TOSHIBA
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Product News 2017-08

TK3R1P04PL,
TK4R4P06PL,
TK6R7P06PL

40 V, 60 V N-ch power MOSFETs in U-MOSIX-H series, newly using the DPAK package

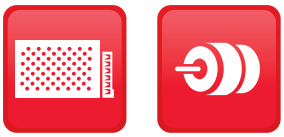
"TK3R1P04PL", "TK4R4P06PL" and "TK6R7P06PL" are N channel power MOSFETs in U-MOSIX-H series, newly using DPAK package. One 40 V product and two 60 V products have been launched.
Each of the new products uses the DPAK package, the latest generation U-MOSIX-H process with a trench structure, and expands the product lineup. Supporting 4.5 V logic level driving, they are suitable for applications such as quick chargers, switching power supplies, and DC-DC converters for servers and communication infrastructures.

Features

- Industry-leading low On-resistance[1]: $R_{DS(ON)}$=3.1 mΩ (max) @V_{GS}=10 V (TK3R1P04PL)
- Low output charge
- Supports logic level driving (4.5 V)

Applications

- Efficient DC-DC converters
- Efficient AC-DC converters
- Power supplies
- Motor drives



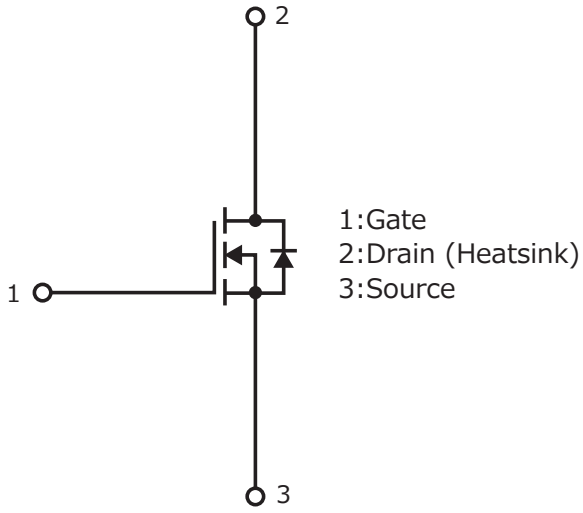
Product Specifications

(Unless otherwise specified, @T_a=25℃)

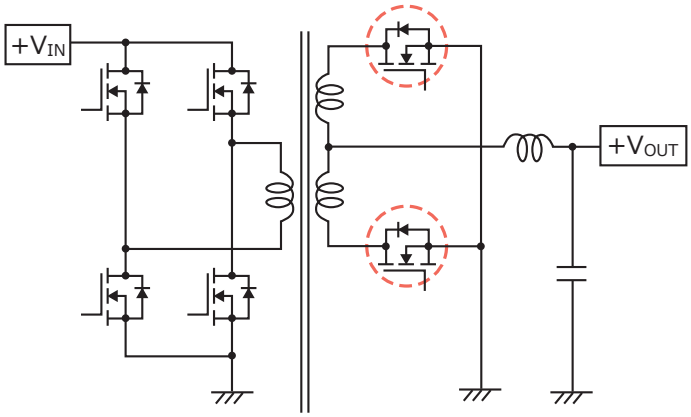
Part number	Polarity	Absolute maximum ratings		Drain-source On-resistance $R_{DS(ON)}$ max (mΩ)		Total gate charge Q_g typ. (nC)	Output charge Q_{oss} typ. (nC)	Input capacitance C_{iss} typ. (pF)	Package	Series
		Drain-source voltage V_{DSS} (V)	Drain current (DC) I_D @T_c=25℃ (A)	@V_{GS}= 10 V	@V_{GS}= 4.5 V					
TK3R1P04PL	N-ch	40	58	3.1	4.3	60	42	4670	DPAK	U-MOSIX-H
TK4R4P06PL		60	58	4.4	7.1	48.2	39	3280		
TK6R7P06PL			46	6.7	11.1	26	23	1990		

Note:
[1] As of June 2017, from a survey by Toshiba.

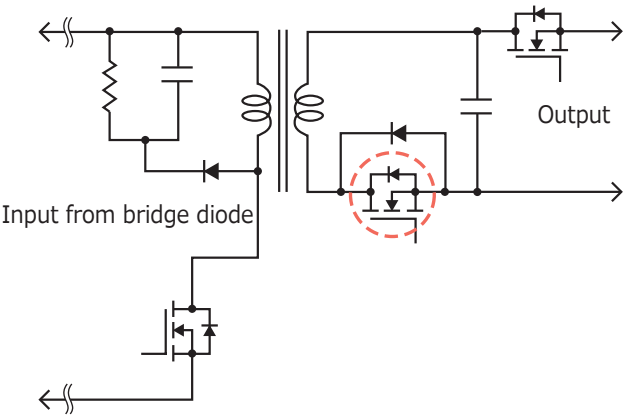
Internal Circuit



Application Circuit Example



Power supplies (Full bridge converter)



Power supplies (Flyback converter)

The application circuits shown in this document are provided for reference purposes only. Thorough evaluation is required, especially at the mass-production design stage. Toshiba Electronic Devices & Storage Corporation does not grant any license to any industrial property rights by providing these examples of application circuits.