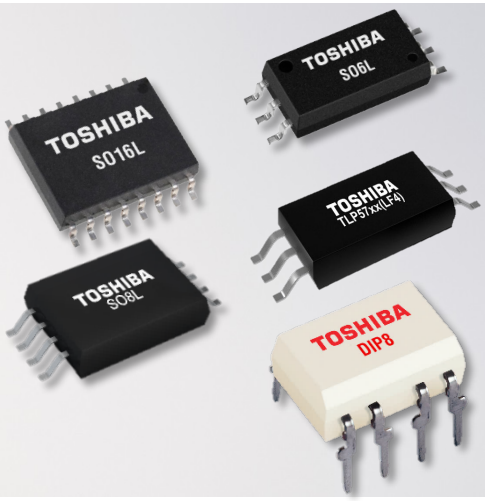
Gate Drive Couplers



Ideal for Tough Industrial Applications

Our IGBT / MOSFET Gate Drive coupler portfolio includes an extensive lineup of photocouplers with an output ranging from 0.6A to the industry's highest-level, 6.0A. Thus, you can select couplers that best fit your needs according to the gate capacitances of the driven IGBTs and MOSFETs.

Applications

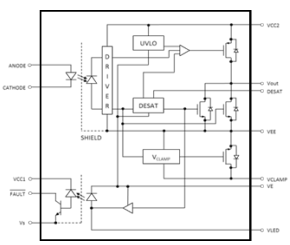
- Industrial automation
- FA Inverter
- AC Servo
- Power Supply (UPS)
- Air Conditioner Inverter
- Photovoltaic Inverter
- Home Appliances
- Induction Cooking

Features	Advantages	Benefits
• Wide range of gate drive devices with extended temp range from -40°C up to +125°C • Optical isolation with guaranteed internal galvanic isolation distance of min. 0.4mm • Package variety with excellent isolation performance • Leading edge technology for best technical performance and fastest switching • New Rail to Rail IGBT drivers • Smart IGBT driver with desaturation detection and active Miller clamp	• Products are flexible applicable in harsh environments • Provides best in class isolation performance without creating EMI issues • Variety of lead forming styles with 7mm & 8mm clearance/creepage • Devices offer highest CMR up to 40kV/µs and integrated UVLO circuit • Improved system efficiency • No external protection circuit needed	Attractive Cost effects • Fewer field failures due to higher product reliability • Less EMI problems • 50% less mounting space for new SO6L package compared with old DIP8 packages • Less external components needed Smart performance increases • Strong isolation for enhanced safety and high reliability • Easy design for best performance

Smart gate driver coupler, SO16L package with desaturation detection and active Miller clamp

Toshiba's TLP5214A is a smart gate driver Photocoupler which includes several functions like IGBT desaturation detection, isolated fault status feedback, soft IGBT turn-off, active Miller clamping and under voltage lockout (UVLO). It comes in the industry's thinnest SO16L package with a max. height of 2.3mm and it features the industry's highest-class peak output current of 4.0A.

Main Characteristics	
Package height	2.3mm
Peak current	± 4.0A (max)
Operating temp.	-40 ~ 110°C
Supply current	3.5mA (max)
tpHL / tpLH	150ns (max)
tpsk	80ns (max)



TLP575x and TLP577x – The best choice for new drive generations

The excellent combination of Toshiba's high performance long life LEDs, low power consumption driver ICs with rail to rail output and the advanced, space saving SO6L package with a max. height of 2.3mm make Toshiba's gate driver couplers the ideal choice for the next generations of drives.

The new TLP5771, TLP5772 and TLP5774 supply peak output currents of 1A, 2.5A, and 4A. Maximum propagation delay time and propagation delay skew are guaranteed within the defined wide operation temperature range up to 110°C, making it possible to reduce dead time in the inverter circuit, which can secure higher operating efficiency. The very low threshold input current of max. 2mA allows direct drive of the device from an MCU.

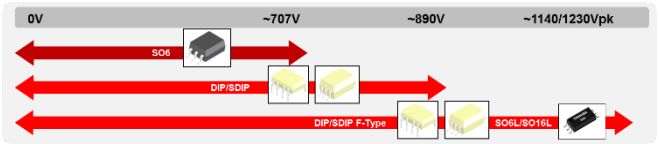
TLP5751H, TLP5752H and TLP5754H will be released soon with an extended temperature range to +125°C.

SO6L Package

Toshiba's SO6L package with 8mm clearance and creepage distances guarantees a maximum operating insulation voltage of 1230Vpk.

It's maximum height of only 2.3mm makes it suitable for mounting on the backside of a PCB, which greatly improves the design flexibility for the front side.

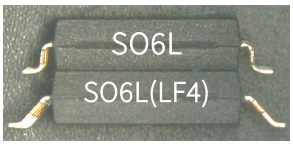
Maximum Operating Insulation Voltage (EN60747-5-5)

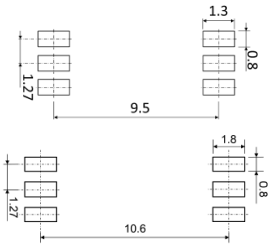


SO6L Wide lead forming option LF4

Toshiba's SO6L package is available now with a wide lead forming option (LF4), which offers a pin distance of min. 9.35mm.

With the LF4 lead forming option, Toshiba's SO6L package can be mounted directly on footprints of similar gate-driver packages on the market.





IGBT/ MOSFET Gate driver coupler lineup

Peak Output Current	Propagation Delay Time (max.)	Supply Voltage V_{cc}	Threshold Input Current I_{FLH} (max.)	Package						
				SO6	SO6L*1	SO6L*1 LF4	SO8L*1	SO16L*1	DIP8	DIP8 F type*1
± 6 A	500 ns	15 V ~ 30 V	5 mA						TLP358H H	TLP358HF H
± 4 A	150 ns	15 V ~ 30 V	4 mA | 6 mA		TLP5754 H Rail to Rail	TLP5754(LF4) H Rail to Rail		TLP5214A H Rail to Rail		
		10 V ~ 30 V	2 mA		TLP5774 H Rail to Rail	TLP5774(LF4)* H Rail to Rail				
± 2.5 A	150 ns	15 V ~ 30 V	4 mA		TLP5752 H Rail to Rail	TLP5752(LF4) H Rail to Rail				
		10 V ~ 30 V	2 mA		TLP5772 H Rail to Rail	TLP5772(LF4) H Rail to Rail				
	200 ns	15 V ~ 30 V	5 mA		TLP5702 H	TLP5702(LF4) H	TLP5832 H		TLP352 H	TLP352F H
		10 V ~ 30 V	7.5 mA	TLP152						
	500 ns	15 V ~ 30 V	5 mA						TLP350H H	TLP350HF H
± 1 A	150 ns	15 V ~ 30 V	4 mA		TLP5751 H Rail to Rail	TLP5751(LF4) H Rail to Rail		TLP5231 ** H dual output		
		10 V ~ 30 V	2 mA		TLP5771 H Rail to Rail	TLP5771(LF4)* H Rail to Rail				
± 0.6 A	200 ns	10 V ~ 30 V	7.5 mA	TLP155E						
	500 ns		5 mA	TLP151A H	TLP5701 H	TLP5701(LF4) H				
	700 ns		5 mA						TLP351H H	TLP351HF H

*1 SO6L, SO8L, SO16L and F type of DIP Photocouplers have 8mm clearance / creepage distances
** under development
H Photocouplers with a maximum operating temperature of 110°C
H Photocouplers with a maximum operating temperature of 125°C