

**Preliminary**

TOSHIBA Photocoupler GaAs IRED & PHOTO-TRIAC

## TLP360J

Triac Driver

Programmable Controllers

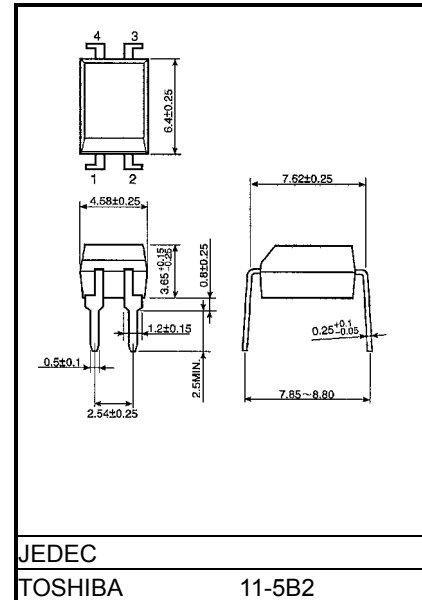
AC-Output Module

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.

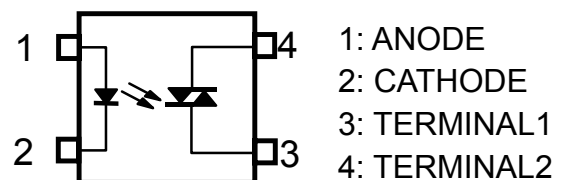
- Peak Off-State Voltage : 600V(Min)
- Trigger LED Current : 10mA(Max)
- On-State Current : 70mA(Max)
- Isolation Voltage : 5000Vrms(Min)

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 <sub>T</sub> =6V, T <sub>a</sub> =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	$\mu\text{A}$
	Capacitance	$C_T$	$V = 0, f = 1\text{MHz}$	—	30	—	pF
DETECTOR	Peak Off-State Current	$I_{\text{DRM}}$	$V_{\text{DRM}} = 600\text{V}$	—	10	1000	nA
	Peak On-State Voltage	$V_{\text{TM}}$	$I_{\text{TM}} = 70\text{mA}$	—	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	—	$\text{V}/\mu\text{s}$

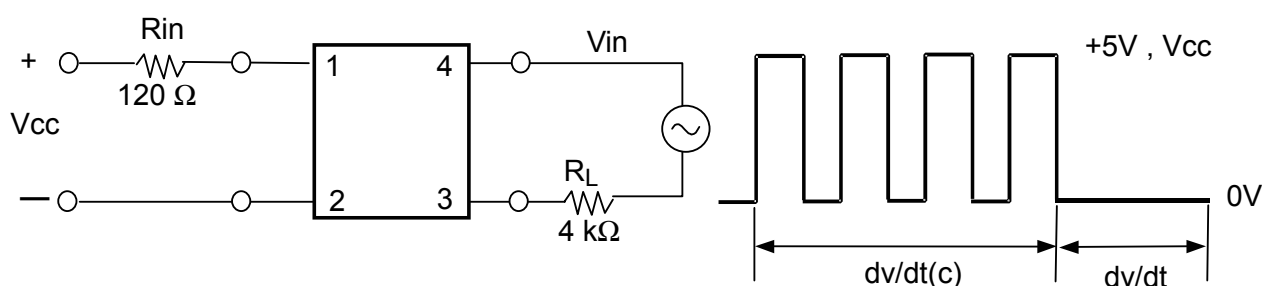
## Coupled Electrical Characteristics (Ta=25°C)

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

## 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	$R_S$	$V_S = 500\text{V}, \text{R.H.} \leq 60\%$	$1 \times 10^{12}$	$10^{14}$	—	$\Omega$
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



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