TENTATIVE TOSHIBA PHOTOCOUPLER GaAs LED + PHOTO-TRIAC + TRIAC

TLP3560, TLP3561

INVERTER FOR AIR CONDITIONER

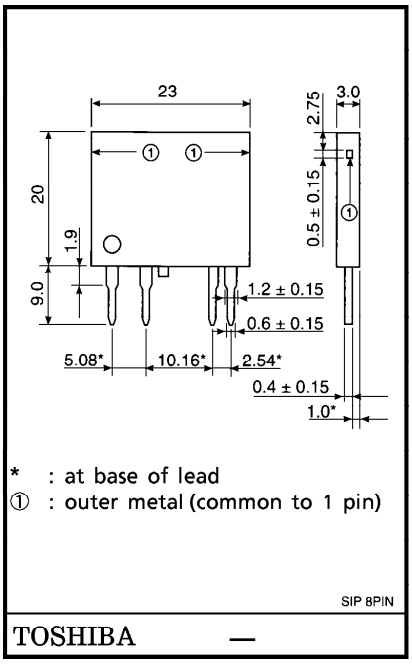
HOUSEHOLD USE EQUIPMENT

VENDING MACHINE

GAME MACHINE

AC-OUTPUT MODULE

Unit in mm



Weight : 3.6g

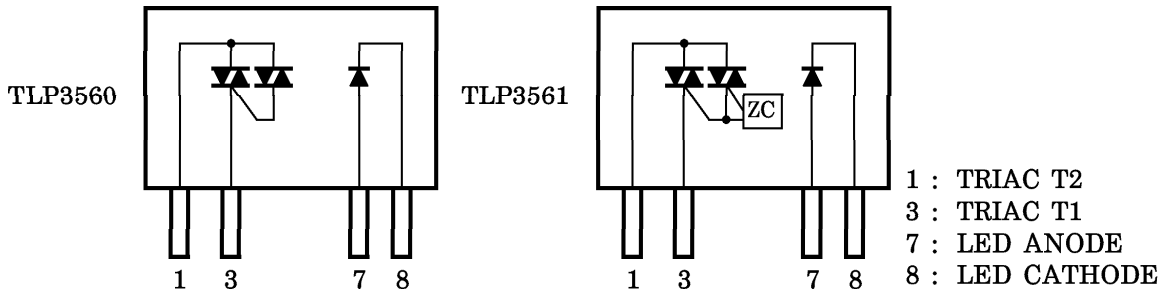
The TOSHIBA TLP3560 series consist of a GaAs infrared LED optically coupled to photo-triac and main triac in a 4 pin plastic SIP package.

TLP3560 : Non Zero Crossing Type

TLP3561 : Zero Crossing Type

- Peak Off-State Voltage : 400V (MIN.)
- Trigger LED Current : 10mA (MAX.)
- On-State Current : 2Arms (MAX.) @Ta = 40°C
- Isolation Voltage : 2500Vrms (MIN.)
- Nonrepetitive Surge Current : 12A peak @1cycle (MAX.)
- Isolation Creepage Path : 6.4mm (MIN.)
- Distance Between T1 and T2 : 3.5mm (MIN.) (5.08mm Pitch)
- T_{stg} : −40~125°C
- T_{opr} : −30~85°C

PIN CONFIGURATION (TOP VIEW)



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- The information contained herein is subject to change without notice.

MAXIMUM RATINGS (Ta = 25°C)

	CHARACTERISTIC		SYMBOL	RATING	UNIT
LED	Forward Current		I_F	50	mA
	Forward Current Derating (Ta ≧ 25°C)		ΔI_F / °C	−0.5	mA / °C
	Peak Forward Current (100 μs 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}	400	V
	On-State RMS Current	Ta = 40°C	$I_{T\,(RMS)}$	2.0	A
		Ta = 60°C		1.5	
	On-State Current Derating (Ta ≧ 40°C)		ΔI_T / °C	−25	mA / °C
	Peak Current from snubber Circuit (100 μs Pulse, 120pps)		I_{SP}	2	A
	Peak Nonrepetitive Surge Current (50Hz, peak)		I_{TSM}	12	A
	Junction Temperature		T_j	120	°C
Storage Temperature Range			T_{stg}	−40~125	°C
Operating Temperature Range			T_{opr}	−30~85	°C
Lead Soldering Temperature (10s)			T_{sol}	260	°C
Isolation Voltage (AC, 1min., R.H. ≦ 60%)		(Note 1)	BV_S	2500	Vrms

(Note 1) Device considered a two-terminal device : Pins 1 and 3 shorted together, and Pins 7 and 8 shorted together.

RECOMMENDED OPERATING CONDITIONS

CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT
Supply Voltage	V_{AC}	—	—	120	V_{ac}
Forward Current	I_F	15	20	25	mA
Peak Current from Snubber Circuit	I_{SP}	—	—	1	A
Operating Temperature	T_{opr}	−30	—	85	°C

INDIVIDUAL ELECTRICAL CHARACTERISTICS (Ta = 25°C)

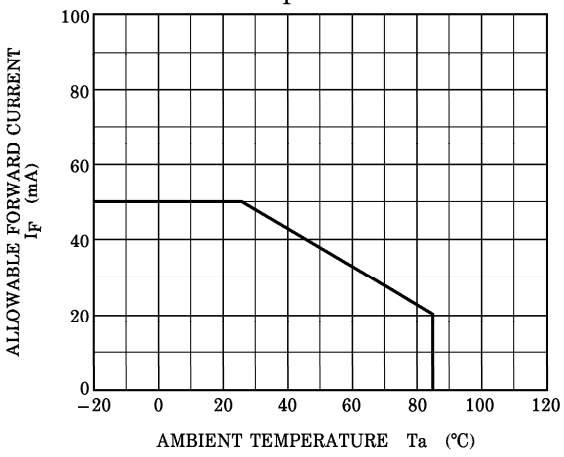
	CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
LED	Forward Voltage	V_F	I_F = 10mA	1.0	1.15	1.3	V
	Reverse Current	I_R	V_R = 5V	—	—	10	μA
	Capacitance	C_T	V = 0, f = 1MHz	—	30	—	pF
DETECTOR	Peak Off-State Current	I_{DRM}	V_{DRM} = 400V, Ta = 110°C	—	—	100	μA
	Peak On-State Voltage	V_{TM}	I_{TM} = 1.5A	—	—	3.0	V
	Holding Current	I_H	R_L = 100Ω	—	—	25	mA
	Critical Rate of Rise of Off-State Voltage	dv / dt	V_{in} = 250V	200	500	—	V / μs
	Critical Rate of Rise of Commutating Voltage	dv / dt (c)	I_T = 1.0A V_{in} = 120Vrms	—	5	—	V / μs

COUPLED ELECTRICAL CHARACTERISTICS (Ta = 25°C)

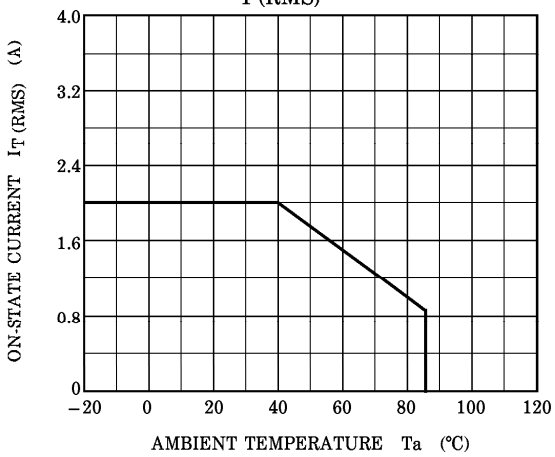
CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Trigger LED Current	I_{FT}	V_T = 6V	—	—	10	mA
Inhibit Voltage (Note 2)	V_{IH}	I_F = Rated I_{FT}	—	—	50	V
Leakage in Inhibited State (Note 2)	I_{IH}	I_F = Rated I_{FT} V_T = Rated V_{DRM}	—	200	—	μA
Capacitance (Input to Output)	C_S	V_S = 0, f = 1MHz	—	1.5	—	pF
Isolation Resistance	R_S	V_S = 500V, R.H. ≦ 60%	—	10^{14}	—	Ω
Isolation Voltage	BV_S	AC, 1 minute	2500	—	—	Vrms
		AC, 1 second, in oil	—	5000	—	
		DC, 1 minute, in oil	—	5000	—	Vdc

(Note 2) Applicable to TLP3561

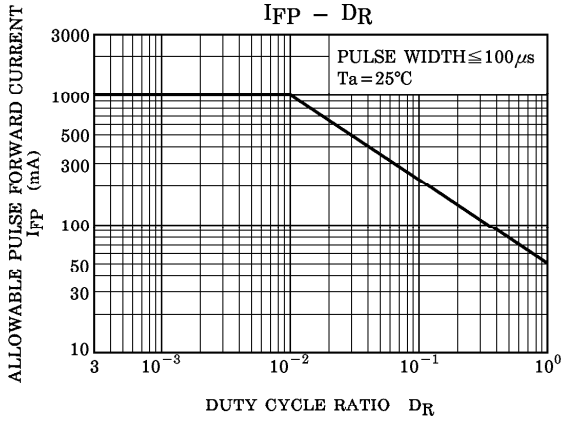
I_F – Ta



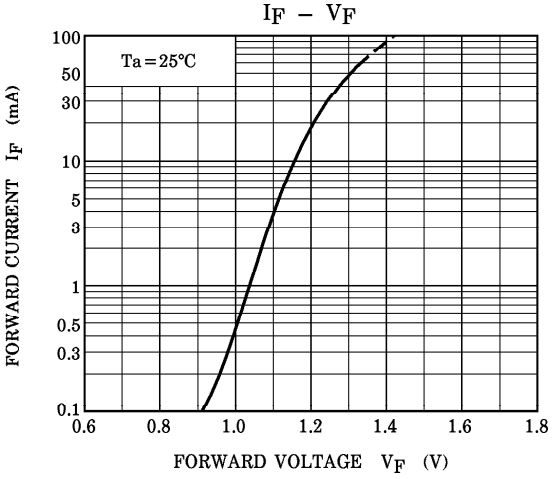
$I_{T\,(RMS)}$ – Ta



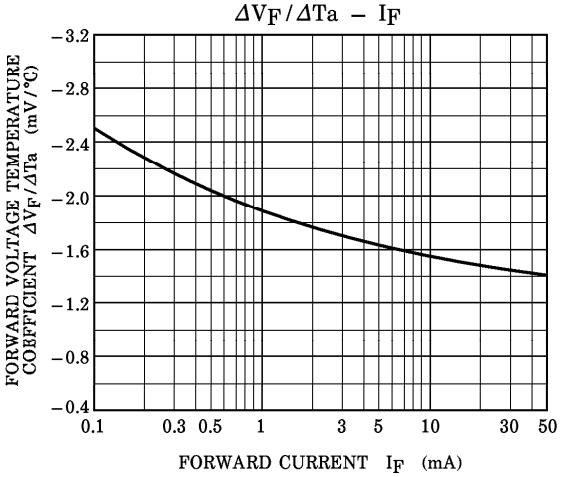
I_{FP} – D_R



I_F – V_F



$\Delta V_F / \Delta Ta$ – I_F



I_{FP} – V_{FP}