

(TLP3061)

- OFFICE MACHINE
- HOUSEHOLD USE EQUIPMENT
- TRIAC DRIVER
- SOLID STATE RELAY

The TOSHIBA TLP3061, TLP3062 and TLP3063 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.

- 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 : 5000Vrms (Min.)
- Option (D4) type VDE Approved : DIN VDE0884/08.87,  
Certificate No. 68329

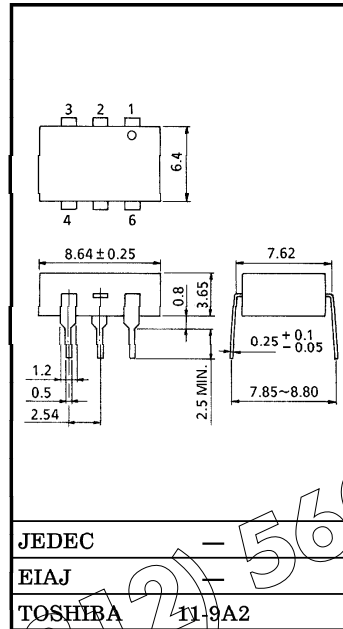
Maximum Operating Insulation Voltage : 630V<sub>PK</sub>  
 Highest Permissible Over Voltage : 6000V<sub>PK</sub>

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

	7.62mm pich standard type	10.16mm pich (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.)

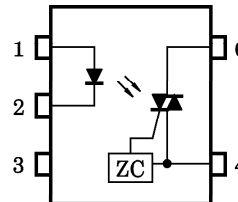
- Creepage Distance : 7.0mm (Min.) 8.0mm (Min.)
- Clearance : 7.0mm (Min.) 8.0mm (Min.)
- Insulation Thickness : 0.5mm (Min.) 0.5mm (Min.)

Unit in mm



Weight : 0.44g

PIN CONFIGURATION (TOP VIEW)



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

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MAXIMUM RATINGS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	RATING	UNIT
LED	Forward Current	I <sub>F</sub>	50	mA
	Forward Current Derating (Ta ≥ 53°C)	ΔI <sub>F</sub> /°C	-0.7	mA/°C
	Peak Forward Current (100μs pulse, 100pps)	I <sub>FP</sub>	1	A
	Power Dissipation	P <sub>D</sub>	100	mW
	Power Dissipation Derating (Ta ≥ 25°C)	ΔP <sub>D</sub> /°C	-1.0	mW/°C
	Reverse Voltage	V <sub>R</sub>	5	V
	Junction Temperature	T <sub>j</sub>	125	°C
DETECTOR	Off-State Output Terminal Voltage	V <sub>DRM</sub>	600	V
	On-State RMS Current	Ta = 25°C	100	mA
		Ta = 70°C	50	
	On-State Current Derating (Ta ≥ 25°C)	ΔI <sub>T</sub> /°C	-1.1	mA/°C
	Peak On-State Current (100μs pulse, 120pps)	I <sub>TP</sub>	2	A
	Peak Nonrepetitive Surge Current (P <sub>w</sub> = 10ms, DC = 10%)	I <sub>TSM</sub>	1.2	A
	Power Dissipation	P <sub>D</sub>	300	mW
	Power Dissipation Derating (Ta ≥ 25°C)	ΔP <sub>D</sub> /°C	-4.0	mW/°C
	Junction Temperature	T <sub>j</sub>	115	°C
	Storage Temperature Range	T <sub>stg</sub>	-55~150	°C
	Operating Temperature Range	T <sub>opr</sub>	-40~100	°C
	Lead Soldering Temperature (10s)	T <sub>sol</sub>	260	°C
Total Package Power Dissipation	P <sub>T</sub>	330	mW	
Total Package Power Dissipation Derating (Ta = 25°C)	ΔP <sub>T</sub> /°C	-4.4	mW/°C	
Isolation Voltage (AC, 1min., R.H. < 60%)	(Note 1) BV <sub>S</sub>	5000	V <sub>rms</sub>	

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

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

COUPLED ELECTRICAL CHARACTERISTICS (Ta = 25°C)

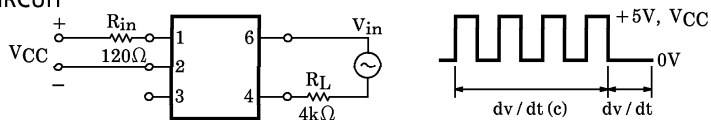
CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Trigger LED Current	TLP3061	$I_{FT}$	$V_T = 6\text{V}$	—	—	15	mA
	TLP3062			—	5	10	
	TLP3063			—	—	5	
Inhibit Voltage	$V_{IH}$	$I_F = \text{Rated } I_{FT}$	—	—	50	V	
Leakage in Inhibited State	$I_{IH}$	$I_F = \text{Rated } I_{FT}$ $V_T = \text{Rated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

RECOMMENDED OPERATING CONDITIONS

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

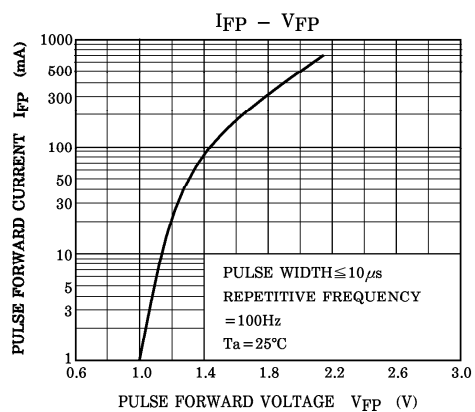
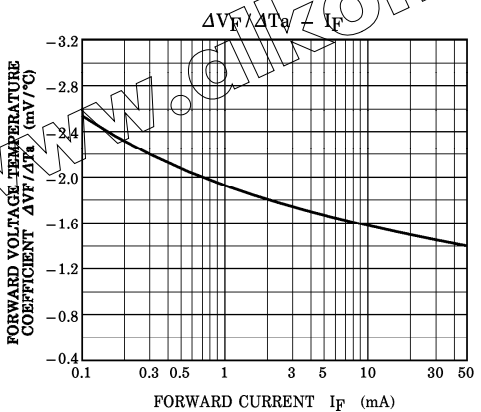
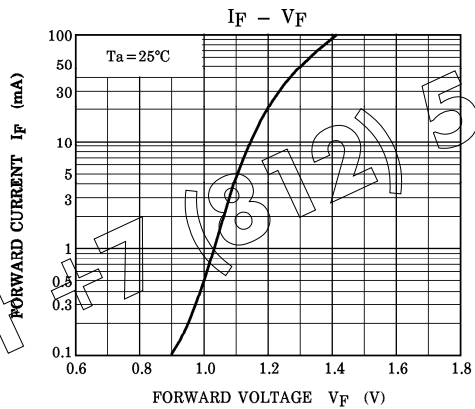
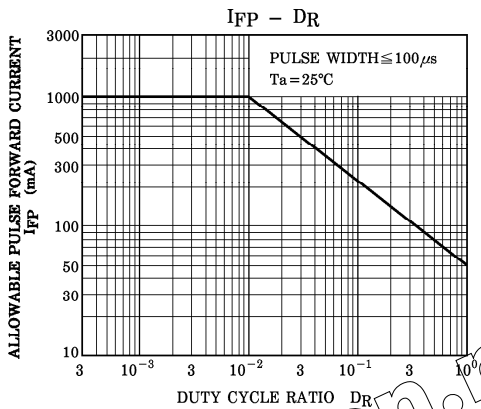
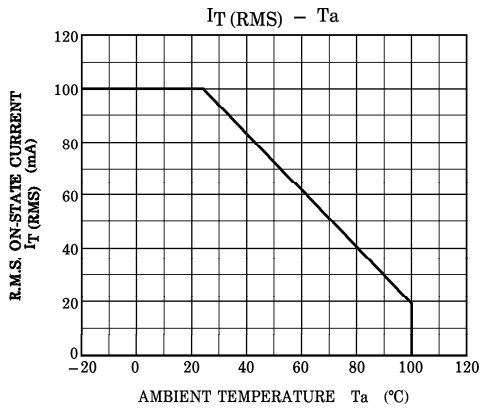
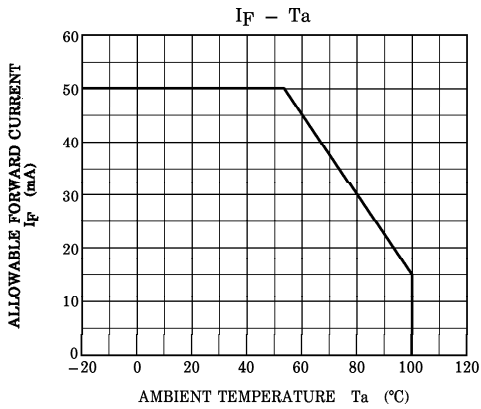
\* In the case of TLP3062

Fig. 1  $dv/dt$  TEST CIRCUIT



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