Photocoupler with UVLO for switching power supplies controlled digitally and IPM drives

"TLP2735" is Toshiba Electric Device & Storage Corporation's first high speed IC photocoupler, which incorporates UVLO[1] function, for MOSFET gate signal insulation.
By adopting UVLO[1] function, the photocoupler has little influence from noise like that generated in power supply line, and can prevent malfunction when the equipment turns on.
With an isolation voltage of 5 kVrms (min) between the input and output, as well as conformity with the IEC60747-5-5[2] photocoupler safety standard, TLP2735 is also suitable for applications requiring high insulation performance.
The operating power supply voltage in the output side is 9 V to 20 V, specifications suited to MOSFET gate voltages, and the propagation delay time is 100 ns (max), fast for a photocoupler designed for MOS gate insulation. As its power supply voltage is high, it can also be used for Intelligent Power Module (IPM) input insulation.
Simply adding a buffer circuit to the subsequent stage of TLP2735, a MOSFET insulation gate drive circuit can be implemented. In addition, with its operating temperatures of -40℃ to 125℃, it can also be used in a high temperature environment.
The latest Gartner market report recognizes Toshiba as the leading manufacturer of optocouplers by sales in 2015 and 2016, with 23 % of sale-based market share in CY2016. (Source: Gartner, Inc. “Market Share: Semiconductor Devices and Applications Worldwide 2016” 30 March, 2017)
Toshiba Electronic Devices & Storage Corporation will continue to develop products that meet the needs of customers by promoting the development of a diverse portfolio of photocouplers and photorelays tailored to market trends.

SO6L

Features

- Built-in UVLO[1] function with hysteresis
- High operating temperature rating: $T_{opr\ (max)}$=125℃
- SO6L package adoption with long creepage distance and thin
  [Height 2.3 mm (max), creepage and clearance distances 8 mm (min), supporting reinforced isolation]

Applications

- MOSFET gate signal insulation
- Switching power supplies controlled digitally
- Industrial automation equipment (IPM signal insulation)

Power supplies

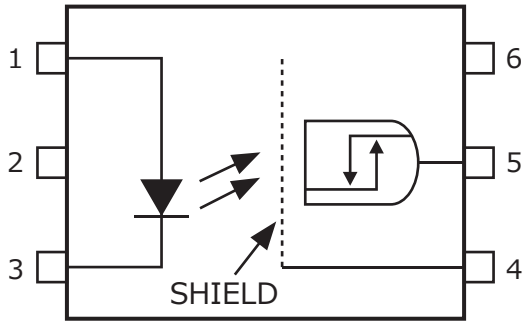
Notes:
[1] UVLO (Under Voltage Lock Out)
[2] IEC60747-5-5 conformity: Maximum allowable operating isolation voltage V_{IORM}=1140 Vpeak

Product Specifications

(Unless otherwise specified @T_a= -40 to 125℃)

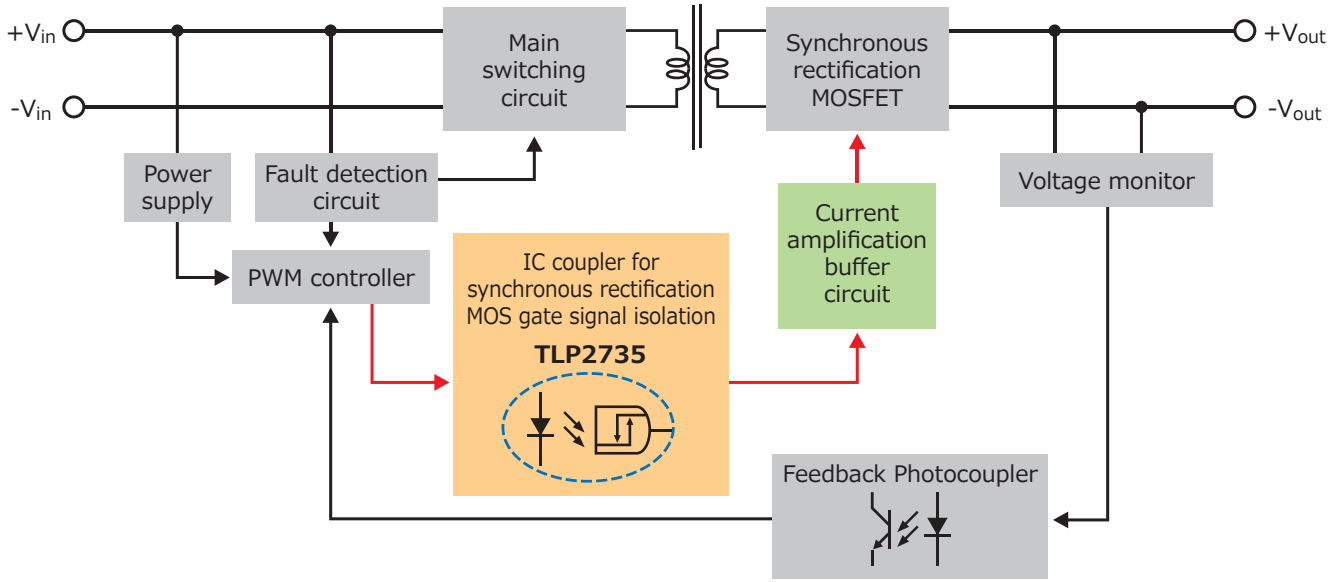
Part number	Package	Creepage distances min (mm)	Absolute maximum ratings: Operating temperature T_{opr} (℃)	Isolation voltage BV_S min @T_a=25℃ (kVrms)	Threshold input current (L→H) I_{FLH} max (mA)	UVLO threshold voltage V_{UVLO+},V_{UVLO-} typ. (V)	Propagation delay time t_{pHL}, t_{pLH} max (ns)	Common-mode transient immunity CM_H, CM_L min (kV/μs)
TLP2735	 SO6L	8	-40 to 125	5	3	8.1/7.5	100	±25

Pin Connection



1: Anode
2: N.C.
3: Cathode
4: GND
5: V_O(Output)
6: V_{DD}

Application Circuit Example



Switching power supplies controlled digitally

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