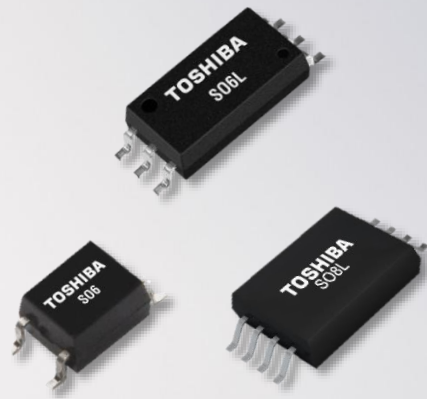


High Speed IC Couplers



Expert Choice for High Speed Signals

Toshiba offers photocouplers compliant with a wide range of communication standards such as low- to medium-speed RS-232, high speed RS-485 and those for factory networks. An isolation voltage as high as $5kV_{rms}$ enhances the safety of an end application, while the initial input current of approximately 1mA provides an energy-efficient solution.

Features

- Wide range of high speed couplers with extended temp. range from $-40^{\circ}C$ to $+125^{\circ}C$
- Extensive range of data rate options from 100kbps to 50Mbps
- Optical isolation with guaranteed internal galvanic isolation distance of minimum 0.4mm
- Leading edge technology for highest reliability and lowest power consumption
- Package variety with clearance/creepage distances from 4mm to 8mm

Advantages

- Products are perfectly applicable in harsh environments
- Free choice of speed options for major communication standards
- Provides best in class isolation performance
- Enables highest system performance and efficiency
- Wide choice of package options to meet the required safety standards

Applications

- Factory automation
- Smart meters
- High speed digital interfaces
- Power supply feedback
- Home appliances

Benefits

Attractive cost effects

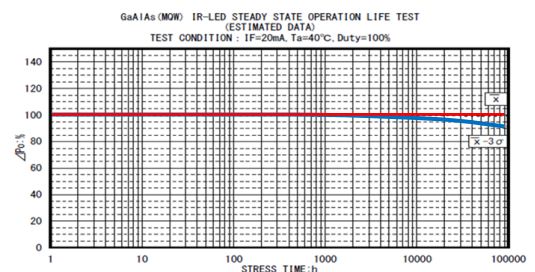
- High reliability of end products reduce costs of operation failures
- Ability to reduce BOM costs due to most effective solutions
- Customers can save money through design and space optimization

Smart performance increases

- Reduction of end product size leads to a unique selling proposition for the customer
- Easy design for best performance

Advantages of long lifetime high power LEDs

Toshiba's high-power infrared LEDs with a Multi Quantum Well (MQW) structure allow operation at high temperature conditions and show much lower output degradation over time than standard LEDs. Performance remains very stable and design becomes very easy.



High speed IC couplers TLP2312 & TLP2372 for low 2.2V supply voltage operation

The two devices have typical data transfer rates of 5Mbps (TLP2312) and 20Mbps (TLP2372) and are specifically designed to operate with low voltage rails, down to 2.2V. With a low threshold input current of 1.6mA (max.), and low supply current of 0.5mA (max.) across their -40°C to +125°C operating temperature range, the new photocouplers can be directly driven by microcontrollers, reducing power consumption. Both devices offer an isolation voltage of 3.75kVrms for safety isolation.



TLP2363 – High speed coupler for PLC

TLP2363 is a high speed IC Coupler with a data rate of 10Mbps, dedicated to PLC applications.

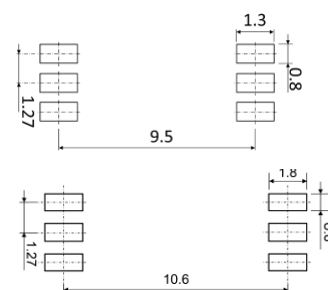
It has been designed to follow the requirements of IEC61131-2 type 1 standard for 24V digital input modules.

TLP2363 delivers a clear ‘high’ or ‘low’ on the output by suppressing chatter noise, even with a slow-moving input signal of 60s or less with a long rising or falling edge. As a result, there is no need for any waveform shaping circuitry, reducing the number of components that saves PCB area and cost.

Temperature range is from -40°C to +105°C.

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 minimum 9.35 mm. With the LF4 lead forming option, Toshiba’s SO6L package can be mounted directly on footprints of similar high speed coupler packages on the market.



IC couplers for high speed logic signal transmission and IPM drive

Data Rate (typ.)	Output Form	Supply Voltage V_{cc}	Package				
			SO6	SO6L ^{*1}	SO6L ^{*1} LF4	SO8L ^{*1} 2-ch	
~ 50 Mbps	Totem Pole	Inverter Logic	2.7 V - 5.5 V	TLP2367 H	TLP2767 H		
~ 20 Mbps	Open Collector	Inverter Logic	2.7 V - 5.5 V	TLP2368 H	TLP2768A H	TLP2768A(LF4) H	
		Inverter Logic	2.7 V - 5.5 V	TLP2366 H	TLP2766A H	TLP2766A(LF4) H	
	Totem Pole	Buffer Logic	2.7 V - 5.5 V	TLP2370 H L	TLP2770 H L		TLP2270 H L
		Buffer Logic	2.2 V - 5.5 V	TLP2372 H L			
~ 15 Mbps	Totem Pole	Inverter Logic	2.7 V - 5.5 V	TLP2361 H L	TLP2761 H L	TLP2761(LF4) H L	TLP2261 H L
	Open Collector	Inverter Logic	2.7 V - 5.5 V	TLP2362 H			
Inverter Logic		Inverter Logic	2.7 V - 5.5 V	TLP2363 (for PLC)			
	~ 10 Mbps	Totem Pole	Inverter Logic	2.7 V - 5.5 V AC input	TLP2391 H		
Buffer Logic			9V - 15V		TLP2735 H		
Open Collector		Buffer Logic	4.5 V - 30 V	TLP2345 H L	TLP2745 H L	TLP2745(LF4) H L	
		Inverter Logic	IPM Drive	TLP2348 H L	TLP2748 H L	TLP2748(LF4) H L	
~ 5 Mbps	Totem Pole	Buffer Logic	2.2 V - 5.5 V	TLP2312 H L			
		Buffer Logic	2.7 V - 5.5 V	TLP2310 H L	TLP2710 H L	TLP2710(LF4) H L	TLP2210 H L
		Buffer Logic	3.0 V - 20 V	TLP2395 H			
		Inverter Logic	AC input	TLP2398 H			
		Buffer Logic	3.0 V - 20 V	TLP2355 H L			
		Inverter Logic	IPM Drive	TLP2358 H L			
~ 1-2 Mbps	Open Collector	Inverter Logic	4.5 V - 30 V IPM Drive	TLP2304 H	TLP2704 H	TLP2704(LF4) H	
		Inverter Logic	~ 4.0 V - 30 V	TLP109 H TLP2309 H	TLP2719	TLP2719(LF4)	
~ 100 Kbps	Open Collector	Inverter Logic	4.5 V - 18 V	TLP2303 H	TLP2703 H		

H Photocouplers with a maximum operating temperature of 110°C

H Photocouplers with a maximum operating temperature of 125°C

L Low power - maximum input threshold current (IFLH/IFHL) of 1.6mA or less

*1 SO6L, SO8L have 8mm clearance /creepage distances