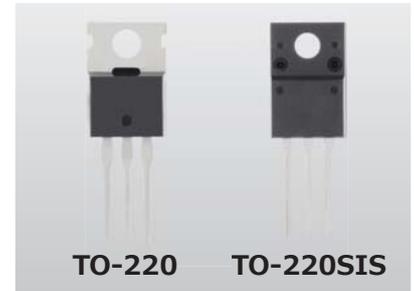


TK3R2E06PL, TK5R1E06PL,
TK3R3A06PL, TK5R3A06PL

The lineup of 60 V N-ch U-MOSIX-H series power MOSFET has expanded

“TK3R2E06PL”, “TK5R1E06PL”, “TK3R3A06PL”, and “TK5R3A06PL” are 60 V N-ch U-MOSIX-H series power MOSFETs in TO-220 or TO-220SIS packages.

Each of the new products has a MOSFET chip mounted on either a TO-220 or TO-220SIS package to expand the product lineup. The chip uses the latest generation U-MOSIX-H process with a trench structure. 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]: $R_{DS(ON)}=3.2 \text{ m}\Omega$ (max) @ $V_{GS}=10 \text{ V}$ (TK3R2E06PL)
- Low output charge
- Supports logic level driving (4.5 V)

Applications

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



Power supplies



Motors

Product Specifications

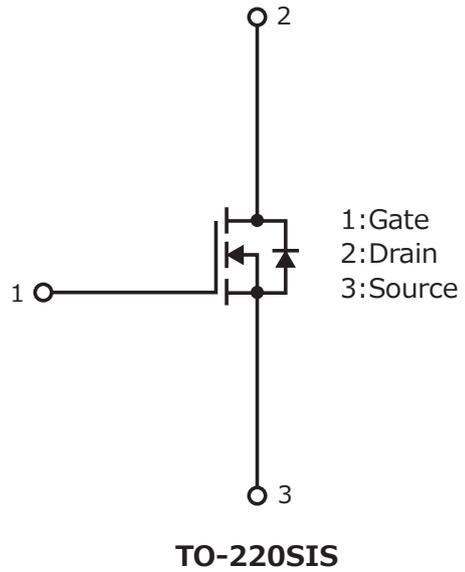
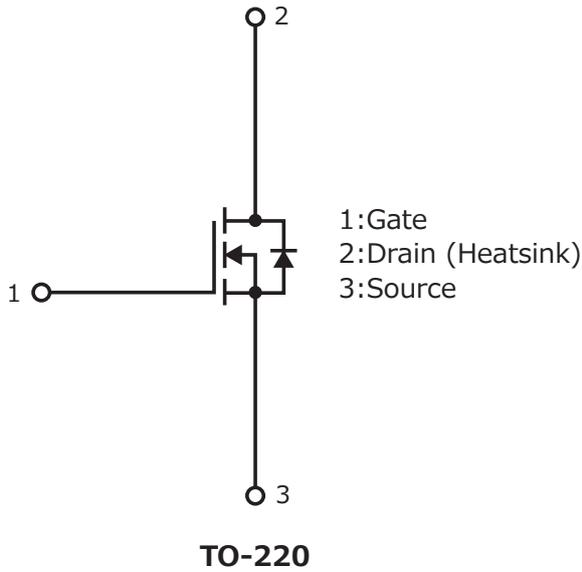
(Unless otherwise specified, @ $T_a=25^\circ\text{C}$)

| Part number | Polarity | Absolute maximum ratings | | Drain-source On-resistance $R_{DS(ON)}$ max (m Ω) | | 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 @ $T_c=25^\circ\text{C}$ (A) | @ $V_{GS}=10 \text{ V}$ | @ $V_{GS}=4.5 \text{ V}$ | | | | | |
| | | | | TK3R2E06PL | N-ch | | | | | |
| TK5R1E06PL | 70 | 5.1 | 8.8 | 36 | | 32 | 2380 | | | |
| TK3R3A06PL | 80 | 3.3 | 4.9 | 71 | | 66 | 5000 | TO-220SIS | | |
| TK5R3A06PL | 56 | 5.3 | 9.3 | 36 | | 32 | 2380 | | | |

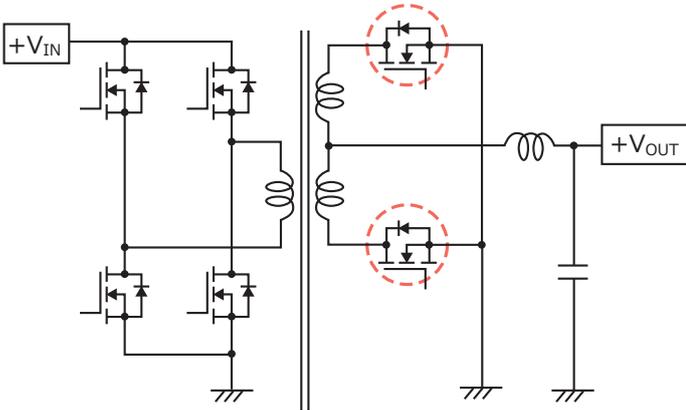
Note:

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

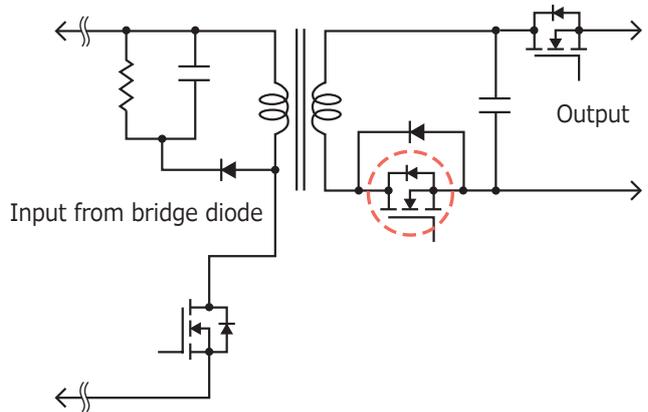
Internal Circuit



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.

Before creating and producing designs and using, customers must also refer to and comply with the latest versions of all relevant information of this document and the instructions for the application that Product will be used with or for.