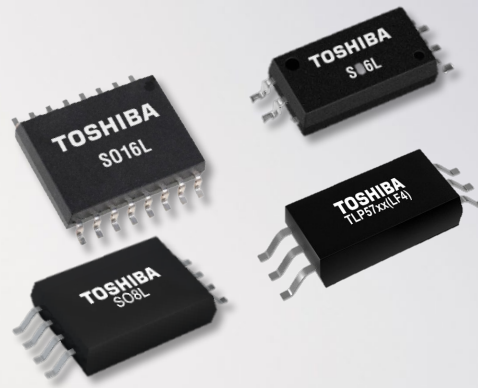


Gate Drive Couplers



Ideal for Tough Industrial Applications

Toshiba's IGBT / MOSFET gate drive coupler portfolio includes an extensive line-up of photocouplers with an output ranging from 0.6A to 5.0A. 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

- Wide range of gate drivers with extended temp. range from -40°C up to +125°C
- Optical isolation with guaranteed internal galvanic isolation distance of minimum 0.4mm
- Package variety with excellent isolation performance
- Leading edge technology for best technical performance and fastest switching
- Wide range of Rail to Rail IGBT drivers
- Smart IGBT gate driver with desaturation detection and active Miller clamp

Advantages

- Products are 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 CMTI up to 40kV/μs and integrated UVLO circuit
- Improved system efficiency
- No external protection circuit needed

Benefits


- Attractive cost effects
- Fewer field failures due to higher product reliability
- Less EMI problems
- 50% less mounting space for new SO6L package compared with previous DIP8 packages
- Less external components needed
- Smart performance increases
- Strong isolation for enhanced safety and high reliability
- Easy design for best performance

TLP5212, TLP5222 – The suitable choice for a wide range of application (inverters, AC servo etc.)

TLP5212 and TLP5222 feature a totem pole output with two N-channel MOSFETs to ensure compatibility with specifications widely used in applications such as industrial equipment. In addition these new photocouplers incorporate protection functions such as desaturation detection, active Miller clamp, UVLO and FAULT output, eliminating the need for several external circuits. This reduces system costs for fault detection and protection as well as saving space and design effort. By incorporating Toshiba's own reliable and powerful infrared LED, the devices can be used in severe thermal environments such as photovoltaic power generation systems and uninterruptible power supplies(UPS).


TLP5212 requires a signal on the input side to resume from protection.


TLP5222 resumes automatically after a specified time.


Creepage / Clearance (mm)		8.0	Features									
Insulation Voltage (Vrms)		5000		Overcurrent detection	Soft shutdown	Fault output signal	Active Miller Clamp	Undervoltage lockout	Rail to Rail output	Dual-output	Protection mode Auto reset	Operating temperature
Package		SO16L										
Peak Output Current I_{OP}	Propagation Delay Time t_{PHL} (Max)											
4.0 A	150 ns	TLP5214 TLP5214A	✓	✓	✓	✓	✓	✓				
2.5 A	250 ns	TLP5212	✓	✓	✓	✓	✓	✓	✗			-40 ~ 110 °C
2.5 A	250 ns	TLP5222	✓	✓	✓	✓	✓	✓	✗		✓	
2.5 A	300 ns	TLP5231	✓	✓	✓		✓	✓	✓	✓	✓	

IGBT/ MOSFET gate driver coupler line-up

Peak Output Current	Propagation Delay Time (max.)	Supply Voltage V_{CC}	Threshold Input Current I_{FLH} (max.)	Output	Package					
					SO6	SO6L	SO6L LF4	SO8L	SO16L	
± 5 A	200 ns	15 V ~ 30 V	5 mA				TLP5705H* 	TLP5705H(LF4)*		
± 4 A	150 ns	15 V ~ 30 V	4 mA 6 mA	Rail to Rail			TLP5754  TLP5754H* 	TLP5754(LF4)  TLP5754H(LF4)* 		TLP5214A 
		10 V ~ 30 V	2 mA	Rail to Rail			TLP5774  TLP5774H* 	TLP5774(LF4)  TLP5774H(LF4)* 		
± 2.5 A	150 ns	15 V ~ 30 V	4 mA	Rail to Rail			TLP5752  TLP5752H* 	TLP5752(LF4)  TLP5752H(LF4)* 		
		10 V ~ 30 V	2 mA	Rail to Rail			TLP5772  TLP5772H* 	TLP5772(LF4)  TLP5772H(LF4)* 		
	200 ns	15 V ~ 30 V	5 mA				TLP5702  TLP5702H* 	TLP5702(LF4)  TLP5702H(LF4)* 	TLP5832 	TLP5212*  TLP5222* 
		10 V ~ 30 V	7,5 mA		TLP152					
± 1 A	150 ns	15 V ~ 30 V	4 mA	Rail to Rail			TLP5751  TLP5751H* 	TLP5751(LF4)  TLP5751H(LF4)* 		TLP5231*  dual output 
		10 V ~ 30 V	2 mA	Rail to Rail			TLP5771  TLP5771H* 	TLP5771(LF4)  TLP5771H(LF4)* 		
± 0.6 A	200 ns	10 V ~ 30 V	7,5 mA		TLP155E					
	500 ns		5 mA		TLP151A 	TLP5701 	TLP5701(LF4) 			

 SO6 package has 5mm clearance / creepage distances, while all "L" packages have 8mm clearance / creepage distances.

 Photocouplers with a maximum operating temperature of 110°C

 Photocouplers with a maximum operating temperature of 125°C

* new product

** under development