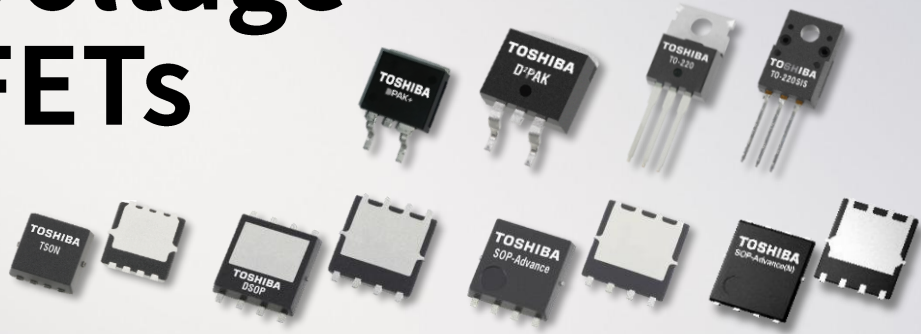


Low Voltage MOSFETs



Latest MOSFET technology

U-MOS VIII, IX-H and X are high-efficiency Low Voltage (LV) MOSFET series, specifically designed for use in the secondary side of AC-DC power supplies for adapters, servers etc. as well as DC-DC power supplies for communication equipment such as servers and data center. UMOS VIII, IX and UMOS X are also suitable for motor drives, UPS and machine tools. U-MOS X and selected UMOS IX are adopting a new cell structure that reduce the voltage spikes and ringing during switching which contributes for greater higher efficiency. Moreover the new SOP Advance (N) package in 5 x 6 mm dimension for improved compatibility is introduced .

Applications

- Power supplies
- Industry automation
- Servers
- Adapters
- UPS
- Machine tools
- Battery packs
- Welding

Features

- Latest Gen-10 and Gen-9 trench MOS process, complementing Gen- 8 lineup
- Increased Tj:175°C since Gen-9
- Improved energy efficiency categories
- Highest performance in on-resistance per die area ($R_{ON(A)}$)
- Wide range of V_{DSS} (30V-250V) and $R_{DS(ON)}$ values down to 0.6mΩ
- Package option dual side cooling
- Low spike solutions since Gen-9

Advantages

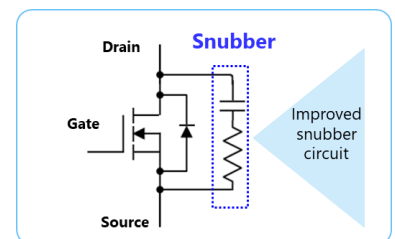
- Wide product lineup is applicable in various power apps.
- More thermal safety head room
- Significantly better trade-offs between on-resistance ($R_{DS(ON)}$) and charge characteristics.
- High avalanche ruggedness
- Reduced electromagnetic radiation
- Ideal for applications that require power density, smaller size etc.
- Less EMI effects at low spike type

Benefits

- Attractive cost effects
- Lower system costs due to fast switching & smaller form factor
- Low service costs based on increased lifetime (cooler system) to reduce costs of operation failures
- Flexible system costs by cost variations related to product construction (topology)
- Improved end product quality
- Increased demand and market share

Low Spike Technology

Toshiba offers high switching noise reduction by adopting improved snubber circuit for selected UMOS IX and all UMOS X series. With this new technology, Toshiba can offer low voltage spike and ringing for both resistance and inductance load.



U-MOS VIII & U-MOS IX – Product line-up

V_{DS} (V)	$R_{DS(on)}$ In mΩ	TO-220SIS	TO-220	SOP Advance 5x6mm	SOP Advance N 5x6mm	DSOP Advance 5x6mm	TSON Advance 3x3mm	DPAK
30	10-20			TPH11003NL			TPN11003NL	
	5-10			TPH8R903NL TPH6R003NL			TPN8R903NL TPN6R003NL TPN6R303NC TPN5R203PL*	
	3-5			TPH4R803PL* TPH4R003N TPH3R203NL			TPN4R203NC TPN4R303NL	
	1-3			TPH3R003PL* TPH2R903PL* TPH2R003PL*	TPH1R403NL TPH1R403NL1		TPN2R203NC TPN2R703NL TPN2R903PL* TPN1R603PL*	
	<1			TPHR9003NC	TPHR9003NL1 TPHR9203PL1* TPHR6503PL1*	TPWR8503NL TPWR6003PL*		
40	5-10			TPH7R204PL* TPH6R004PL*			TPN7R504PL*	
	3-5	TK3R1A04PL*	TK3R1E04PL*	TPH3R704PL*			TPN3R704PL*	TK3R1P04PL*
	<3			TPH2R104PL* TPH1R204PB**	TPH1R204PL* TPH1R204PL1*		TPN2R304PL*	
	<1			TPHR7404PU NEW	TPHR8504PL1*	TPWR8004PL*		
60	10-30	TK30A06N1 TK40A06N1	TK30E06N1 TK40E06N1	TPH14006NH TPH11006NL			TPN22006NH TPN14006NH TPN11006PL*	
	6-10	TK58A06N1 TK8R2A06PL*	TK58E06N1 TK8R2E06PL*	TPH9R506PL* TPH7R506NH TPH7R006PL*			TPN7R506NH TPN7R006PL*	TK6R7P06PL*
	3-6	TK5R3A06PL* TK4R3A06PL*	TK5R1E06PL* TK4R3E06PL*	TPH5R906NH TPH3R506PL*			TPN4R806PL*	TK4R4P06PL*
	1-3	TK100A06N1 TK3R3A06PL*	TK3R2E06PL* TK100E06N1	TPH1R306P1**	TPH1R306PL1* TPH2R306NH1 TPH2R506PL* TPH2R306PL1*	TPW1R306PL*		
75	1-3		TPH2R608NH			TPW2R508NH		
80	30-50						TPN30008NH	
	10-20	TK35A08N1		TPH12008NH			TPN19008QM*** TPN12008QM*** NEW	
	5-10	TK46E08N1 TK72A08N1 TK6R8A08QM*** TK5R1A08QM*** NEW	TK46E08N1 TK72E08N1 TK7R0E08QM*** TK5R3E08QM*** NEW	TPH8R008NH			TPN8R408QM***	TK6R9P08QM*** TK5R1P08QM*** NEW
	2-5	TK3R2A08QM*** TK100A08N1 TK2R4A08QM*** NEW	TK3R3E08QM*** TK100E08N1 TK2R4A08QM***	TPH2R408QM*** NEW	TPH4R008NH1 TPH4R008QM*** NEW	TPW4R008NH		
	30-50						TPN3300ANH	
100	10-30	TK22A10N1 TK110A10PL*	TK22E10N1* TK110E10PL*	TPH1400ANH			TPN1600ANH TPN1200APL*	TK110P10PL*
	5-10	TK34A10N1 TK40A10N1 TK7R4A10PL* TK6R7A10PL*	TK34E10N1 TK40E10N1 TK7R2E10PL* TK6R4E10PL*	TPH8R80ANH TPH6R30ANL TPH5R60APL*				TK7R7P10PL*
	3-5	TK65A10N1 TK4R1A10PL* TK100A10N1 TK3R2A10PL*	TK65E10N1 TK3R9E10PL* TK100E10N1	TPH4R10ANL TPH3R70APL*	TPH4R50ANH1 TPH3R70APL1*	TPW4R50ANH TPW3R70APL*		
	<3		TK2R9E10PL*					
120	10-20	TK32A12N1	TK32E12N1					
	5-10	TK42A12N1 TK56A12N1	TK42E12N1 TK56E12N1					
	3-5	TK72A12N1	TK72E12N1					
150	50-100			TPH5900CNH			TPN5900CNH	
	20-50			TPH3300CNH				
	5-20				TPH1500CNH1	TPW1500CNH		
200	100-200			TPH1110ENH			TPN1110ENH	
	50-100			TPH6400ENH				
	20-50			TPH2900ENH		TPW2900ENH		
250	200-300			TPH2010FNH			TPN2010FNH	
	100-200			TPH1110FNH				
	50-100			TPH5200FNH		TPW5200FNH		