TOSHIBA
Leading Innovation

Product News 2018-01

TK750A60F, TK1K2A60F,
TK1K9A60F, TK650A60F

New generation 600 V planar power MOSFET π-MOSIX series products

The four products including “TK750A60F” are new generation 600 V planar power MOSFET π-MOSIX series products.
With an optimized chip design, the π-MOSIX series provides 5 dB lower[1] peak EMI noise than the current π-MOSⅧ series, while maintaining the same level of efficiency. It offers greater design flexibility and therefore helps reduce design workloads. In addition, the π-MOSIX series has the same rated avalanche current and rated drain current (DC), making it simple to replace existing MOSFET.
Toshiba Electronic Devices & Storage Corporation will expand the portfolio of the π-MOSIX series with the addition of more 600 V devices, as well as 500 V and 650 V devices.

TO-220SIS

Features

- New generation planar power MOSFETs using π-MOSIX
- Combines high efficiency and low noise.
- Rated avalanche current equivalent to the rated drain current (DC)

Applications

- Small to medium switching power supplies
  (AC adapters for laptop PCs, game console chargers, etc.)
- Lighting power supplies

Power supplies

Product Specifications

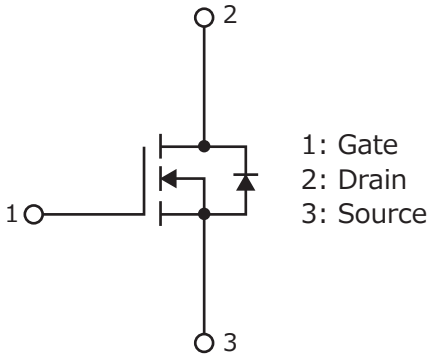
(@T_a=25 ℃)

Part number	Package	Absolute maximum ratings		Drain-source On-resistance $R_{DS(ON)}$ max @V_{GS}=10 V (Ω)	Total gate charge Q_g typ. (nC)	Input capacitance C_{iss} typ. (pF)	Current generation (π-MOSⅧ series) Part number
		Drain-source voltage V_{DSS} (V)	Drain current (DC) I_D (A)				
TK750A60F	TO-220SIS	600	10	0.75	30	1130	TK10A60D
TK1K2A60F			6	1.2	21	740	TK6A60D ($R_{DS(ON)}$=1.25 Ω)
TK1K9A60F			3.7	1.9	14	490	TK4A60DB ($R_{DS(ON)}$=2.0 Ω)
TK650A60F			11	0.65	34	1320	TK11A60D

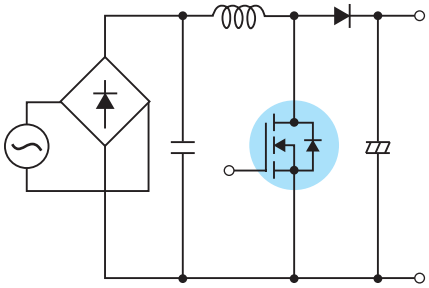
Notes:
[1] Comparison between conventional product TK10A60D and new product TK750A60F (65 W laptop PC adapters in the 200 MHz region)

PE318010022B

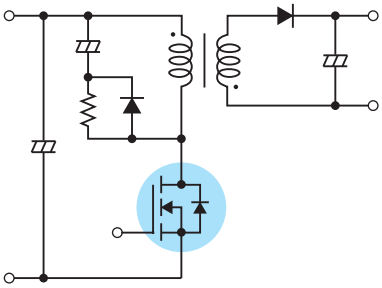
Internal Circuit



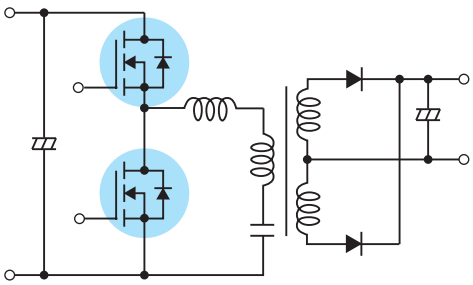
Application Circuit Example



PFC circuit



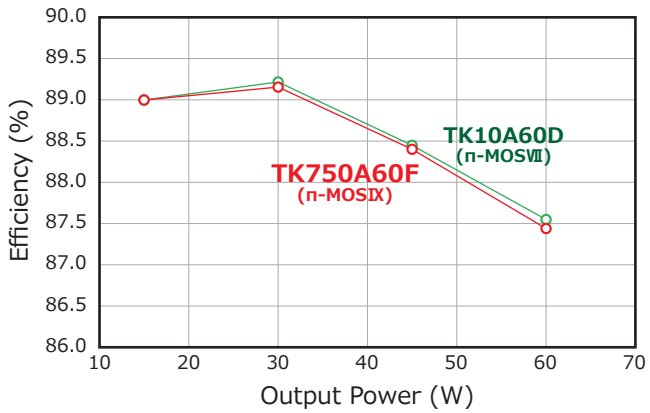
Flyback converter



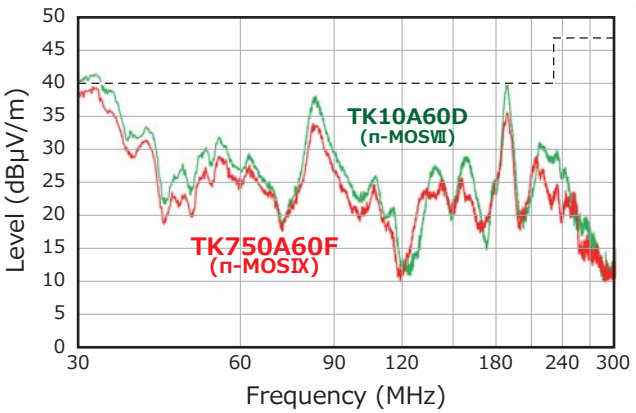
Resonant half-bridge converter (LLC)

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.

Comparison between new product TK750A60F and conventional product TK10A60D[2]



Power supply efficiency@65 W laptop PC adapter



EMI noise@65 W laptop PC adapter

Notes:
[2] Values measured by Toshiba Electronic Devices & Storage Corporation