sub>   = 4.5 V		
N-ch Note(1)	TK3R1E04PL	40	+/-20	128 <sup>SL</sup>	3.1	-	-	3.8	63.4	29.7	4670	U-MOSIX-H
	TK30E06N1	60	+/-20	43 <sup>SL</sup>	15	-	-	-	16	-	1050	U-MOSVIII-H
	TK40E06N1	60	+/-20	60 <sup>SL</sup>	10.4	-	-	-	23	-	1700	U-MOSVIII-H
	TK8R2E06PL	60	+/-20	75 <sup>SL</sup>	8.2	-	-	11.4	28	15	1990	U-MOSIX-H
	TK58E06N1	60	+/-20	105 <sup>SL</sup>	5.4	-	-	-	46	-	3400	U-MOSVIII-H
	TK5R1E06PL	60	+/-20	98 <sup>SL</sup>	5.1	-	-	8.8	36	18	2380	U-MOSIX-H
	TK4R3E06PL	60	+/-20	106 <sup>SL</sup>	4.3	-	-	7.2	48.2	23.9	3280	U-MOSIX-H
	TK3R2E06PL	60	+/-20	160 <sup>SL</sup>	3.2	-	-	4.7	71	35	5000	U-MOSIX-H
	TK100E06N1	60	+/-20	263 <sup>SL</sup>	2.3	-	-	-	140	-	10500	U-MOSVIII-H
	TK7R0E08QM	80	+/-20	82 <sup>SL</sup>	7	-	9.7	-	39	24 (@6 V)	2700	U-MOSX-H
	TK5R3E08QM	80	+/-20	126 <sup>SL</sup>	5.3	-	7.3	-	55	33 (@6 V)	3980	U-MOSX-H
	TK3R3E08QM	80	+/-20	200 <sup>SL</sup>	3.3	-	4.2	-	110	67 (@6 V)	7670	U-MOSX-H
	TK2R4E08QM	80	+/-20	290 <sup>SL</sup>	2.44	-	3.2	-	178	109 (@6 V)	13000	U-MOSX-H
	TK22E10N1	100	+/-20	52 <sup>SL</sup>	13.8	-	-	-	28	-	1800	U-MOSVIII-H
	TK110E10PL	100	+/-20	64 <sup>SL</sup>	10.7	-	-	16	33	17	2040	U-MOSIX-H
	TK34E10N1	100	+/-20	75 <sup>SL</sup>	9.5	-	-	-	38	-	2600	U-MOSVIII-H
	TK40E10N1	100	+/-20	90 <sup>SL</sup>	8.2	-	-	-	49	-	3000	U-MOSVIII-H
	TK7R2E10PL	100	+/-20	94 <sup>SL</sup>	7.2	-	-	11	44	21	2800	U-MOSIX-H
	TK6R4E10PL	100	+/-20	112 <sup>SL</sup>	6.4	-	-	9.7	58	30	3455	U-MOSIX-H
	TK65E10N1	100	+/-20	148 <sup>SL</sup>	4.8	-	-	-	81	-	5400	U-MOSVIII-H
	TK3R9E10PL	100	+/-20	180 <sup>SL</sup>	3.9	-	-	5.8	96	49	6320	U-MOSIX-H
	TK100E10N1	100	+/-20	207 <sup>SL</sup>	3.4	-	-	-	140	-	8800	U-MOSVIII-H
	TK2R9E10PL	100	+/-20	240 <sup>SL</sup>	2.9	-	-	4.1	161	83	9500	U-MOSIX-H
	TK32E12N1	120	+/-20	60 <sup>SL</sup>	13.8	-	-	-	34	-	2000	U-MOSVIII-H
	TK42E12N1	120	+/-20	88 <sup>SL</sup>	9.4	-	-	-	52	-	3100	U-MOSVIII-H
	TK56E12N1	120	+/-20	112 <sup>SL</sup>	7	-	-	-	69	-	4200	U-MOSVIII-H
	TK72E12N1	120	+/-20	179 <sup>SL</sup>	4.4	-	-	-	130	-	8100	U-MOSVIII-H
	TK9R6E15Q5 ☆ &	150	+/-20	104 <sup>SL</sup>	9.6	11.5	-	-	50	40 (@8 V)	3690	U-MOSX-H (HSD)
	TK7R2E15Q5 ☆ &	150	+/-20	130 <sup>SL</sup>	7.2	8.7	-	-	66	54 (@8 V)	4970	U-MOSX-H (HSD)
	TK4R9E15Q5 ☆ &	150	+/-20	180 <sup>SL</sup>	4.9	5.9	-	-	96	78 (@8 V)	7820	U-MOSX-H (HSD)

<sup>SL</sup> I<sub>D</sub>(DC) (Silicon Limit)

☆ New Products, & High Speed Diode type

Note(1) : High-speed switching type

# TO-220SIS



Circuit Configuration	Part Number	Absolute Maximum Ratings			R <sub>DS(ON)</sub> max (mΩ)				Q <sub>g</sub> typ. (nC)		C <sub>iss</sub> typ. (pF)	Remark
		V <sub>DSS</sub> (V)	V <sub>GSS</sub> (V)	I <sub>D</sub> (A)	V <sub>GS</sub>   = 10 V	V <sub>GS</sub>   = 8 V	V <sub>GS</sub>   = 6 V	V <sub>GS</sub>   = 4.5 V	V <sub>GS</sub>   = 10 V	V <sub>GS</sub>   = 4.5 V		
N-ch Note(1)	TK3R1A04PL	40	+/-20	82	3.1	-	-	3.8	63.4	29.7	4670	U-MOSIX-H
	TK30A06N1	60	+/-20	43 <sup>SL</sup>	15	-	-	-	16	-	1050	U-MOSVIII-H
	TK40A06N1	60	+/-20	60 <sup>SL</sup>	10.4	-	-	-	23	-	1700	U-MOSVIII-H
	TK8R2A06PL	60	+/-20	50	8.2	-	-	11.4	28	15	1990	U-MOSIX-H
	TK58A06N1	60	+/-20	105 <sup>SL</sup>	5.4	-	-	-	46	-	3400	U-MOSVIII-H
	TK5R3A06PL	60	+/-20	62 <sup>SL</sup>	5.3	-	-	9.3	36	18	2380	U-MOSIX-H
	TK4R3A06PL	60	+/-20	68	4.3	-	-	7.2	48.2	23.9	3280	U-MOSIX-H
	TK3R3A06PL	60	+/-20	88 <sup>SL</sup>	3.3	-	-	4.9	71	35	5000	U-MOSIX-H
	TK100A06N1	60	+/-20	263 <sup>SL</sup>	2.7	-	-	-	140	-	10500	U-MOSVIII-H
	TK6R8A08QM	80	+/-20	58	6.8	-	9.5	-	39	23 (@6V)	2700	U-MOSX-H
	TK5R1A08QM	80	+/-20	71 <sup>SL</sup>	5.1	-	7.1	-	54	32 (@6V)	3980	U-MOSX-H
	TK3R2A08QM	80	+/-20	92	3.2	-	4.1	-	102	58 (@6V)	7670	U-MOSX-H
	TK2R4A08QM	80	+/-20	116 <sup>SL</sup>	2.44	-	3.1	-	179	102 (@6V)	13000	U-MOSX-H
	TK22A10N1	100	+/-20	52 <sup>SL</sup>	13.8	-	-	-	28	-	1800	U-MOSVIII-H
	TK110A10PL	100	+/-20	41 <sup>SL</sup>	10.8	-	-	16	33	17	2040	U-MOSIX-H
	TK34A10N1	100	+/-20	75 <sup>SL</sup>	9.5	-	-	-	38	-	2600	U-MOSVIII-H
	TK40A10N1	100	+/-20	90 <sup>SL</sup>	8.2	-	-	-	49	-	3000	U-MOSVIII-H
	TK7R4A10PL	100	+/-20	50	7.4	-	-	11.2	44	21	2800	U-MOSIX-H
	TK6R7A10PL	100	+/-20	56	6.7	-	-	10.1	58	30	3455	U-MOSIX-H
	TK65A10N1	100	+/-20	148 <sup>SL</sup>	4.8	-	-	-	81	-	5400	U-MOSVIII-H
	TK4R1A10PL	100	+/-20	85 <sup>SL</sup>	4.1	-	-	5.9	104	53	6320	U-MOSIX-H
	TK100A10N1	100	+/-20	207 <sup>SL</sup>	3.8	-	-	-	140	-	8800	U-MOSVIII-H
	TK3R2A10PL	100	+/-20	106 <sup>SL</sup>	3.2	-	-	4.3	161	83	9500	U-MOSIX-H
	TK32A12N1	120	+/-20	60 <sup>SL</sup>	13.8	-	-	-	34	-	2000	U-MOSVIII-H
	TK42A12N1	120	+/-20	88 <sup>SL</sup>	9.4	-	-	-	52	-	3100	U-MOSVIII-H
	TK56A12N1	120	+/-20	112 <sup>SL</sup>	7.5	-	-	-	69	-	4200	U-MOSVIII-H
	TK72A12N1	120	+/-20	179 <sup>SL</sup>	4.5	-	-	-	130	-	8100	U-MOSVIII-H
	TK9R7A15Q5 ☆ &	150	+/-20	49 <sup>SL</sup>	9.7	11.6	-	-	50	40 (@8V)	3690	U-MOSX-H (HSD)
	TK7R4A15Q5 ☆ &	150	+/-20	57 <sup>SL</sup>	7.4	8.8	-	-	66	54 (@8V)	4970	U-MOSX-H (HSD)
	TK5R0A15Q5 ☆ &	150	+/-20	76 <sup>SL</sup>	5	6	-	-	96	78 (@8V)	7820	U-MOSX-H (HSD)

<sup>SL</sup> I<sub>D</sub>(DC) (Silicon Limit)

Note(1) : High-speed switching type

☆ New Products, & High Speed Diode type



## 2. Mid-High Voltage MOSFET Series



### DPAK / New PW-Mold

Circuit Configuration	Part Number	Absolute Maximum Ratings			R <sub>DS(ON)</sub> max (Ω)	Q <sub>g</sub> typ. (nC)	C <sub>iss</sub> typ. (pF)	Remark
		V <sub>DSS</sub> (V)	V <sub>GSS</sub> (V)	I <sub>D</sub> (A)	V <sub>GS</sub> = 10 V			
N-ch	TK10P50W *	500	+/-30	9.7	0.43	20	700	DTMOSIV
	TK12P50W *	500	+/-30	11.5	0.34	25	890	DTMOSIV
	TK6P60W *	600	+/-30	6.2	0.82	12	390	DTMOSIV
	TK7P60W5 * &	600	+/-30	7	0.67	16	490	DTMOSIV(HSD)
	TK7P60W *	600	+/-30	7	0.6	15	490	DTMOSIV
	TK560P60Y *	600	+/-30	7	0.56	14.5	380	DTMOSV
	TK8P60W5 * &	600	+/-30	8	0.56	22	590	DTMOSIV(HSD)
	TK8P60W *	600	+/-30	8	0.5	18.5	570	DTMOSIV
	TK10P60W *	600	+/-30	9.7	0.43	20	700	DTMOSIV
	TK380P60Y *	600	+/-30	9.7	0.38	20	590	DTMOSV
	TK12P60W *	600	+/-30	11.5	0.34	25	890	DTMOSIV
	TK290P60Y *	600	+/-30	11.5	0.29	25	730	DTMOSV
	TK6P65W *	650	+/-30	5.8	1.05	11	390	DTMOSIV
	TK7P65W *	650	+/-30	6.8	0.8	15	490	DTMOSIV
	TK8P65W *	650	+/-30	7.8	0.67	16	570	DTMOSIV
	TK560P65Y *	650	+/-30	7	0.56	14.5	380	DTMOSV
	TK9P65W *	650	+/-30	9.3	0.56	20	700	DTMOSIV
	TK11P65W *	650	+/-30	11.1	0.44	25	890	DTMOSIV
	TK380P65Y *	650	+/-30	9.7	0.38	20	590	DTMOSV
	TK290P65Y *	650	+/-30	11.5	0.29	25	730	DTMOSV
N-ch	TK8P25DA *	250	+/-20	7.5	0.5	16	550	π-MOSVII
	TK13P25D *	250	+/-20	13	0.25	25	1100	π-MOSVII
	TK3P50D *	500	+/-30	3	3	7	280	π-MOSVII
	TK4P50D *	500	+/-30	4	2	9	380	π-MOSVII
	TK5P50D *	500	+/-30	5	1.5	11	490	π-MOSVII
	TK7P50D *	500	+/-30	7	1.22	12	600	π-MOSVII
	TK5P53D *	525	+/-30	5	1.5	11	540	π-MOSVII
	TK6P53D *	525	+/-30	6	1.3	12	600	π-MOSVII
	TK4P55DA *	550	+/-30	3.5	2.45	9	380	π-MOSVII
	TK4P55D *	550	+/-30	4	1.88	11	490	π-MOSVII
	TK2P60D **	600	+/-30	2	4.3	7	280	π-MOSVII
	TK4P60DA *	600	+/-30	3.5	2.2	11	490	π-MOSVII
	TK4P60DB *	600	+/-30	3.7	2	11	540	π-MOSVII
	TK4P60D *	600	+/-30	4	1.7	12	600	π-MOSVII
	TK3P80E *	800	+/-30	3	4.9	12	500	π-MOSVIII
	TK2P90E *	900	+/-30	2	5.9	12	500	π-MOSVIII

\* DPAK, \*\* New PW-Mold & High Speed Diode type

## DFN8x8

Circuit Configuration	Part Number	Absolute Maximum Ratings			R <sub>DS(ON)</sub> max (Ω)	Q <sub>g</sub> typ. (nC)	C <sub>iss</sub> typ. (pF)	Remark
		V <sub>DSS</sub> (V)	V <sub>ESS</sub> (V)	I <sub>O</sub> (A)	V <sub>GS</sub> = 10 V			
N-ch	TK10V60W	600	+/-30	9.7	0.38	20	700	DTMOSIV
	TK12V60W	600	+/-30	11.5	0.3	25	890	DTMOSIV
	TK16V60W5 &	600	+/-30	15.8	0.245	43	1350	DTMOSIV(HSD)
	TK(200)V60Z1 ★	600	+/-30	(14)	(0.2)	(20)	(1060)	DTMOSVI
	TK16V60W	600	+/-30	15.8	0.19	38	1350	DTMOSIV
	TK20V60W5 &	600	+/-30	20	0.19	55	1800	DTMOSIV(HSD)
	TK20V60W	600	+/-30	20	0.17	48	1680	DTMOSIV
	TK165V60Z1 ☆	600	+/-30	16	0.165	24	1350	DTMOSVI
	TK25V60X5 &	600	+/-30	25	0.15	60	2400	DTMOSIV-H(HSD)
	TK25V60X	600	+/-30	25	0.135	40	2400	DTMOSIV-H
	TK130V60Z1 ☆	600	+/-30	18	0.13	28	1620	DTMOSIV
	TK31V60W5 &	600	+/-30	30.8	0.109	105	3000	DTMOSIV(HSD)
	TK105V60Z1 ★	600	+/-30	24	0.105	36	2050	DTMOSVI
	TK31V60W	600	+/-30	30.8	0.098	86	3000	DTMOSIV
	TK31V60X	600	+/-30	30.8	0.098	65	3000	DTMOSIV-H
	TK085V60Z1 ☆	600	+/-30	30	0.085	43	2510	DTMOSVI
	TK14V65W	650	+/-30	13.7	0.28	35	1300	DTMOSIV
	TK210V65Z	650	+/-30	15	0.21	25	1370	DTMOSVI
	TK17V65W	650	+/-30	17.3	0.21	45	1800	DTMOSIV
	TK200V65Z5 ☆ &	650	+/-30	15	0.2	26	1400	DTMOSIV(HSD)
	TK170V65Z	650	+/-30	18	0.17	29	1635	DTMOSVI
	TK22V65X5 &	650	+/-30	22	0.17	50	2400	DTMOSIV-H(HSD)
	TK165V65Z5 ☆ &	650	+/-30	18	0.165	30	1660	DTMOSIV(HSD)
	TK28V65W5 &	650	+/-30	27.6	0.14	90	3000	DTMOSIV(HSD)
	TK125V65Z	650	+/-30	24	0.125	40	2250	DTMOSVI
	TK28V65W	650	+/-30	27.6	0.12	75	3000	DTMOSIV
	TK115V65Z5 ☆ &	650	+/-30	23	0.115	42	2280	DTMOSIV(HSD)
	TK099V65Z	650	+/-30	30	0.099	47	2780	DTMOSVI
	TK095V65Z5 ☆ &	650	+/-30	28	0.095	50	2880	DTMOSIV(HSD)

## D2PAK

Circuit Configuration	Part Number	Absolute Maximum Ratings			R <sub>DS(ON)</sub> max (Ω)	Q <sub>g</sub> typ. (nC)	C <sub>iss</sub> typ. (pF)	Remark
		V <sub>DSS</sub> (V)	V <sub>ESS</sub> (V)	I <sub>O</sub> (A)	V <sub>GS</sub> = 10 V			
N-ch	TK16G60W5 &	600	+/-30	15.8	0.23	43	1350	DTMOSIV(HSD)
	TK16G60W	600	+/-30	15.8	0.19	38	1350	DTMOSIV
	TK20G60W	600	+/-30	20	0.155	48	1680	DTMOSIV
	TK14G65W5 &	650	+/-30	13.7	0.3	40	1300	DTMOSIV(HSD)
	TK14G65W	650	+/-30	13.7	0.25	35	1300	DTMOSIV

## TOLL

Circuit Configuration	Part Number	Absolute Maximum Ratings			R <sub>DS(ON)</sub> max (Ω)	Q <sub>g</sub> typ. (nC)	C <sub>iss</sub> typ. (pF)	Remark
		V <sub>DSS</sub> (V)	V <sub>ESS</sub> (V)	I <sub>O</sub> (A)	V <sub>GS</sub> = 10 V			
N-ch	TK(190)U60Z1 ★	600	+/-30	(14)	(0.19)	(20)	(1060)	DTMOSVI
	TK155U60Z1 ☆	600	+/-30	17	0.155	24	1350	DTMOSVI
	TK125U60Z1 ☆	600	+/-30	20	0.125	28	1620	DTMOSVI
	TK099U60Z1 ★	600	+/-30	25	0.099	36	2050	DTMOSVI
	TK080U60Z1 ☆	600	+/-30	30	0.08	43	2510	DTMOSVI
	TK055U60Z1	600	+/-30	40	0.055	65	3680	DTMOSVI
	TK200U65Z5 ★ &	650	+/-30	15	0.2	26	1400	DTMOSIV(HSD)
	TK190U65Z	650	+/-30	15	0.19	25	1370	DTMOSVI
	TK165U65Z5 ★ &	650	+/-30	18	0.165	30	1660	DTMOSIV(HSD)
	TK155U65Z	650	+/-30	18	0.155	29	1635	DTMOSVI
	TK115U65Z5 ★ &	650	+/-30	24	0.115	42	2280	DTMOSIV(HSD)
	TK110U65Z	650	+/-30	24	0.11	40	2250	DTMOSVI
	TK095U65Z5 ★ &	650	+/-30	29	0.095	50	2880	DTMOSIV(HSD)
	TK090U65Z	650	+/-30	30	0.09	47	2780	DTMOSVI
	TK068U65Z5 ★ &	650	+/-30	37	0.068	68	3765	DTMOSIV(HSD)
	TK065U65Z	650	+/-30	38	0.065	62	3650	DTMOSVI

☆ New Products, & High Speed Diode type

★ Under Development (The specification is subject to change without notice.)



## IPAK / New PW-Mold2

Circuit Configuration	Part Number	Absolute Maximum Ratings			R <sub>DS(ON)</sub> max (Ω)		Q <sub>s</sub> typ. (nC)	C <sub>iss</sub> typ. (pF)	Remark
		V <sub>DSS</sub> (V)	V <sub>GSS</sub> (V)	I <sub>D</sub> (A)	V <sub>GS</sub> = 10 V	V <sub>GS</sub> = 10 V			
N-ch	TK6Q60W *	600	+/-30	6.2	0.82	12	390	DTMOSIV	
	TK7Q60W *	600	+/-30	7	0.6	15	490	DTMOSIV	
	TK8Q60W *	600	+/-30	8	0.5	18.5	570	DTMOSIV	
	TK10Q60W *	600	+/-30	9.7	0.43	20	700	DTMOSIV	
	TK12Q60W *	600	+/-30	11.5	0.34	25	890	DTMOSIV	
	TK6Q65W *	650	+/-30	5.8	1.05	11	390	DTMOSIV	
	TK7Q65W *	650	+/-30	6.8	0.8	15	490	DTMOSIV	
	TK8Q65W *	650	+/-30	7.8	0.67	16	570	DTMOSIV	
	TK9Q65W *	650	+/-30	9.3	0.56	20	700	DTMOSIV	
TK11Q65W *	650	+/-30	11.1	0.44	25	890	DTMOSIV		
N-ch	TK2Q60D **	600	+/-30	2	4.3	7	280	π-MOSVII	
	TK4Q60DA **	600	+/-30	3.5	2.2	11	490	π-MOSVII	



## TO-220

Circuit Configuration	Part Number	Absolute Maximum Ratings			R <sub>DS(ON)</sub> max (Ω)		Q <sub>s</sub> typ. (nC)	C <sub>iss</sub> typ. (pF)	Remark
		V <sub>DSS</sub> (V)	V <sub>GSS</sub> (V)	I <sub>D</sub> (A)	V <sub>GS</sub> = 10 V	V <sub>GS</sub> = 10 V			
N-ch	TK10E60W	600	+/-30	9.7	0.38	20	700	DTMOSIV	
	TK12E60W	600	+/-30	11.5	0.3	25	890	DTMOSIV	
	TK16E60W5 &	600	+/-30	15.8	0.23	43	1350	DTMOSIV(HSD)	
	TK(190)E60Z1 ★	600	+/-30	(14)	(0.19)	(20)	(1060)	DTMOSVI	
	TK16E60W	600	+/-30	15.8	0.19	38	1350	DTMOSIV	
	TK20E60W5 &	600	+/-30	20	0.175	55	1800	DTMOSIV(HSD)	
	TK155E60Z1 ☆	600	+/-30	17	0.155	24	1350	DTMOSVI	
	TK20E60W	600	+/-30	20	0.155	48	1680	DTMOSIV	
	TK25E60X5 &	600	+/-30	25	0.14	60	2400	DTMOSIV-H(HSD)	
	TK125E60Z1 ☆	600	+/-30	20	0.125	28	1620	DTMOSVI	
	TK25E60X	600	+/-30	25	0.125	40	2400	DTMOSIV-H	
	TK099E60Z1 ★	600	+/-30	25	0.099	36	2050	DTMOSVI	
	TK31E60W	600	+/-30	30.8	0.088	86	3000	DTMOSIV	
	TK31E60X	600	+/-30	30.8	0.088	65	3000	DTMOSIV-H	
	TK080E60Z1 ☆	600	+/-30	30	0.08	43	2510	DTMOSVI	
	TK14E65W5 &	650	+/-30	13.7	0.3	40	1300	DTMOSIV(HSD)	
	TK14E65W	650	+/-30	13.7	0.25	35	1300	DTMOSIV	
	TK200E65Z5 ☆ &	650	+/-30	15	0.2	26	1400	DTMOSVI(HSD)	
	TK17E65W	650	+/-30	17.3	0.2	45	1800	DTMOSIV	
	TK190E65Z ☆	650	+/-30	15	0.19	25	1370	DTMOSVI	
	TK165E65Z5 ☆ &	650	+/-30	18	0.165	30	1660	DTMOSVI(HSD)	
	TK155E65Z ☆	650	+/-30	18	0.155	29	1635	DTMOSVI	
	TK115E65Z5 ☆ &	650	+/-30	24	0.115	42	2280	DTMOSVI(HSD)	
	TK110E65Z ☆	650	+/-30	24	0.11	40	2250	DTMOSVI	
	TK28E65W	650	+/-30	27.6	0.11	75	3000	DTMOSIV	
	TK095E65Z5 ☆ &	650	+/-30	29	0.095	50	2880	DTMOSVI(HSD)	
	TK090E65Z ☆	650	+/-30	30	0.09	47	2780	DTMOSVI	
	TK7E80W	800	+/-20	6.5	0.95	13	700	DTMOSIV	
	TK10E80W	800	+/-20	9.5	0.55	19	1150	DTMOSIV	
	TK12E80W	800	+/-20	11.5	0.45	23	1400	DTMOSIV	
	TK17E80W	800	+/-20	17	0.29	32	2050	DTMOSIV	
	N-ch	TK13E25D	250	+/-20	13	0.25	25	1100	π-MOSVII

\* IPAK, \*\* New PW-Mold2

☆ New Products, & High Speed Diode type

★ Under Development (The specification is subject to change without notice.)

# TO-220SIS



Circuit Configuration	Part Number	Absolute Maximum Ratings			R <sub>DS(ON)</sub> max (Ω)	Q <sub>g</sub> typ. (nC)	C <sub>iss</sub> typ. (pF)	Remark
		V <sub>DSS</sub> (V)	V <sub>CESS</sub> (V)	I <sub>B</sub> (A)	V <sub>ES</sub> = 10 V			
N-ch	TK10A50W	500	+/-30	9.7	0.38	20	700	DTMOSIV
	TK12A50W	500	+/-30	11.5	0.3	25	890	DTMOSIV
	TK19A50W	500	+/-30	18.5	0.19	38	1350	DTMOSIV
	TK6A60W	600	+/-30	6.2	0.75	12	390	DTMOSIV
	TK7A60W5 &	600	+/-30	7	0.65	16	490	DTMOSIV(HSD)
	TK7A60W	600	+/-30	7	0.6	15	490	DTMOSIV
	TK560A60Y	600	+/-30	7	0.56	14.5	380	DTMOSV
	TK8A60W5 &	600	+/-30	8	0.54	22	590	DTMOSIV(HSD)
	TK8A60W	600	+/-30	8	0.5	18.5	570	DTMOSIV
	TK10A60W5 &	600	+/-30	9.7	0.45	25	720	DTMOSIV(HSD)
	TK10A60W	600	+/-30	9.7	0.38	20	700	DTMOSIV
	TK380A60Y	600	+/-30	9.7	0.38	20	590	DTMOSV
	TK12A60W	600	+/-30	11.5	0.3	25	890	DTMOSIV
	TK290A60Y	600	+/-30	11.5	0.29	25	730	DTMOSV
	TK16A60W5 &	600	+/-30	15.8	0.23	43	1350	DTMOSIV(HSD)
	TK16A60W	600	+/-30	15.8	0.19	38	1350	DTMOSIV
	TK(190)A60Z1 ★	600	+/-30	(14)	(0.19)	(20)	(1060)	DTMOSVI
	TK20A60W5 &	600	+/-30	20	0.175	55	1800	DTMOSIV(HSD)
	TK155A60Z1 ☆	600	+/-30	17	0.155	24	1350	DTMOSVI
	TK20A60W	600	+/-30	20	0.155	48	1680	DTMOSIV
	TK25A60X5 &	600	+/-30	25	0.14	60	2400	DTMOSIV-H(HSD)
	TK125A60Z1 ☆	600	+/-30	20	0.125	28	1620	DTMOSVI
	TK25A60X	600	+/-30	25	0.125	40	2400	DTMOSIV-H
	TK099A60Z1 ★	600	+/-30	25	0.099	36	2050	DTMOSVI
	TK31A60W	600	+/-30	30.8	0.088	86	3000	DTMOSIV
	TK080A60Z1 ☆	600	+/-30	30	0.08	43	2510	DTMOSVI
	TK39A60W	600	+/-30	38.8	0.065	110	4100	DTMOSIV
	TK6A65W	650	+/-30	5.8	1	11	390	DTMOSIV
	TK7A65W	650	+/-30	6.8	0.78	15	490	DTMOSIV
	TK8A65W	650	+/-30	7.8	0.65	16	570	DTMOSIV
	TK560A65Y	650	+/-30	7	0.56	14.5	380	DTMOSV
	TK9A65W	650	+/-30	9.3	0.5	20	700	DTMOSIV
	TK11A65W	650	+/-30	11.1	0.39	25	890	DTMOSIV
	TK380A65Y	650	+/-30	9.7	0.38	20	590	DTMOSV
	TK14A65W5 &	650	+/-30	13.7	0.3	40	1300	DTMOSIV(HSD)
	TK290A65Y	650	+/-30	11.5	0.29	25	730	DTMOSV
	TK14A65W	650	+/-30	13.7	0.25	35	1300	DTMOSIV
	TK17A65W5 &	650	+/-30	17.3	0.23	50	1800	DTMOSIV(HSD)
	TK17A65W	650	+/-30	17.3	0.2	45	1800	DTMOSIV
	TK200A65Z5 ☆ &	650	+/-30	15	0.2	26	1400	DTMOSVI(HSD)
	TK190A65Z	650	+/-30	15	0.19	25	1370	DTMOSVI
	TK165A65Z5 ☆ &	650	+/-30	18	0.165	30	1660	DTMOSVI(HSD)
	TK22A65X5 &	650	+/-30	22	0.16	50	2400	DTMOSIV-H(HSD)
	TK155A65Z	650	+/-30	18	0.155	29	1635	DTMOSVI
	TK22A65X	650	+/-30	22	0.15	50	2400	DTMOSIV-H
	TK115A65Z5 ☆ &	650	+/-30	24	0.115	42	2280	DTMOSVI(HSD)
	TK110A65Z	650	+/-30	24	0.11	40	2250	DTMOSVI
	TK28A65W	650	+/-30	27.6	0.11	75	3000	DTMOSIV
TK095A65Z5 ☆ &	650	+/-30	29	0.095	50	2880	DTMOSVI(HSD)	
TK35A65W5 &	650	+/-30	35	0.095	115	4100	DTMOSIV(HSD)	
TK090A65Z	650	+/-30	30	0.09	47	2780	DTMOSVI	
TK35A65W	650	+/-30	35	0.08	100	4100	DTMOSIV	

☆ New Products, & High Speed Diode type  
 ★ Under Development (The specification is subject to change without notice.)



# TO-220SIS

Circuit Configuration	Part Number	Absolute Maximum Ratings			R <sub>DS(ON)</sub> max (Ω)	Q <sub>g</sub> typ. (nC)	C <sub>iss</sub> typ. (pF)	Remark
		V <sub>BSS</sub> (V)	V <sub>GSS</sub> (V)	I <sub>D</sub> (A)	V <sub>GS</sub> = 10 V			
N-ch	TK7A80W	800	+/-20	6.5	0.95	13	700	DTMOSIV
	TK10A80W	800	+/-20	9.5	0.55	19	1150	DTMOSIV
	TK12A80W	800	+/-20	11.5	0.45	23	1400	DTMOSIV
	TK17A80W	800	+/-20	17	0.29	32	2050	DTMOSIV
	TK9A20DA	200	+/-20	8.5	0.4	14	550	π-MOSVII
	TK15A20D	200	+/-20	15	0.18	26	1050	π-MOSVII
	TK20A20D	200	+/-20	20	0.109	43	1650	π-MOSVII
	TK25A20D	200	+/-20	25	0.07	60	2550	π-MOSVII
	TK8A25DA	250	+/-20	7.5	0.5	16	550	π-MOSVII
	TK13A25D	250	+/-20	13	0.25	25	1100	π-MOSVII
	TK17A25D	250	+/-20	17	0.15	43	1650	π-MOSVII
	TK20A25D	250	+/-20	20	0.1	55	2550	π-MOSVII
	TK18A30D	300	+/-20	18	0.139	60	2600	π-MOSVII
	TK5A45DA	450	+/-30	4.5	1.75	9	380	π-MOSVII
	TK6A45DA	450	+/-30	5.5	1.35	11	490	π-MOSVII
	TK7A45DA	450	+/-30	6.5	1.2	11	540	π-MOSVII
	TK8A45D	450	+/-30	8	0.9	16	700	π-MOSVII
	TK9A45D	450	+/-30	9	0.77	16	800	π-MOSVII
	TK11A45D	450	+/-30	11	0.62	20	1050	π-MOSVII
	TK12A45D	450	+/-30	12	0.52	24	1200	π-MOSVII
	TK13A45D	450	+/-30	13	0.46	25	1350	π-MOSVII
	TK19A45D	450	+/-30	19	0.25	45	2600	π-MOSVII
	TK4A50D	500	+/-30	4	2	9	380	π-MOSVII
	TK5A50D	500	+/-30	5	1.5	11	490	π-MOSVII
	TK6A50D	500	+/-30	6	1.4	11	540	π-MOSVII
	TK7A50D	500	+/-30	7	1.22	12	600	π-MOSVII
	TK8A50DA	500	+/-30	7.5	1.04	16	700	π-MOSVII
	TK8A50D	500	+/-30	8	0.85	16	800	π-MOSVII
	TK10A50D	500	+/-30	10	0.72	20	1050	π-MOSVII
	TK11A50D	500	+/-30	11	0.6	24	1200	π-MOSVII
	TK12A50D	500	+/-30	12	0.52	25	1350	π-MOSVII
	TK13A50DA	500	+/-30	12.5	0.47	28	1550	π-MOSVII
	TK13A50D	500	+/-30	13	0.4	38	1800	π-MOSVII
	TK15A50D	500	+/-30	15	0.3	40	2300	π-MOSVII
	TK18A50D	500	+/-30	18	0.27	45	2600	π-MOSVII
	TK4A53D	525	+/-30	4	1.7	11	490	π-MOSVII
	TK5A53D	525	+/-30	5	1.5	11	540	π-MOSVII
	TK6A53D	525	+/-30	6	1.3	12	600	π-MOSVII
	TK12A53D	525	+/-30	12	0.58	25	1350	π-MOSVII
	TK4A55DA	550	+/-30	3.5	2.45	9	380	π-MOSVII
	TK4A55D	550	+/-30	4	1.88	11	490	π-MOSVII
	TK5A55D	550	+/-30	5	1.7	11	540	π-MOSVII
TK6A55DA	550	+/-30	5.5	1.48	12	600	π-MOSVII	
TK7A55D	550	+/-30	7	1.25	16	700	π-MOSVII	
TK8A55DA	550	+/-30	7.5	1.07	16	800	π-MOSVII	

# TO-220SIS



Circuit Configuration	Part Number	Absolute Maximum Ratings			R <sub>DS(ON)</sub> max (Ω)	Q <sub>g</sub> typ. (nC)	C <sub>iss</sub> typ. (pF)	Remark
		V <sub>DSS</sub> (V)	V <sub>CESS</sub> (V)	I <sub>D</sub> (A)	V <sub>GS</sub> =10 V			
N-ch	TK9A55DA	550	+/-30	8.5	0.86	20	1050	π-MOSVII
	TK10A55D	550	+/-30	10	0.72	24	1200	π-MOSVII
	TK11A55D	550	+/-30	11	0.63	25	1350	π-MOSVII
	TK12A55D	550	+/-30	12	0.57	28	1550	π-MOSVII
	TK13A55DA	550	+/-30	12.5	0.48	38	1800	π-MOSVII
	TK14A55D	550	+/-30	14	0.37	40	2300	π-MOSVII
	TK16A55D	550	+/-30	16	0.33	45	2600	π-MOSVII
	TK4K1A60F	600	+/-30	2	4.1	8	270	π-MOSIX
	TK3A60DA	600	+/-30	2.5	2.8	9	380	π-MOSVII
	TK2K2A60F	600	+/-30	3.5	2.2	13	450	π-MOSIX
	TK1K9A60F	600	+/-30	3.7	1.9	14	490	π-MOSIX
	TK1K7A60F	600	+/-30	4	1.7	16	560	π-MOSIX
	TK5A60D	600	+/-30	5	1.43	16	700	π-MOSVII
	TK1K2A60F	600	+/-30	6	1.2	21	740	π-MOSIX
	TK1K0A60F	600	+/-30	7.5	1	24	890	π-MOSIX
	TK9A60D	600	+/-30	9	0.83	24	1200	π-MOSVII
	TK750A60F	600	+/-30	10	0.75	30	1130	π-MOSIX
	TK650A60F	600	+/-30	11	0.65	34	1320	π-MOSIX
	TK12A60D	600	+/-30	12	0.55	38	1800	π-MOSVII
	TK430A60F	600	+/-30	13	0.43	48	1940	π-MOSIX
	TK370A60F	600	+/-30	15	0.37	55	2200	π-MOSIX
	TK2A65D	650	+/-30	2	3.26	9	380	π-MOSVII
	TK3A65DA	650	+/-30	2.5	2.51	11	490	π-MOSVII
	TK3A65D	650	+/-30	3	2.25	11	540	π-MOSVII
	TK4A65DA	650	+/-30	3.5	1.9	12	600	π-MOSVII
	TK5A65DA	650	+/-30	4.5	1.67	16	700	π-MOSVII
	TK5A65D	650	+/-30	5	1.43	16	800	π-MOSVII
	TK6A65D	650	+/-30	6	1.11	20	1050	π-MOSVII
	TK7A65D	650	+/-30	7	0.98	24	1200	π-MOSVII
	TK8A65D	650	+/-30	8	0.84	25	1350	π-MOSVII
	TK11A65D	650	+/-30	11	0.7	30	1700	π-MOSVII
	TK12A65D	650	+/-30	12	0.54	40	2300	π-MOSVII
	TK13A65D	650	+/-30	13	0.47	45	2600	π-MOSVII
	TK4A80E	800	+/-30	4	3.5	15	650	π-MOSVIII
	TK5A80E	800	+/-30	5	2.4	20	950	π-MOSVIII
	TK6A80E	800	+/-30	6	1.7	32	1350	π-MOSVIII
	TK10A80E	800	+/-30	10	1	46	2000	π-MOSVIII
	TK3A90E	900	+/-30	2.5	4.6	15	650	π-MOSVIII
	TK5A90E	900	+/-30	4.5	3.1	20	950	π-MOSVIII
	TK7A90E	900	+/-30	7	2	32	1350	π-MOSVIII
TK9A90E	900	+/-30	9	1.3	46	2000	π-MOSVIII	



## TO-3P(N)

Circuit Configuration	Part Number	Absolute Maximum Ratings			R <sub>DS(ON)</sub> max (Ω)	Q <sub>s</sub> typ. (nC)	C <sub>iss</sub> typ. (pF)	Remark
		V <sub>DSS</sub> (V)	V <sub>GSS</sub> (V)	I <sub>D</sub> (A)	V <sub>GS</sub> = 10 V			
N-ch	TK12J60W	600	+/-30	11.5	0.3	25	890	DTMOSIV
	TK16J60W5 &	600	+/-30	15.8	0.23	43	1350	DTMOSIV(HSD)
	TK16J60W	600	+/-30	15.8	0.19	38	1350	DTMOSIV
	TK20J60W5 &	600	+/-30	20	0.175	55	1800	DTMOSIV(HSD)
	TK20J60W	600	+/-30	20	0.155	48	1680	DTMOSIV
	TK31J60W5 &	600	+/-30	30.8	0.099	105	3000	DTMOSIV(HSD)
	TK31J60W	600	+/-30	30.8	0.088	86	3000	DTMOSIV
	TK39J60W5 &	600	+/-30	38.8	0.074	135	4100	DTMOSIV(HSD)
	TK39J60W	600	+/-30	38.8	0.065	110	4100	DTMOSIV
	TK62J60W5 &	600	+/-30	61.8	0.045	205	6500	DTMOSIV(HSD)
TK62J60W	600	+/-30	61.8	0.04	180	6500	DTMOSIV	
N-ch	TK40J20D	200	+/-20	40	0.044	100	4300	π-MOSVII
	TK70J20D	200	+/-20	70	0.027	160	6950	π-MOSVII
	TK30J25D	250	+/-20	30	0.06	100	4300	π-MOSVII
	TK60J25D	250	+/-20	60	0.038	160	7000	π-MOSVII
	TK50J30D	300	+/-20	50	0.052	160	7000	π-MOSVII
	TK15J50D	500	+/-30	15	0.4	38	1800	π-MOSVII
	TK20J50D	500	+/-30	20	0.27	45	2600	π-MOSVII
	TK12J55D	550	+/-30	12	0.57	28	1550	π-MOSVII
	TK16J55D	550	+/-30	16	0.37	40	2300	π-MOSVII
	TK19J55D	550	+/-30	19	0.33	45	2600	π-MOSVII
	TK10J80E	800	+/-30	10	1	46	2000	π-MOSVIII
	TK7J90E	900	+/-30	7	2	32	1350	π-MOSVIII
TK9J90E	900	+/-30	9	1.3	46	2000	π-MOSVIII	



## TO-3P(L)

Circuit Configuration	Part Number	Absolute Maximum Ratings			R <sub>DS(ON)</sub> max (Ω)	Q <sub>s</sub> typ. (nC)	C <sub>iss</sub> typ. (pF)	Remark
		V <sub>DSS</sub> (V)	V <sub>GSS</sub> (V)	I <sub>D</sub> (A)	V <sub>GS</sub> = 10 V			
N-ch	TK100L60W	600	+/-30	100	0.018	360	15000	DTMOSIV

& High Speed Diode type

# TO-247



Circuit Configuration	Part Number	Absolute Maximum Ratings			R <sub>DS(ON)</sub> max (Ω)	Q <sub>g</sub> typ. (nC)	C <sub>iss</sub> typ. (pF)	Remark
		V <sub>DSS</sub> (V)	V <sub>CESS</sub> (V)	I <sub>D</sub> (A)	V <sub>GS</sub> = 10 V			
N-ch	TK16N60W5 &	600	+/-30	15.8	0.23	43	1350	DTMOSIV(HSD)
	TK16N60W	600	+/-30	15.8	0.19	38	1350	DTMOSIV
	TK20N60W5 &	600	+/-30	20	0.175	55	1800	DTMOSIV(HSD)
	TK20N60W	600	+/-30	20	0.155	48	1680	DTMOSIV
	TK25N60X5 &	600	+/-30	25	0.14	60	2400	DTMOSIV-H(HSD)
	TK125N60Z1 ☆	600	+/-30	20	0.125	28	1620	DTMOSVI
	TK25N60X	600	+/-30	25	0.125	40	2400	DTMOSIV-H
	TK099N60Z1 ★	600	+/-30	25	0.099	36	2050	DTMOSVI
	TK31N60W5 &	600	+/-30	30.8	0.099	105	3000	DTMOSIV(HSD)
	TK31N60W	600	+/-30	30.8	0.088	86	3000	DTMOSIV
	TK31N60X	600	+/-30	30.8	0.088	65	3000	DTMOSIV-H
	TK080N60Z1 ☆	600	+/-30	30	0.08	43	2510	DTMOSVI
	TK39N60W5 &	600	+/-30	38.8	0.074	135	4100	DTMOSIV(HSD)
	TK39N60W	600	+/-30	38.8	0.065	110	4100	DTMOSIV
	TK39N60X	600	+/-30	38.8	0.065	85	4100	DTMOSIV-H
	TK063N60Z1 ★	600	+/-30	37	0.063	56	3200	DTMOSVI
	TK62N60W5 &	600	+/-30	61.8	0.045	205	6500	DTMOSIV(HSD)
	TK040N60Z1 ☆	600	+/-30	52	0.04	85	5200	DTMOSVI
	TK62N60W	600	+/-30	61.8	0.04	180	6500	DTMOSIV
	TK62N60X	600	+/-30	61.8	0.04	135	6500	DTMOSIV-H
	TK024N60Z1 ☆	600	+/-30	80	0.024	140	8420	DTMOSVI
	TK14N65W5 &	650	+/-30	13.7	0.3	40	1300	DTMOSIV(HSD)
	TK14N65W	650	+/-30	13.7	0.25	35	1300	DTMOSIV
	TK17N65W	650	+/-30	17.3	0.2	45	1800	DTMOSIV
	TK28N65W5 &	650	+/-30	27.6	0.13	90	3000	DTMOSIV(HSD)
	TK115N65Z5 ☆&	650	+/-30	24	0.115	42	2280	DTMOSVI(HSD)
	TK110N65Z	650	+/-30	24	0.11	40	2250	DTMOSVI
	TK28N65W	650	+/-30	27.6	0.11	75	3000	DTMOSIV
	TK095N65Z5 ☆&	650	+/-30	29	0.095	50	2880	DTMOSVI(HSD)
	TK35N65W5 &	650	+/-30	35	0.095	115	4100	DTMOSIV(HSD)
TK090N65Z	650	+/-30	30	0.09	47	2780	DTMOSVI	
TK35N65W	650	+/-30	35	0.08	100	4100	DTMOSIV	
TK068N65Z5 ☆&	650	+/-30	37	0.068	68	3765	DTMOSVI(HSD)	
TK065N65Z	650	+/-30	38	0.065	62	3650	DTMOSVI	
TK49N65W5 &	650	+/-30	49.2	0.057	185	6500	DTMOSIV(HSD)	
TK49N65W	650	+/-30	49.2	0.055	160	6500	DTMOSIV	
TK042N65Z5 ☆&	650	+/-30	55	0.042	105	6280	DTMOSVI(HSD)	
TK040N65Z	650	+/-30	57	0.04	105	6250	DTMOSVI	

☆ New products, & High Speed Diode type

★ Under Development (The specification is subject to change without notice.)





## TO-247-4L

Circuit Configuration	Part Number	Absolute Maximum Ratings			R <sub>DS(ON)</sub> max (Ω)		Q <sub>g</sub> typ. (nC)	C <sub>iss</sub> typ. (pF)	Remark
		V <sub>DSS</sub> (V)	V <sub>GSS</sub> (V)	I <sub>D</sub> (A)	V <sub>GS</sub> = 10 V				
N-ch	TK25Z60X	600	+/-30	25	0.125	40	2400	DTMOSIV-H	
	TK31Z60X	600	+/-30	30.8	0.088	65	3000	DTMOSIV-H	
	TK39Z60X	600	+/-30	38.8	0.065	85	4100	DTMOSIV-H	
	TK62Z60X	600	+/-30	61.8	0.04	135	6500	DTMOSIV-H	
	TK110Z65Z	650	+/-30	24	0.11	40	2250	DTMOSVI	
	TK090Z65Z	650	+/-30	30	0.09	47	2780	DTMOSVI	
	TK065Z65Z	650	+/-30	38	0.065	62	3650	DTMOSVI	
TK040Z65Z	650	+/-30	57	0.04	105	6250	DTMOSVI		



## TO-247-4L(X)

Circuit Configuration	Part Number	Absolute Maximum Ratings			R <sub>DS(ON)</sub> max (Ω)		Q <sub>g</sub> typ. (nC)	C <sub>iss</sub> typ. (pF)	Remark
		V <sub>DSS</sub> (V)	V <sub>GSS</sub> (V)	I <sub>D</sub> (A)	V <sub>GS</sub> = 10 V				
N-ch	TK(125)Z60Z1 ★	600	+/-30	(20)	(0.125)	(28)	(1620)	DTMOSVI	
	TK(099)Z60Z1 ★	600	+/-30	(25)	(0.099)	(36)	(2050)	DTMOSVI	
	TK(080)Z60Z1 ★	600	+/-30	(30)	(0.08)	(43)	(2510)	DTMOSVI	
	TK(063)Z60Z1 ★	600	+/-30	(37)	(0.063)	(56)	(3200)	DTMOSVI	
	TK(040)Z60Z1 ★	600	+/-30	(52)	(0.04)	(85)	(5200)	DTMOSVI	
	TK(024)Z60Z1 ★	600	+/-30	(80)	(0.024)	(140)	(8420)	DTMOSVI	
	TK(115)Z65Z5 ★ &	650	+/-30	(24)	(0.115)	(42)	(2280)	DTMOSVI(HSD)	
	TK(095)Z65Z5 ★ &	650	+/-30	(29)	(0.095)	(50)	(2880)	DTMOSVI(HSD)	
	TK(068)Z65Z5 ★ &	650	+/-30	(37)	(0.068)	(68)	(3765)	DTMOSVI(HSD)	
TK(042)Z65Z5 ★ &	650	+/-30	(55)	(0.042)	(105)	(6280)	DTMOSVI(HSD)		

& High Speed Diode type

★ Under Development (The specification is subject to change without notice.)

### 3. Automotive MOSFET Series



#### DPAK+

Circuit Configuration	Part Number	Absolute Maximum Ratings			R <sub>DS(ON)</sub> max (mΩ)			Q <sub>g</sub> typ. (nC)	C <sub>iss</sub> typ. (pF)	Remark
		V <sub>DSS</sub> (V)	V <sub>GSS</sub> (V)	I <sub>D</sub> (A)	V <sub>GES</sub>   = 10 V	V <sub>GES</sub>   = 6 V	V <sub>GES</sub>   = 4.5 V			
N-ch	TK15S04N1L # \$	40	+/-20	15	17.8	-	37	10	610	U-MOSVIII-H
	TK65S04N1L # \$	40	+/-20	65	4.3	-	7.8	39	2550	U-MOSVIII-H
	TK100S04N1L #	40	+/-20	100	2.3	-	4.5	76	5490	U-MOSVIII-H
	TK1R4S04PB #	40	+/-20	120	1.35	1.9	-	103	5500	U-MOSIX-H
	TK25S06N1L # \$	60	+/-20	25	18.5	-	36.8	15	855	U-MOSVIII-H
	TK40S06N1L # \$	60	+/-20	40	10.5	-	18	26	1650	U-MOSVIII-H
	TK90S06N1L #	60	+/-20	90	3.3	-	5.2	81	5400	U-MOSVIII-H
	TK7S10N1Z # \$	100	+/-20	7	48	-	-	7.1	470	U-MOSVIII-H
	TK11S10N1L # \$	100	+/-20	11	28	-	50	15	850	U-MOSVIII-H
	TK33S10N1L # \$	100	+/-20	33	9.7	-	16.2	33	2250	U-MOSVIII-H
	TK33S10N1Z # \$	100	+/-20	33	9.7	-	-	28	2050	U-MOSVIII-H
	TK55S10N1 #	100	+/-20	55	6.5	-	-	49	3280	U-MOSVIII-H
TK60S10N1L #	100	+/-20	60	6.11	9.25	-	60	4320	U-MOSVIII-H	
P-ch	TJ10S04M3L # \$	-40	+10/-20	-10	44	62	-	19	930	U-MOSVI
	TJ20S04M3L # \$	-40	+10/-20	-20	22.2	32	-	37	1850	U-MOSVI
	TJ40S04M3L # \$	-40	+10/-20	-40	9.1	13	-	83	4140	U-MOSVI
	TJ60S04M3L # \$	-40	+10/-20	-60	6.3	9.4	-	125	6510	U-MOSVI
	TJ80S04M3L # \$	-40	+10/-20	-80	5.2	7.9	-	158	7770	U-MOSVI
	TJ90S04M3L #	-40	+10/-20	-90	4.3	-	6	172	7700	U-MOSVI
	TJ8S06M3L # \$	-60	+10/-20	-8	104	130	-	19	890	U-MOSVI
	TJ15S06M3L # \$	-60	+10/-20	-15	50	63	-	36	1770	U-MOSVI
	TJ30S06M3L # \$	-60	+10/-20	-30	21.8	28	-	80	3950	U-MOSVI
	TJ50S06M3L # \$	-60	+10/-20	-50	13.8	17.4	-	124	6290	U-MOSVI
	TJ60S06M3L # \$	-60	+10/-20	-60	11.2	14.5	-	156	7760	U-MOSVI
	TJ15S10M3	-100	+10/-20	-15	130	-	-	69	3200	U-MOSVI

#### TSON Advance(WF) (3.1 x 3.6)



Circuit Configuration	Part Number	Absolute Maximum Ratings			R <sub>DS(ON)</sub> max (mΩ)		Q <sub>g</sub> typ. (nC)	C <sub>iss</sub> typ. (pF)	Remark
		V <sub>DSS</sub> (V)	V <sub>GSS</sub> (V)	I <sub>D</sub> (A)	V <sub>GES</sub>   = 10 V	V <sub>GES</sub>   = 4.5 V			
N-ch	XPN7R104NC ◆ # \$	40	+/-20	20	7.1	14.2	21	1290	U-MOSVIII-H
	XPN3R804NC ◆ # \$	40	+/-20	40	3.8	7.8	35	2230	U-MOSVIII-H
	XPN12006NC ◆ # \$	60	+/-20	20	12	23.7	23	1100	U-MOSVIII-H
	XPN6R706NC ◆ # \$	60	+/-20	40	6.7	13.3	35	2000	U-MOSVIII-H
	XPN1300ANC ◆ # \$	100	+/-20	30	13.3	24.2	28	1470	U-MOSVIII-H
P-ch	XPN19014MC ☆◆ # \$	-40	+10/-20	-20	18.7	29.2	51	1600	U-MOSVI
	XPN9R614MC ◆ #	-40	+10/-20	-40	9.6	13.4	64	3000	U-MOSVI
	XPN52016MC ☆◆ # \$	-60	+10/-20	-15	52	66	47	1680	U-MOSVI
	XPN27016MC ☆◆ #	-60	+10/-20	-25	27.3	36	71	2900	U-MOSVI

☆ New Products

# AEC-Q101 qualified, \$ With protection Zener diode between gate and source, ◆ Wettable Flank Lead Terminal



## SOP Advance(WF) (5 x 6)

Circuit Configuration	Part Number	Absolute Maximum Ratings			R <sub>DS(ON)</sub> max (mΩ)			Q <sub>g</sub> typ. (nC)	C <sub>iss</sub> typ. (pF)	Remark
		V <sub>DSS</sub> (V)	V <sub>GSS</sub> (V)	I <sub>D</sub> (A)	V <sub>GS</sub>   = 10 V	V <sub>GS</sub>   = 6 V	V <sub>GS</sub>   = 4.5 V			
N-ch	XPH3R304PS ◆ #	40	+20/-8	60	3.3	6.3	-	30	1660	U-MOSIX-H
	XPH2R404PS ◆ #	40	+20/-8	90	2.4	4.1	-	40	2500	U-MOSIX-H
	XPH1R104PS ◆ #	40	+/-20	120	1.14	1.96	-	55	4560	U-MOSIX-H
	XPHR9904PS ☆◆ #	40	+/-20	130	0.99	1.63	-	83	5520	U-MOSIX-H
	XPHR7904PS ◆ #	40	+/-20	150	0.79	1.3	-	85	6650	U-MOSIX-H
	XPH3R206NC ◆ # \$	60	+/-20	70	3.2	-	6.2	65	4180	U-MOSVIII-H
	XPH2R106NC ◆ #	60	+/-20	110	2.1	-	4.1	104	6900	U-MOSVIII-H
	XPH6R30ANB ◆ # \$	100	+/-20	45	6.3	9.5	-	52	3240	U-MOSVIII-H
	XPH4R10ANB ◆ #	100	+/-20	70	4.1	6.2	-	75	4970	U-MOSVIII-H
P-ch	XPH4R714MC ◆ #	-40	+10/-20	-60	4.7	-	6.9	140	5640	U-MOSVI
	XPH3R114MC ◆ #	-40	+10/-20	-100	3.1	-	4.7	230	9500	U-MOSVI
	XPH13016MC ☆◆ #	-60	+10/-20	-60	12.9	-	16.6	148	6820	U-MOSVI
	XPH8R316MC ☆◆ #	-60	+10/-20	-90	8.3	-	10.2	222	10500	U-MOSVI



## DSOP Advance(WF) (5 x 6)

Circuit Configuration	Part Number	Absolute Maximum Ratings			R <sub>DS(ON)</sub> max (mΩ)		Q <sub>g</sub> typ. (nC)	C <sub>iss</sub> typ. (pF)	Remark
		V <sub>DSS</sub> (V)	V <sub>GSS</sub> (V)	I <sub>D</sub> (A)	V <sub>GS</sub>   = 10 V	V <sub>GS</sub>   = 6 V			
N-ch	TPW1R104PB * ◆ #	40	+/-20	120	1.14	1.96	55	4560	U-MOSIX-H
	TPWR7904PB ** ◆ #	40	+/-20	150	0.79	1.3	85	6650	U-MOSIX-H
	XPW6R30ANB * ◆ # \$	100	+/-20	45	6.3	9.5	52	3240	U-MOSVIII-H
	XPW4R10ANB ** ◆ #	100	+/-20	70	4.1	6.2	75	4970	U-MOSVIII-H



## S-TOGL™

Circuit Configuration	Part Number	Absolute Maximum Ratings			R <sub>DS(ON)</sub> max (mΩ)		Q <sub>g</sub> typ. (nC)	C <sub>iss</sub> typ. (pF)	Remark
		V <sub>DSS</sub> (V)	V <sub>GSS</sub> (V)	I <sub>D</sub> (A)	V <sub>GS</sub>   = 10 V	V <sub>GS</sub>   = 6 V			
N-ch	XPJ1R004PB # %	40	+/-20	160	1	1.8	84	5300	U-MOSIX-H
	XPR6604PB # %	40	+/-20	200	0.66	1.16	128	8750	U-MOSIX-H



## L-TOGL™

Circuit Configuration	Part Number	Absolute Maximum Ratings			R <sub>DS(ON)</sub> max (mΩ)		Q <sub>g</sub> typ. (nC)	C <sub>iss</sub> typ. (pF)	Remark
		V <sub>DSS</sub> (V)	V <sub>GSS</sub> (V)	I <sub>D</sub> (A)	V <sub>GS</sub>   = 10 V	V <sub>GS</sub>   = 6 V			
N-ch	XPQ1R004PB # %	40	+/-20	200	1	1.8	84	5300	U-MOSIX-H
	XPQR3004PB # %	40	+/-20	400	0.30	0.47	295	20700	U-MOSIX-H
	XPQR8308QB # %	80	+/-20	350	0.83	1.23	305	19000	U-MOSX-H
	XPQ1R00AQB # %	100	+/-20	300	1.03	1.93	269	16500	U-MOSX-H

☆ New Products

# AEC-Q101 qualified, \$ With protection Zener diode between gate and source, ◆ Wettable Flank Lead Terminal

\* DSOP Advance(WF)M, \*\* DSOP Advance(WF)L

% V<sub>th</sub> pairing is possible.

## 4. Silicon Carbide (SiC) MOSFET Series

### TO-247



Circuit Configuration	Part Number	Absolute Maximum Ratings			R <sub>DS(ON)</sub> typ. (Ω)	Q <sub>s</sub> typ. (nC)	C <sub>iss</sub> typ. (pF)	Remark
		V <sub>DSS</sub> (V)	V <sub>GSS</sub> (V)	I <sub>D</sub> (A)	V <sub>GS</sub> = 18 V			
N-ch	TW107N65C	650	+25/-10	20	0.107	21	600	3rd generation
	TW083N65C	650	+25/-10	30	0.083	28	873	3rd generation
	TW048N65C	650	+25/-10	40	0.048	41	1362	3rd generation
	TW027N65C	650	+25/-10	58	0.027	65	2288	3rd generation
	TW015N65C	650	+25/-10	100	0.015	128	4850	3rd generation
	TW140N120C	1200	+25/-10	20	0.14	24	691	3rd generation
	TW060N120C	1200	+25/-10	36	0.06	46	1530	3rd generation
	TW045N120C	1200	+25/-10	40	0.045	57	1969	3rd generation
	TW030N120C	1200	+25/-10	60	0.03	82	2925	3rd generation
TW015N120C	1200	+25/-10	100	0.015	158	6000	3rd generation	

### TO-247-4L(X)



Circuit Configuration	Part Number	Absolute Maximum Ratings			R <sub>DS(ON)</sub> typ. (Ω)	Q <sub>s</sub> typ. (nC)	C <sub>iss</sub> typ. (pF)	Remark
		V <sub>DSS</sub> (V)	V <sub>GSS</sub> (V)	I <sub>D</sub> (A)	V <sub>GS</sub> = 18 V			
N-ch	TW107Z65C ☆	650	+25/-10	20	0.107	21	600	3rd generation
	TW083Z65C ☆	650	+25/-10	30	0.083	28	873	3rd generation
	TW048Z65C ☆	650	+25/-10	40	0.048	41	1362	3rd generation
	TW027Z65C ☆	650	+25/-10	58	0.027	65	2288	3rd generation
	TW015Z65C ☆	650	+25/-10	100	0.015	128	4850	3rd generation
	TW140Z120C ☆	1200	+25/-10	20	0.14	24	691	3rd generation
	TW060Z120C ☆	1200	+25/-10	36	0.06	46	1530	3rd generation
	TW045Z120C ☆	1200	+25/-10	40	0.045	57	1969	3rd generation
	TW030Z120C ☆	1200	+25/-10	60	0.03	82	2925	3rd generation
TW015Z120C ☆	1200	+25/-10	100	0.015	158	6000	3rd generation	

### TOLL



Circuit Configuration	Part Number	Absolute Maximum Ratings			R <sub>DS(ON)</sub> typ. (Ω)	Q <sub>s</sub> typ. (nC)	C <sub>iss</sub> typ. (pF)	Remark
		V <sub>DSS</sub> (V)	V <sub>GSS</sub> (V)	I <sub>D</sub> (A)	V <sub>GS</sub> = 18 V			
N-ch	TW083U65C ★	650	+25/-10	30	0.083	28	873	3rd generation
	TW048U65C ★	650	+25/-10	40	0.048	41	1362	3rd generation
	TW027U65C ★	650	+25/-10	58	0.027	65	2288	3rd generation
	TW015U65C ★	650	+25/-10	100	0.015	128	4850	3rd generation

### DFN8x8



Circuit Configuration	Part Number	Absolute Maximum Ratings			R <sub>DS(ON)</sub> typ. (Ω)	Q <sub>s</sub> typ. (nC)	C <sub>iss</sub> typ. (pF)	Remark
		V <sub>DSS</sub> (V)	V <sub>GSS</sub> (V)	I <sub>D</sub> (A)	V <sub>GS</sub> = 18 V			
N-ch	TW123V65C ★	650	+25/-10	19	0.123	21	600	3rd generation
	TW092V65C ★	650	+25/-10	27	0.092	28	873	3rd generation
	TW054V65C ★	650	+25/-10	36	0.054	41	1362	3rd generation
	TW031V65C ★	650	+25/-10	53	0.031	65	2288	3rd generation

☆ New Products

★ Under Development (The specification is subject to change without notice.)



# 6. Device Packages

## Surface Mount Type

DPAK+ (6.5 x 9.5)		New PW-Mold (6.5 x 9.5)		DPAK(2-7K1S) (6.6 x 10.0)	
<p>Package dimension unit: mm</p>	<p>Bottom View</p>	<p>Package dimension unit: mm</p>	<p>Bottom View</p>	<p>Package dimension unit: mm</p>	<p>Bottom View</p>
<p>Land pattern example unit: mm</p>	<p>Land pattern example unit: mm</p>	<p>Land pattern example unit: mm</p>	<p>Land pattern example unit: mm</p>	<p>Land pattern example unit: mm</p>	<p>Land pattern example unit: mm</p>

DPAK(2-7N1S)		D2PAK (10.35 x 15.3)		DFN8x8 (8.0 x 8.0)	
<p>Package dimension unit: mm</p>	<p>Bottom View</p>	<p>Package dimension unit: mm</p>	<p>Bottom View</p>	<p>Package dimension unit: mm</p>	<p>Bottom View</p>
<p>Land pattern example unit: mm</p>	<p>Land pattern example unit: mm</p>	<p>Land pattern example unit: mm</p>	<p>Land pattern example unit: mm</p>	<p>Land pattern example unit: mm</p>	<p>Land pattern example unit: mm</p>

# Surface Mount Type

S-TOGL™ (7.0 x 8.44)	TSON Advance (3.1 x 3.3)	TSON Advance(WF) (3.1 x 3.6) ★
<p>Package dimension unit: mm</p> <p>Bottom View</p>	<p>Package dimension unit: mm</p> <p>Bottom View</p>	<p>Package dimension unit: mm</p> <p>Bottom View</p>
<p>Land pattern example unit: mm</p>	<p>Land pattern example unit: mm</p>	<p>Land pattern example unit: mm</p>

★ Wettable Flank Lead Terminal

SOP-8(2-5R1S) (4.9 x 6.0)	SOP-8(2-6J1S)	DSOP Advance (5.0 x 6.0)
<p>Package dimension unit: mm</p>	<p>Package dimension unit: mm</p>	<p>Package dimension unit: mm</p> <p>Bottom View</p>
<p>Land pattern example unit: mm</p>	<p>Land pattern example unit: mm</p>	<p>Land pattern example unit: mm</p>

# Surface Mount Type

DSOP Advance(WF)L (5.0 x 6.0) ★	DSOP Advance(WF)M (5.0 x 6.0) ★	SOP Advance (5.0 x 6.0)
<p>Package dimension unit: mm</p>	<p>Package dimension unit: mm</p>	<p>Package dimension unit: mm</p>
<p>Land pattern example unit: mm</p>	<p>Land pattern example unit: mm</p>	<p>Land pattern example unit: mm</p>

★ Wettable Flank Lead Terminal

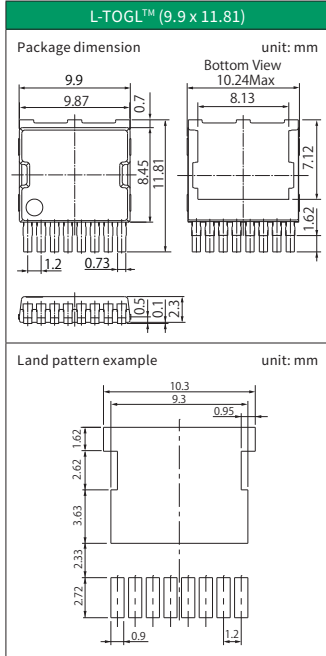
★ Wettable Flank Lead Terminal

SOP Advance(N) (4.9 x 6.1)	SOP Advance(WF) (5.0 x 6.0) ★	TOLL (9.9 x 11.68)
<p>Package dimension unit: mm</p>	<p>Package dimension unit: mm</p>	<p>Package dimension unit: mm</p>
<p>Land pattern example unit: mm</p>	<p>Land pattern example unit: mm</p>	<p>Land pattern example unit: mm</p>

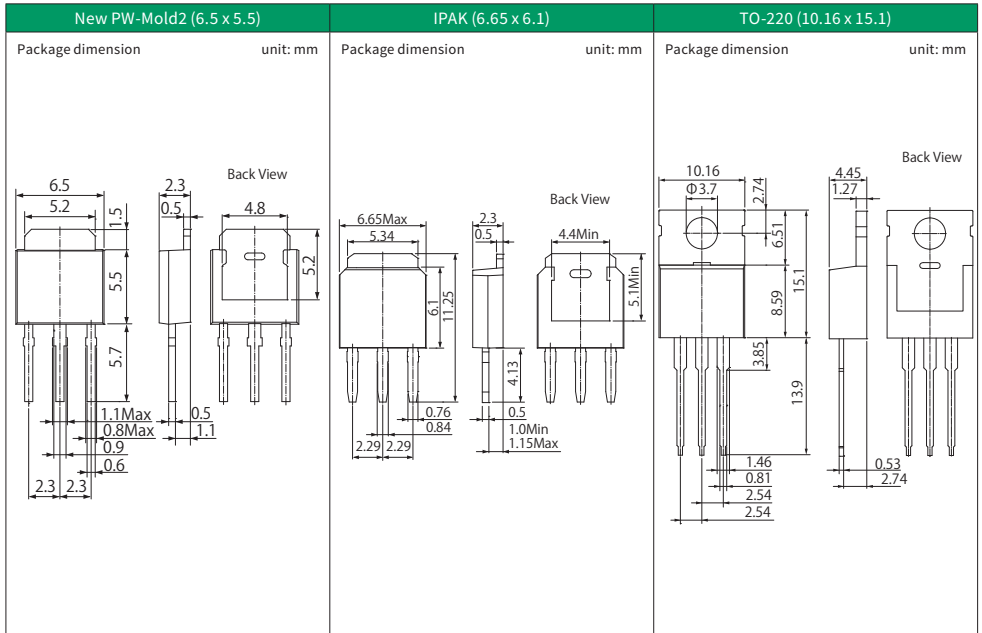
★ Wettable Flank Lead Terminal



## Surface Mount Type



## Through Hole Type



# Through Hole Type

TO-220SIS (SC-67) (10.0 x 15.0)		TO-3P(N) (SC-65) (15.5 x 20.0)		TO-247 (15.94 x 20.95)	
Package dimension	unit: mm	Package dimension	unit: mm	Package dimension	unit: mm

TO-3P(L) (20.0 x 26.0)		TO-247-4L (15.94 x 20.95)		TO-247-4L(X) (15.94 x 23.45)	
Package dimension	unit: mm	Package dimension	unit: mm	Package dimension	unit: mm



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