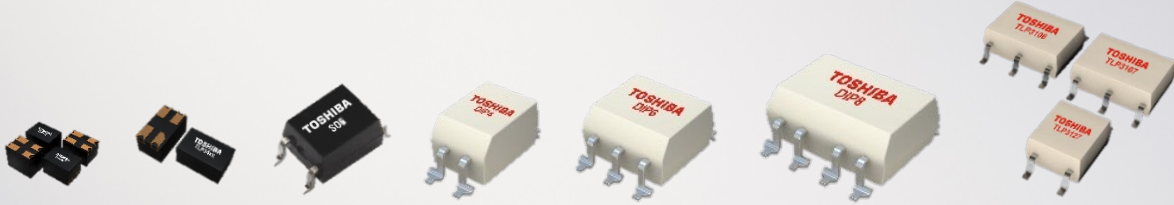


Photorelays



Ideal for Industrial Applications

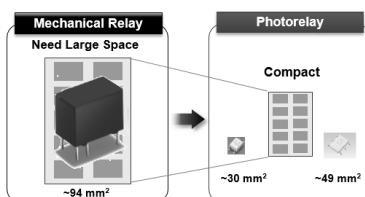
Photorelays are a type of photocoupler consisting of an LED optically coupled with a MOSFET. They offer many advantages over mechanical relays such as long operational life, low-current drive and fast response. Widely used for contact switching in various industrial applications, Toshiba photorelays provide low R_{ON} , low C_{OFF} , devices in various packages featuring high current and high off-state voltage.

Applications

- FA (Factory Automation)
- PLC (Programmable Logic Controllers)
- Security systems
- Measurement equipment
- HVAC (Heating Ventilation and Air Conditioning)
- BMS (Battery Management Systems)
- ATE (Automatic Test Equipment)
- Smart meters

Features	Advantages	Benefits
<ul style="list-style-type: none"> • No mechanical contacts, no wear and tear • Leading edge technology for best technical performance • Drive directly from MCU • Large package variety including smallest S-VSON package • Wide range of photorelays with extended temp range from -40°C up to +110°C • Optical isolation with guaranteed internal galvanic isolation 	<ul style="list-style-type: none"> • No wear and tear induced degradation • Devices offer highest currents and fastest switching • Improved system efficiency, lowest power consumption • Suitable photorelay for each application and available space • Products are flexible applicable in harsh industrial environments • Provides best in class Isolation 	<ul style="list-style-type: none"> • Maintenance free • Fewer field failures due to higher product reliability and lifetime • Less EMI considerations • Smaller footprint compared with mechanical relays • High speed switching • No operational noise • Less power consumption • Simple design for best performance

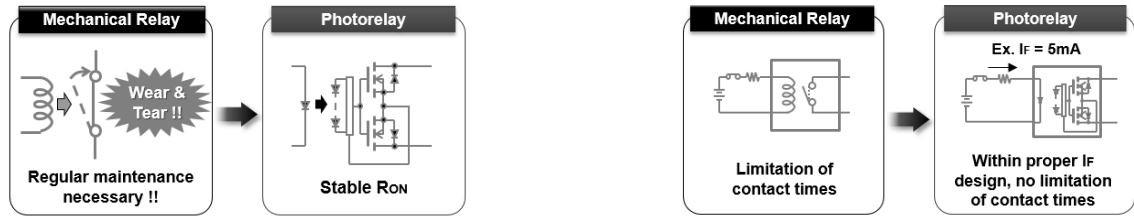
Mechanical comparison between photorelays and mechanical relays



Mechanical relays need greater space on the PCBs and create noise. Photorelays are very compact and the necessary space on the PCB is only 1/2 to 1/3 compared with the space requirement of mechanical relays. Photorelays do not create any noise, which makes them ideal in applications, where silent operation is necessary.

Technical advantages of photorelays over mechanical relays

The excellent combination of Toshiba's high performance, long life LEDs and MOSFETs guarantee stable contact resistance RON & unlimited switching frequency, this means they are maintenance free. Photorelays guarantee low power consumption, they can be directly driven from an MCU as they operate with low input current. Additionally photorelays have excellent high-speed and low noise switching characteristics.



High current photorelay lineup

Off-State Voltage VOFF	On-State Current ION	On-state resistance RON max.	Terminal Capacitance COFF typ.	Package									
				S-VSON4	VSON4	SO6	2.54SOP4	2.54SOP6	DIP4	DIP6	DIP8		
600 V	0,6 A	2 W	4300 pF										TLP3549
400 V	0,4 A	5 W	410 pF										TLP3548
	0,11 A	50 W	30 pF				TLP172GAM ^H						
200 V	1,5 A	0,5 W	400 pF										TLP3825 ^H
	0,7 A	0,15 W	110 pF							TLP3558A ^H			
100 V	0,4 A	2 W	100 pF				TLP3145 ^H						
	3,5 A	2 W	450 pF										TLP3546A ^H
	3 A	0,6 W	720 pF										TLP3823 ^H
	2 A	0,2 W	110 pF							TLP3556A ^H			
	2 A	0,07 W	500 pF						TLP3109				
60 V	1,5 A	0,2 W	160 pF				TLP3149* ^H						
	0,65 A	0,6 W	50 pF	TLP3409S ^H									
	5 A	0,05 W	850 pF										TLP3547
	4 A	0,06 W	640 pF										TLP3545A ^H
	3,3 A	0,06 W	700 pF						TLP3107				
40 V	3 A	0,1 W	250 pF							TLP3555A* ^H			
	2,5 A	0,065 W	400 pF										TLP3542
	2,5 A	0,1 W	240 pF					TLP3147* ^H					
	2,3 A	0,07 W	1000 pF							TLP3103			
	1,4 A	0,25 W	100 pF				TLP3122A ^H						
30 V	1 A	0,3 W	80 pF	TLP3407S ^H									
	0,7 A	2 W	100 pF				TLP176AM ^H						
	3,5 A	0,06 W	1000 pF										TLP3544
	2,5 A	0,06 W	1000 pF							TLP3102			
	2,5 A	0,15 W	300 pF								TLP3554		
20 V	2 A	0,15 W	300 pF								TLP241A		
	5 A	0,04 W	1100 pF										TLP3543A ^H
	4 A	0,04 W	1100 pF						TLP3106				
20 V	3,3 A	0,05 W	450 pF				TLP3146* ^H						
	1,5 A	0,2 W	120 pF	TLP3406S ^H									
	4 A	0,05 W	1000 pF										TLP3543
	4 A	0,05 W	450 pF										TLP3553A* ^H
20 V	2,5 A	0,05 W	1000 pF						TLP3100				
	1 A	0,22 W	40 pF				TLP3403 ^H						

^H Photocouplers with a maximum operating temperature of 110°C

* new product

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Product specifications are all subject to change without notice. Product design specifications and colours are subject to change without notice and may vary from those shown. Errors and omissions excepted.

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