SEMICONDUCTOR
TOSHIBA
TECHNICAL DATA

TOSHIBA PHOTOCOUPLER

TLP3061, TLP3062, TLP3063

GaAs IRED & PHOTO-TRIAC

(TLP3061)

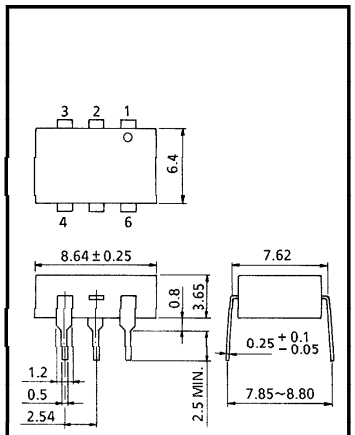
OFFICE MACHINE

HOUSEHOLD USE EQUIPMENT

TRIAC DRIVER

SOLID STATE RELAY

Unit in mm



JEDEC	—
EIAJ	—
TOSHIBA	11-9A2

Weight : 0.44g

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.

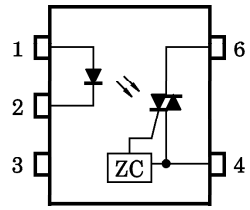
- Peak Off-State Voltage : 600V (Min.)
- Trigger LED Current : 15mA (Max.) (TLP3061)
  10mA (Max.) (TLP3062)
  5mA (Max.) (TLP3063)
- On-State Current : 100mA (Max.)
- UL Recognized : UL1577, File No. E67349
  Isolation Voltage : 5000Vrms (Min.)
- Option (D4) type
  VDE Approved : DIN VDE0884/08.87,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

		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.)

PIN CONFIGURATION (TOP VIEW)



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

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(TLP3061)

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	Ta = 25°C	$I_{T\,(RMS)}$	100	mA
		Ta = 70°C		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	Vrms

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 = 10mA	1.0	1.15	1.3	V
	Reverse Current	I_R	V_R = 5V	—	—	10	μA
	Capacitance	C_T	V = 0, f = 1MHz	—	10	—	pF
DETECTOR	Peak Off-State Current	I_{DRM}	V_{DRM} = 600V	—	10	1000	nA
	Peak On-State Voltage	V_{TM}	I_{TM} = 100mA	—	1.7	3.0	V
	Holding Current	I_H	—	—	0.6	—	mA
	Critical Rate of Rise of Off-State Voltage	dv / dt	V_{in} = 240Vrms, Ta = 85°C (Fig.1)	200	500	—	V / μs
	Critical Rate of Rise of Commutating Voltage	dv / dt (c)	V_{in} = 60Vrms, I_T = 15mA (Fig.1)	—	0.2	—	V / μs

COUPLED ELECTRICAL CHARACTERISTICS (Ta = 25°C)

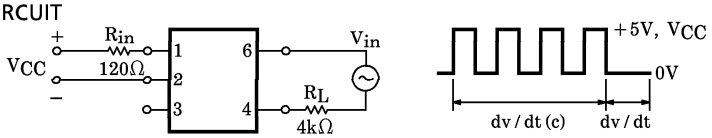
CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Trigger LED Current	TLP3061	I_{FT}	V_T = 6V	—	—	15	mA
	TLP3062			—	5	10	
	TLP3063			—	—	5	
Inhibit Voltage		V_{IH}	I_F = Rated I_{FT}	—	—	50	V
Leakage in Inhibited State		I_{IH}	I_F = Rated I_{FT}, V_T = Rated V_{DRM}	—	100	300	μA
Capacitance Input to Output		C_S	V_S = 0, f = 1MHz	—	0.8	—	pF
Isolation Resistance		R_S	V_S = 500V (R.H. ≦ 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}

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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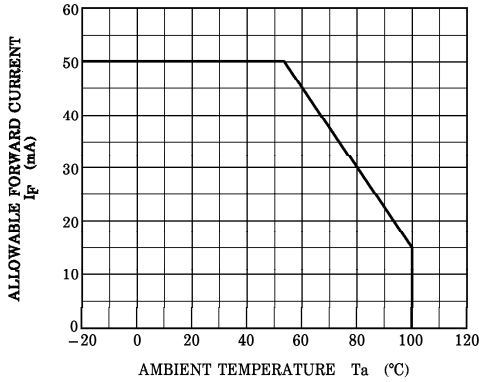
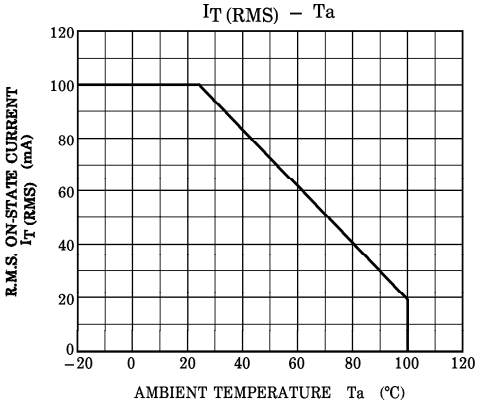
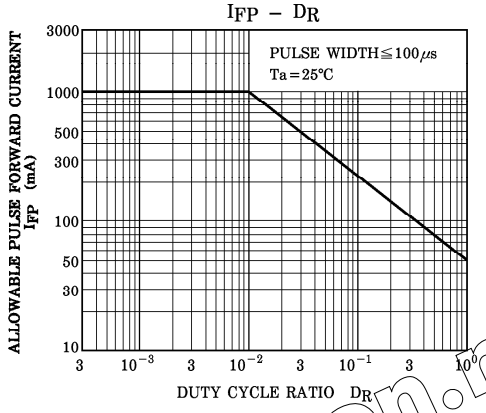
I_F – Ta



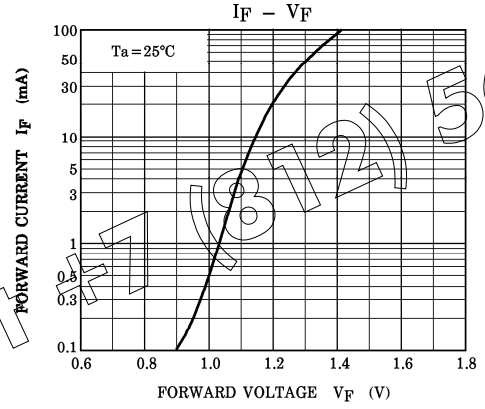
$I_{T\,(RMS)}$ – Ta



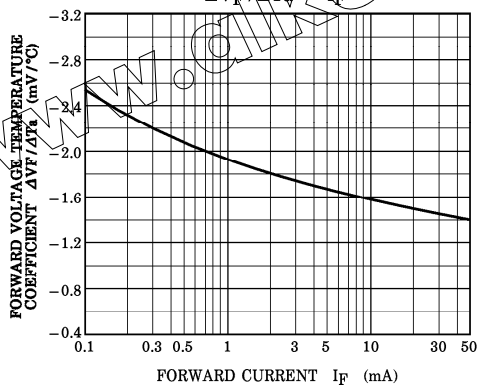
I_{FP} – D_R



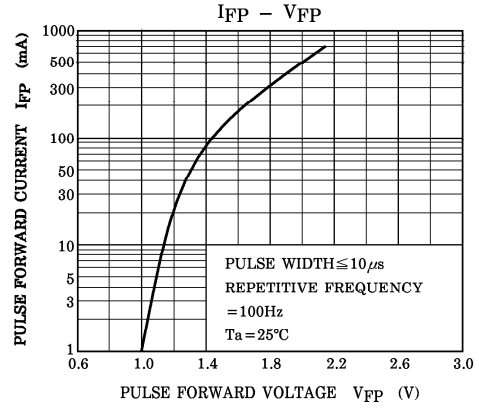
I_F – V_F



$\Delta V_F / \Delta Ta$ – I_F



I_{FP} – V_{FP}



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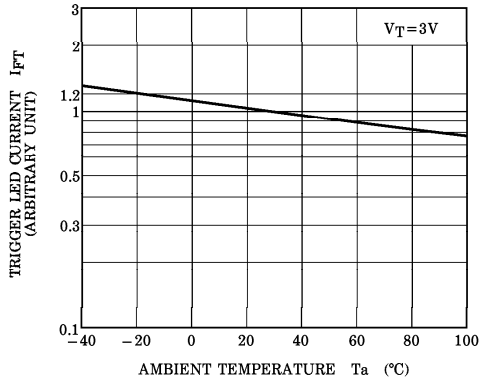
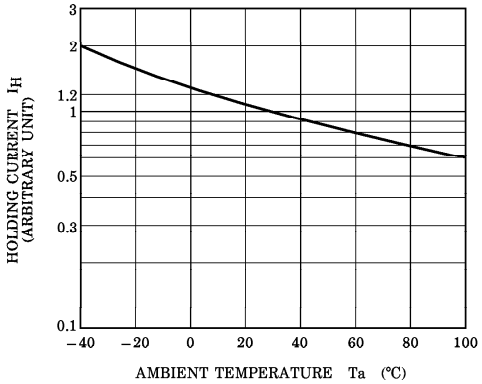
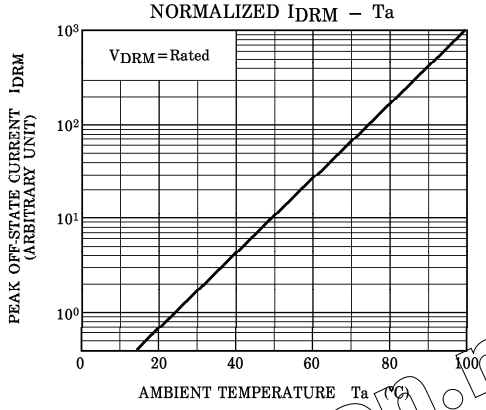
NORMALIZED I_{FT} – Ta



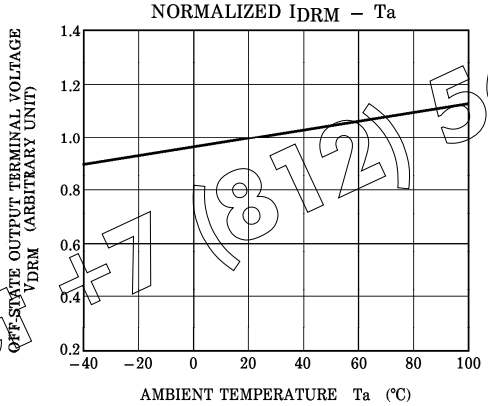
NORMALIZED I_H – Ta



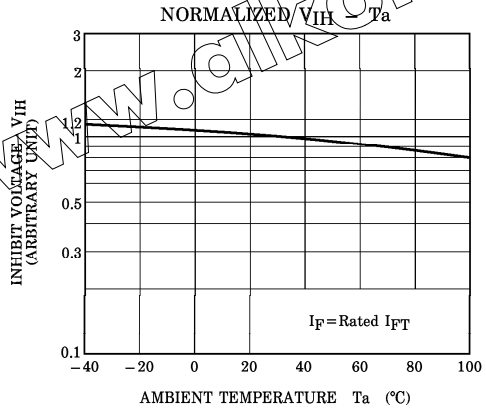
NORMALIZED I_{DRM} – Ta



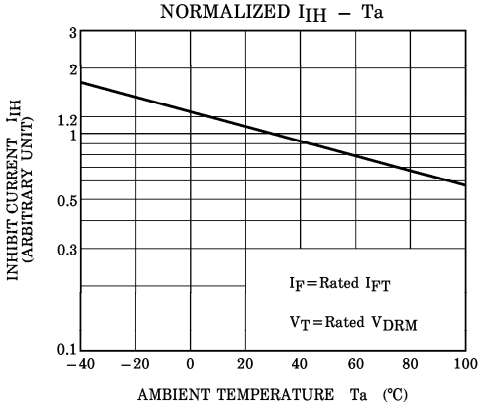
NORMALIZED I_{DRM} – Ta



NORMALIZED V_{IH} – Ta



NORMALIZED I_{IH} – Ta



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