

Preliminary

TOSHIBA Photocoupler GaAs IRED & PHOTO-TRIAC

TLP360J

Triac Driver

Programmable Controllers

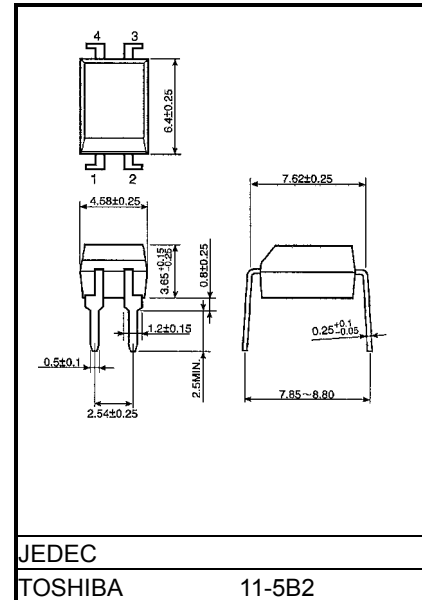
AC-Output Module

Solid State Relay

TOSHIBA TLP360J consists of a photo-triac optically coupled to a gallium arsenide infrared emitting diode in a four lead plastic DIP package.

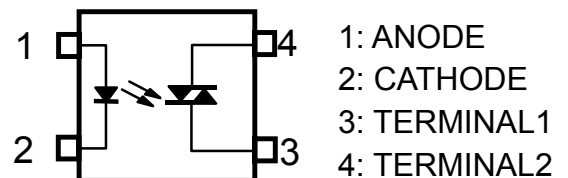
- Peak Off-State Voltage : 600V(Min)
- Trigger LED Current : 10mA(Max)
- On-State Current : 70mA(Max)
- Isolation Voltage : 5000Vrms(Min)

Unit : mm



Weight: 0.26 g

PIN CONFIGURATION (TOP VIEW)



•Construction Mechanical Rating

	7.62 mm pich standard type	10.16 mm pich TLPXXXF type
Creepage Distance	7.0 mm (Min)	8.0 mm (Min)
Clearance	7.0 mm (Min)	8.0 mm (Min)
Insulation Thickness	0.4 mm (Min)	0.4 mm (Min)

•Trigger LED Current

Classi- fication*	Trigger LED Current (mA)		Marking Of Classification
	V _T =6V, T _a =25°C		
	Min.	Max.	
(IFT7)	—	7	T7
Standard	—	10	T7, blank

*Ex. (IFT7); TLP360J(IFT7)

(Note) Application type name for certification test, please use standard product type name, i.e.

TLP360J(IFT7): TLP360J

Maximum Ratings (Ta=25°C)

CHARACTERISTIC		SYMBOL	RATING	UNIT
LED	Forward Current	I_F	50	mA
	Forward Current Derating (Ta≥53°C)	$\Delta I_F / ^\circ\text{C}$	-0.7	mA / °C
	Peak Forward Current (100μs pulse, 100pps)	I_{FP}	1	A
	Reverse Voltage	V_R	5	V
	Junction Temperature	T_j	125	°C
DETECTOR	Off-State Output Terminal Voltage	V_{DRM}	600	V
	On-State RMS Current	Ta=25°C	70	mA
		Ta=70°C	40	
	On-State Current Derating (Ta≥25°C)	$\Delta I_T / ^\circ\text{C}$	-0.67	mA / °C
	Peak On-State Current (100μs pulse, 120pps)	I_{TP}	2	A
	Peak Nonrepetitive Surge Current (Pw=10ms, DC=10%)	I_{TSM}	1.2	A
	Junction Temperature	T_j	100	°C
Storage Temperature Range		T_{stg}	-55~125	°C
Operating Temperature Range		T_{opr}	-40~100	°C
Lead Soldering Temperature (10s)		T_{sol}	260	°C
Isolation Voltage (AC, 1min., R.H.≤60%) (Note 1)		BV_S	5000	Vrms

(Note 1) : Pins1 and 2 shorted together and pin3 and pin4 shorted together.

Recommended Operating Conditions

CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT
Supply Voltage	V_{AC}	—	—	240	V_{ac}
Forward Current	I_F	15	20	25	mA
Peak On-State Current	I_{TP}	—	—	1	A
Operating Temperature	T_{opr}	-25	—	85	°C

Electrical Characteristics (Ta=25°C)

CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
LED	Forward Voltage	V_F	$I_F = 10 \text{ mA}$	1.0	1.15	1.3	V
	Reverse Current	I_R	$V_R = 5 \text{ V}$	—	—	10	μA
	Capacitance	C_T	$V = 0, f = 1\text{MHz}$	—	30	—	pF
DETECTOR	Peak Off-State Current	I_{DRM}	$V_{\text{DRM}} = 600\text{V}$	—	10	1000	nA
	Peak On-State Voltage	V_{TM}	$I_{\text{TM}} = 70\text{mA}$	—	1.7	2.8	V
	Holding Current	I_H	—	—	0.6	—	mA
	Critical Rate of Rise of Off-State Voltage	dv/dt	$V_{\text{in}} = 240\text{Vrms}, T_a = 85^\circ\text{C}$ (Note2)	—	500	—	$\text{V}/\mu\text{s}$
	Critical Rate of Rise of Commutating Voltage	$dv/dt(c)$	$V_{\text{in}} = 60\text{Vrms}, I_T = 15\text{mA}$ (Note2)	—	0.2	—	$\text{V}/\mu\text{s}$

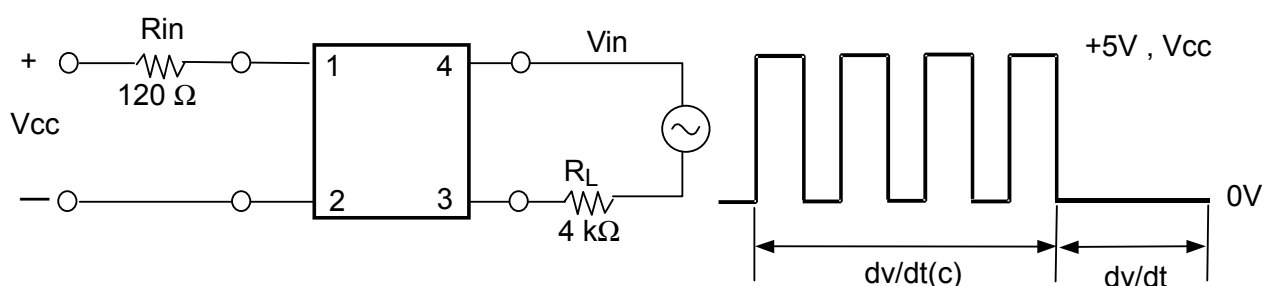
Coupled Electrical Characteristics (Ta=25°C)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Trigger LED Current	I_{FT}	$V_T = 6\text{V}$	—	—	10	mA
Turn-on Time	t_{ON}	$V_D = 6 \rightarrow 4\text{V}, R_L = 100\Omega$ $I_F = \text{Rated } I_{\text{FT}} \times 1.5$	—	30	100	μs

Isolation Characteristics (Ta = 25°C)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Capacitance (Input to Output)	C_S	$V_S = 0, f = 1\text{MHz}$	—	0.8	—	pF
Isolation Resistance	R_S	$V_S = 500\text{V}, \text{R.H.} \leq 60\%$	1×10^{12}	10^{14}	—	Ω
Isolation Voltage	BV_S	AC, 1minute	5000	—	—	Vrms
		AC, 1second, in oil	—	10000	—	
		DC, 1minute, in oil	—	10000	—	Vdc

(Note 2) : dv/dt TEST CIRCUIT



RESTRICTIONS ON PRODUCT USE

030619EBC

- The information contained herein is subject to change without notice.
- The information contained herein is presented only as a guide for the applications of our products. No responsibility is assumed by TOSHIBA for any infringements of patents or other rights of the third parties which may result from its use. No license is granted by implication or otherwise under any patent or patent rights of TOSHIBA or others.
- TOSHIBA is continually working to improve the quality and reliability of its products. Nevertheless, semiconductor devices in general can malfunction or fail due to their inherent electrical sensitivity and vulnerability to physical stress. It is the responsibility of the buyer, when utilizing TOSHIBA products, to comply with the standards of safety in making a safe design for the entire system, and to avoid situations in which a malfunction or failure of such TOSHIBA products could cause loss of human life, bodily injury or damage to property.
In developing your designs, please ensure that TOSHIBA products are used within specified operating ranges as set forth in the most recent TOSHIBA products specifications. Also, please keep in mind the precautions and conditions set forth in the "Handling Guide for Semiconductor Devices," or "TOSHIBA Semiconductor Reliability Handbook" etc..
- The TOSHIBA products listed in this document are intended for usage in general electronics applications (computer, personal equipment, office equipment, measuring equipment, industrial robotics, domestic appliances, etc.). These TOSHIBA products are neither intended nor warranted for usage in equipment that requires extraordinarily high quality and/or reliability or a malfunction or failure of which may cause loss of human life or bodily injury ("Unintended Usage"). Unintended Usage include atomic energy control instruments, airplane or spaceship instruments, transportation instruments, traffic signal instruments, combustion control instruments, medical instruments, all types of safety devices, etc.. Unintended Usage of TOSHIBA products listed in this document shall be made at the customer's own risk.
- The products described in this document are subject to the foreign exchange and foreign trade laws.
- TOSHIBA products should not be embedded to the downstream products which are prohibited to be produced and sold, under any law and regulations.
- GaAs(Gallium Arsenide) is used in this product. The dust or vapor is harmful to the human body. Do not break, cut, crush or dissolve chemically.