

TLP3061(S), TLP3062(S), TLP3063(S)

OFFICE MACHINE

HOUSEHOLD USE EQUIPMENT

TRIAC DRIVER

SOLID STATE RELAY

Unit in mm

The TOSHIBA TLP3061 (S), TLP3062 (S) and TLP3063 (S) consist of a zero voltage crossing turn-on photo-triac optically coupled to a gallium arsenide infrared emitting diode in a six lead plastic DIP package.

All parameters are tested to the specification of TLP3061, TLP3062, TLP3063.

- Peak Off-State Voltage : 600V (Min.)
- Trigger LED Current : 15mA (Max.) (TLP3061)
10mA (Max.) (TLP3062)
5mA (Max.) (TLP3063)
- On-State Current : 100mA (Max.)
- UL Recognized : UL1577, File No. E67349
- Isolation Voltage : 5000V_{rms} (Min.)
- Option (D4) Type
- VDE Approved : DIN VDE0884 / 06.92
Certificate No. 68329

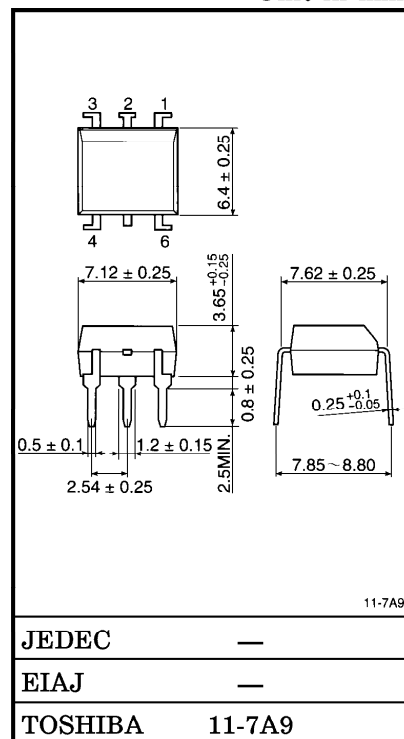
Maximum Operating Insulation Voltage : 890V_{PK}

Highest Permissible Over Voltage : 8000V_{PK}

(Note) When a VDE0884 approved type is needed, please designate the "Option (D4)"

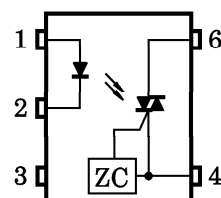
Device Construction

	7.62mm pitch standard type	10.16mm pitch (LF2) type
Creepage Distance	7.0mm (Min.)	8.0mm (Min.)
Clearance	7.0mm (Min.)	8.0mm (Min.)
Insulation Thickness	0.5mm (Min.)	0.5mm (Min.)



Weight : 0.39g

PIN CONFIGURATION (Top view)



- 1 : ANODE
- 2 : CATHODE
- 3 : N.C.
- 4 : TERMINAL 1
- 6 : TERMINAL 2

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- Gallium arsenide (GaAs) is a substance used in the products described in this document. GaAs dust and fumes are toxic. Do not break, cut or pulverize the product, or use chemicals to dissolve them. When disposing of the products, follow the appropriate regulations. Do not dispose of the products with other industrial waste or with domestic garbage.
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MAXIMUM RATINGS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	RATING	UNIT
LED	Forward Current	I _F	50	mA
	Forward Current Derating (Ta ≥ 53°C)	ΔI _F / °C	−0.7	mA / °C
	Peak Forward Current (100μs pulse, 100pps)	I _{FP}	1	A
	Power Dissipation	P _D	100	mW
	Power Dissipation Derating (Ta ≥ 25°C)	ΔP _D / °C	−1.0	mW / °C
	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	I _T (RMS)	100	mA
			50	
	On-State Current Derating (Ta ≥ 25°C)	ΔI _T / °C	−1.1	mA / °C
	Peak On-State Current (100μs pulse, 120pps)	I _{TP}	2	A
	Peak Nonrepetitive Surge Current (P _W = 10ms, DC = 10%)	I _{TSM}	1.2	A
	Power Dissipation	P _D	300	mW
	Power Dissipation Derating (Ta ≥ 25°C)	ΔP _D / °C	−4.0	mW / °C
	Junction Temperature	T _j	115	°C
	Storage Temperature Range	T _{stg}	−55~150	°C
Operating Temperature Range		T _{opr}	−40~100	°C
Lead Soldering Temperature (10s)		T _{sol}	260	°C
Total Package Power Dissipation		P _T	330	mW
Total Package Power Dissipation Derating (Ta ≥ 25°C)		ΔP _T / °C	−4.4	mW / °C
Isolation Voltage (AC, 1min., R.H. ≤ 60%) (Note 1)		BV _S	5000	V _{rms}

(Note 1) Device considered a two terminal device : Pins 1, 2 and 3 shorted together and pins 4 and 6 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

* In the case of TLP3062

INDIVIDUAL ELECTRICAL CHARACTERISTICS ($T_a = 25^\circ\text{C}$)

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	$V = 0, f = 1\text{MHz}$	—	10	—	pF
DETECTOR	Peak Off-State Current	I_{DRM}	$V_{\text{DRM}} = 600\text{V}$	—	10	1000	nA
	Peak On-State Voltage	V_{TM}	$I_{\text{TM}} = 100\text{mA}$	—	1.7	3.0	V
	Holding Current	I_H	—	—	0.6	—	mA
	Critical Rate of Rise of Off-State Voltage	dv/dt	$V_{\text{in}} = 240\text{Vrms}, T_a = 85^\circ\text{C}$ (Fig.1)	200	500	—	$\text{V} / \mu\text{s}$
	Critical Rate of Rise of Commutating Voltage	$dv/dt(c)$	$V_{\text{in}} = 60\text{Vrms}, I_T = 15\text{mA}$ (Fig.1)	—	0.2	—	$\text{V} / \mu\text{s}$

COUPLED ELECTRICAL CHARACTERISTICS ($T_a = 25^\circ\text{C}$)

CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Trigger LED Current	TLP3061	I_{FT}	$V_T = 6\text{V}$	—	—	15	mA
	TLP3062			—	5	10	
	TLP3063			—	—	5	
Inhibit Voltage		V_{IH}	$I_F = \text{Rated } I_{\text{FT}}$	—	—	50	V
Leakage in Inhibited State		I_{IH}	$I_F = \text{Rated } I_{\text{FT}}$ $V_T = \text{Rated } V_{\text{DRM}}$	—	100	300	μA
Capacitance Input to Output		C_S	$V_S = 0, f = 1\text{MHz}$	—	0.8	—	pF
Isolation Resistance		R_S	$V_S = 500\text{V} (\text{R.H.} \leq 60\%)$	5×10^{10}	10^{14}	—	Ω
Isolation Voltage		BV_S	AC, 1 minute	5000	—	—	Vrms
			AC, 1 second, in oil	—	10000	—	
			DC, 1 minute, in oil	—	10000	—	V_{dc}

Fig. 1 dv/dt TEST CIRCUIT