

## A low spike product in our 60 V N-channel power MOSFET U-MOSIX-H series that helps reducing EMI of power supplies

“TPH1R306P1” is a new product in our 60 V N-channel power MOSFET U-MOSIX-H series suitable for power supplies.

The new product uses the SOP Advance surface mount package, and has expanded the lineup. It is a low spike product, using the latest generation process U-MOSIX-H with a low voltage trench structure. The new product is able to maintain low spike voltage which is generated between the drain and the source at the switching operation, making it suitable for synchronous rectification in a secondary side of switching power supplies that require low EMI.

Both low spike products and highly efficient products have been lined up in the U-MOSIX-H series, so users can choose products that are suitable for their applications.



### Features

- Industry’s lowest level On-resistance<sup>[1]</sup>  
 $R_{DS(ON)}=1.28 \text{ m}\Omega \text{ (max) @}V_{GS}=10 \text{ V}$
- Low spike
- Allows 4.5 V logic level drive

### Applications

- Various types of power supplies  
 (efficient DC-DC converters, efficient AC-DC converters, switching power supplies, etc.)
- Motor control equipment  
 (motor drives, etc.)



Power supplies

### Product Specifications

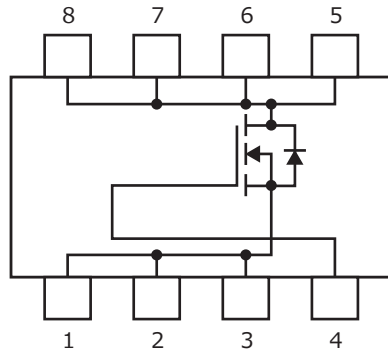
(Unless otherwise specified, @T<sub>a</sub>=25 °C)

Part number	Absolute maximum ratings		Drain-source On-resistance $R_{DS(ON)}$ max (m $\Omega$ )		Total gate charge $Q_g$ typ. (nC)	Output charge $Q_{oss}$ typ. (nC)	Input capacitance $C_{iss}$ typ. (pF)	Gate resistance $r_g$ typ. ( $\Omega$ )	Package
	Drain-source voltage $V_{DSS}$ (V)	Drain current (DC) $I_D$ @T <sub>c</sub> =25 °C (A)	@V <sub>GS</sub> =10 V	@V <sub>GS</sub> =4.5 V					
TPH1R306P1	60	100	1.28	2.3	91	77.5	6250	2.2	SOP Advance

Notes:

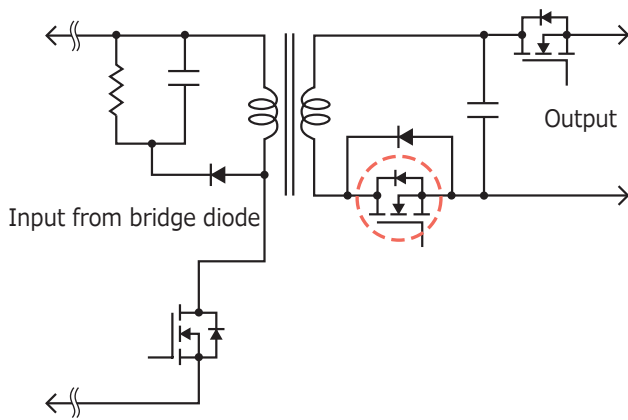
[1] As of March 2018, from a survey by Toshiba Electronic Devices & Storage Corporation.

# Internal Circuit

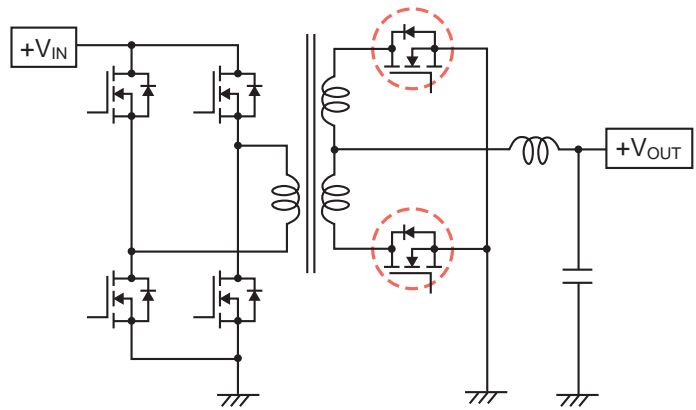


1,2,3: Source  
4: Gate  
5,6,7,8: Drain

# Application Circuit Example



**Power supplies (Flyback converter)**



**Power supplies (Full bridge 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.

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