

TOSHIBA PHOTOCOUPLER GaAs IRED & PHOTO-TRIAC

TLP3061, TLP3062, TLP3063

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.

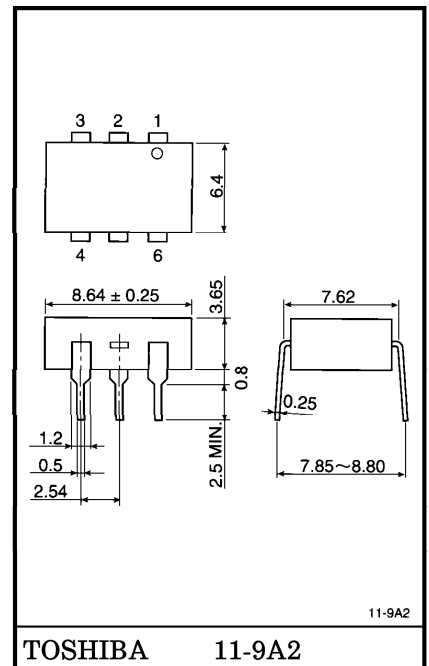
- Peak Off-State Voltage : 600V (Min.)
- Trigger LED Current : 15mA (Max.) (TLP3061)
10mA (Max.) (TLP3062)
5mA (Max.) (TLP3063)
- On-State Current : 100mA (Max.)
- UL Recognized : UL1577, File No. E67349
Isolation Voltage : 5000Vrms (Min.)
- Option (D4) type VDE Approved : DIN VDE0884 / 08.87,
Certificate No. 68329

Maximum Operating Insulation Voltage : 630V_{PK}
Highest Permissible Over Voltage : 6000V_{PK}

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

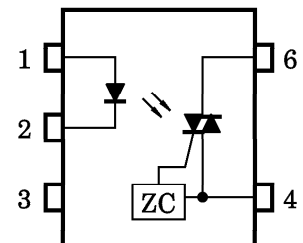
- | | <u>7.62mm pich
standard type</u> | <u>10.16mm pich
(LF2) type</u> |
|----------------------|--------------------------------------|------------------------------------|
| ● Creepage Distance | : 7.0mm (Min.) | 8.0mm (Min.) |
| Clearance | : 7.0mm (Min.) | 8.0mm (Min.) |
| Insulation Thickness | : 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

MAXIMUM RATINGS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	RATING	UNIT	
LED	Forward Current	I_F	50	mA	
	Forward Current Derating (Ta ≥ 53°C)	$\Delta I_F / ^\circ C$	-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)	$\Delta P_D / ^\circ C$	-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)	Ta = 25°C	100	mA
			Ta = 70°C	50	
	On-State Current Derating (Ta ≥ 25°C)	$\Delta I_T / ^\circ C$	-1.1	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	
	Power Dissipation	P_D	300	mW	
	Power Dissipation Derating (Ta ≥ 25°C)	$\Delta P_D / ^\circ C$	-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)	$\Delta P_T / ^\circ C$	-4.4	mW / °C		
Isolation Voltage (AC, 1min., R.H. ≤ 60%) (Note 1)	BVS	5000	Vrms		

(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	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

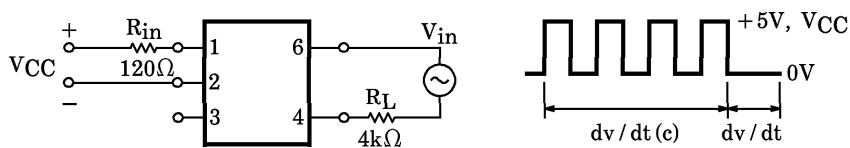
INDIVIDUAL ELECTRICAL CHARACTERISTICS (Ta = 25°C)

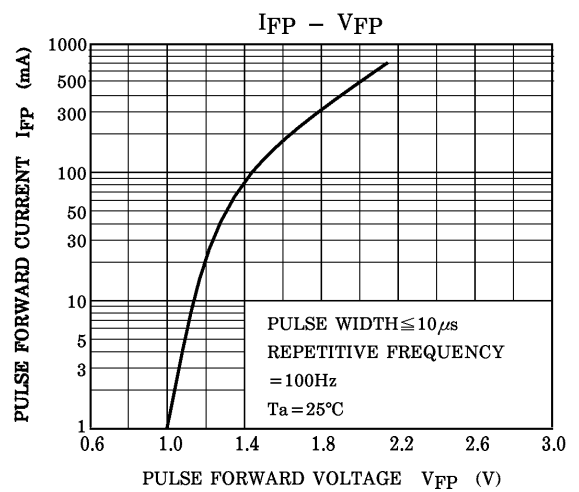
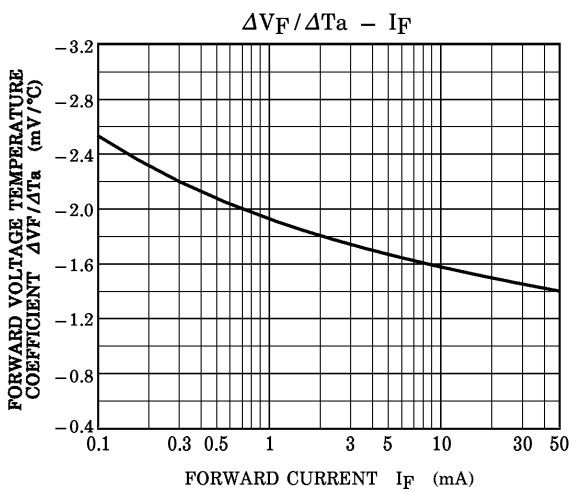
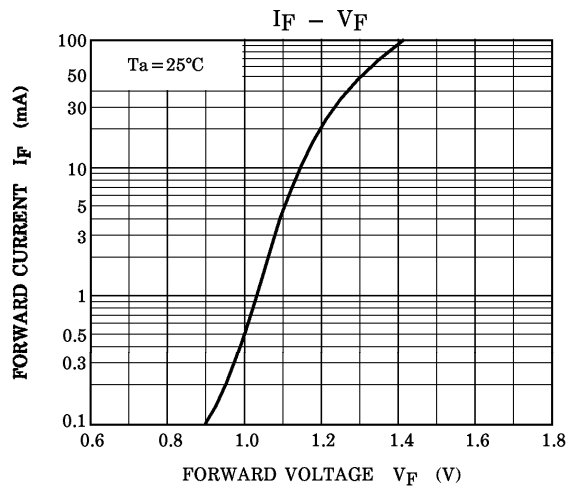
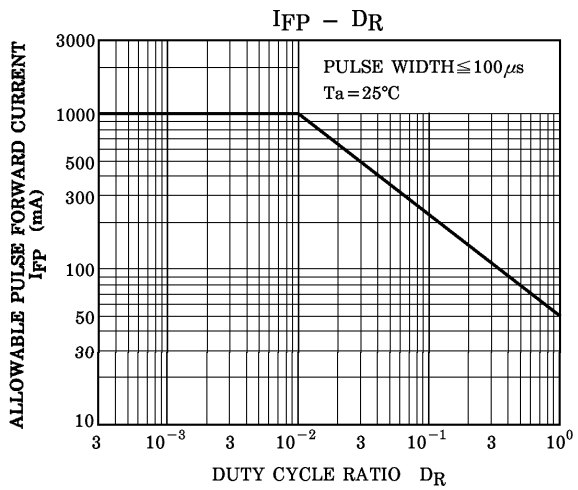
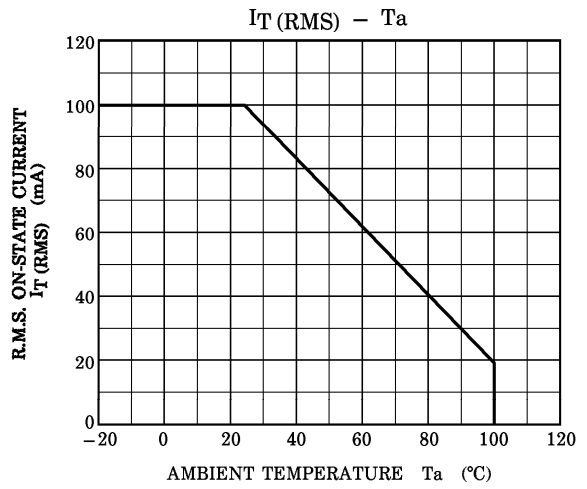
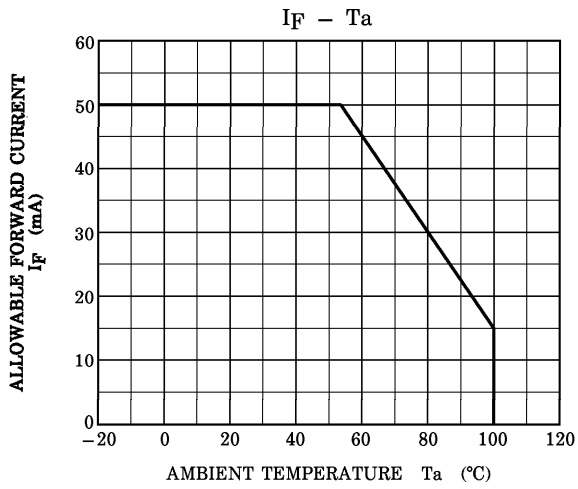
CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
LED	Forward Voltage	V_F	$I_F = 10\text{mA}$	1.0	1.15	1.3	V
	Reverse Current	I_R	$V_R = 5\text{V}$	—	—	10	μA
	Capacitance	C_T	$V = 0, f = 1\text{MHz}$	—	10	—	pF
DETECTOR	Peak Off-State Current	I_{DRM}	$V_{DRM} = 600\text{V}$	—	10	1000	nA
	Peak 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	—	$\text{V}/\mu\text{s}$

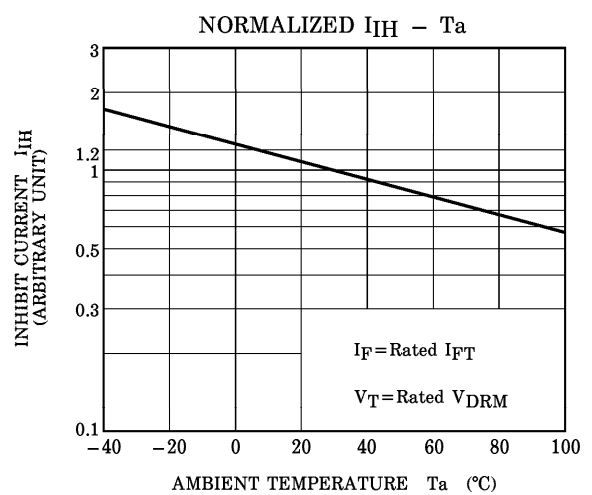
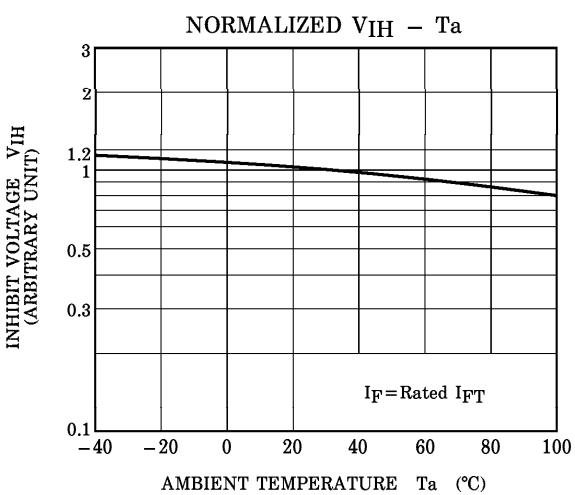
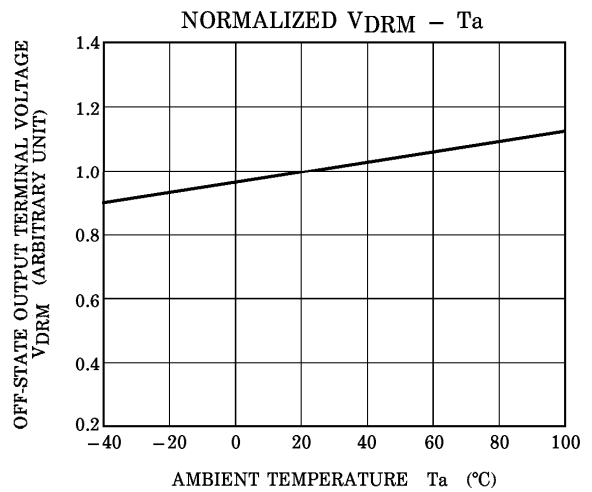
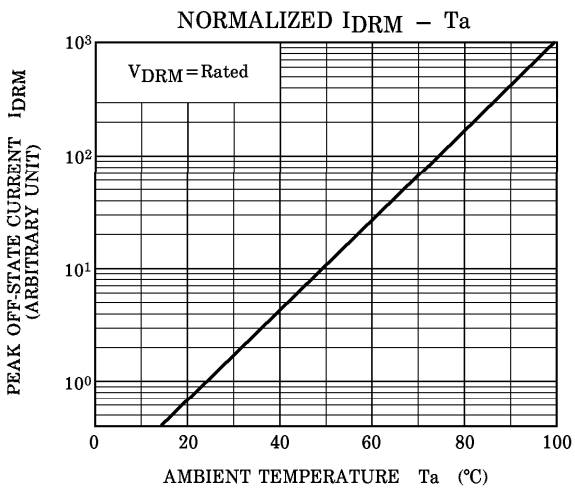
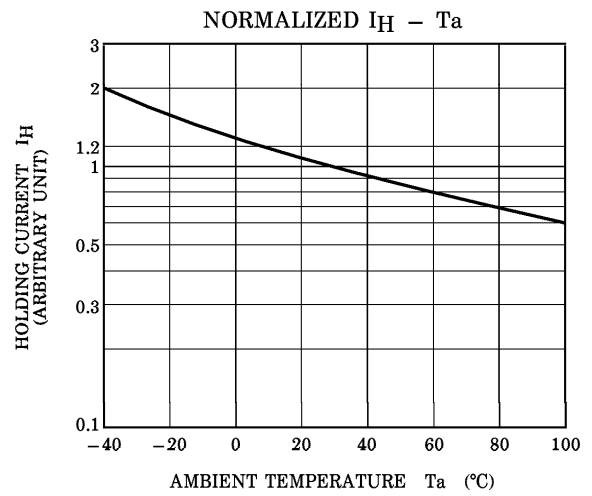
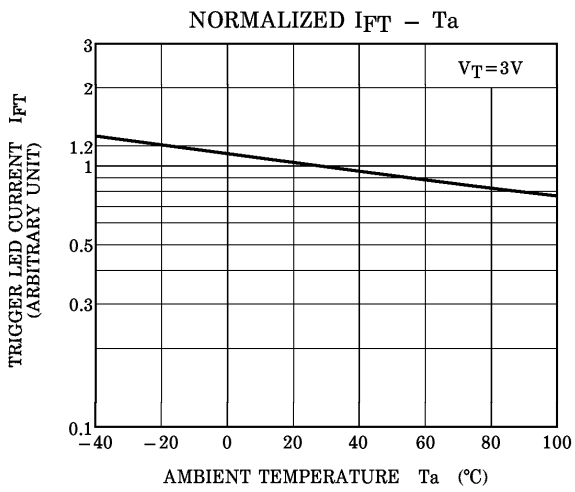
COUPLED ELECTRICAL CHARACTERISTICS (Ta = 25°C)

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	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	—	—	V_{rms}	
		AC, 1 second, in oil	—	10000	—		
		DC, 1 minute, in oil	—	10000	—	V_{dc}	

Fig. 1 dv/dt TEST CIRCUIT







RESTRICTIONS ON PRODUCT USE

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