

TENTATIVE

TOSHIBA PHOTOCOUPLER GaAs LED + PHOTO-TRIAC + TRIAC

TLP3560, TLP3561

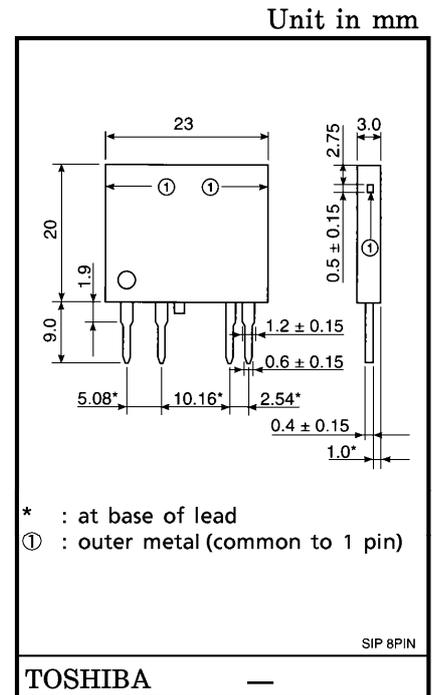
- INVERTER FOR AIR CONDITIONER
- HOUSEHOLD USE EQUIPMENT
- VENDING MACHINE
- GAME MACHINE
- AC-OUTPUT MODULE

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

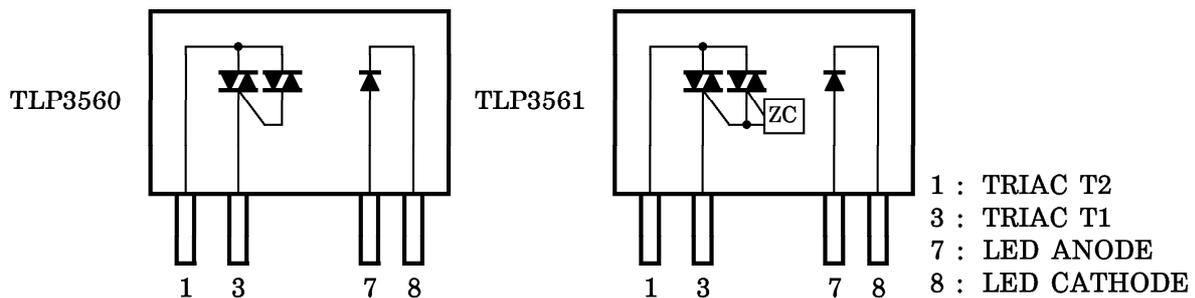
TLP3561 : Zero Crossing Type

- 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



Weight : 3.6g

PIN CONFIGURATION (TOP VIEW)



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	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	V _{rms}	

(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

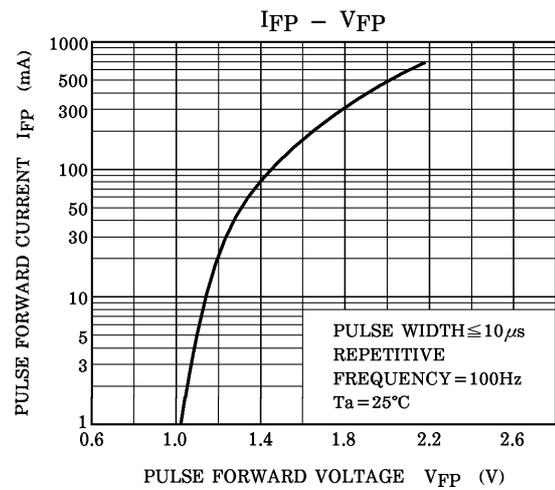
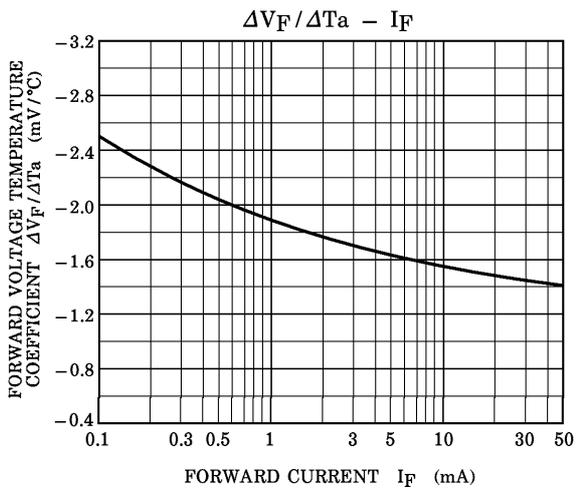
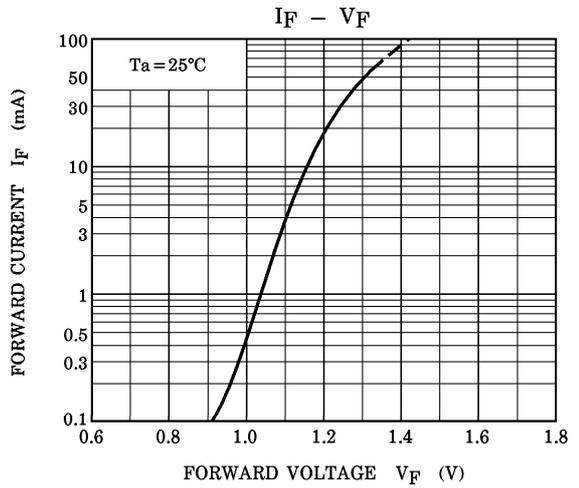
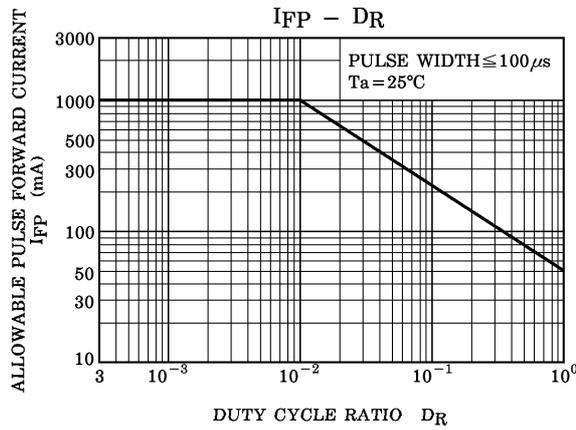
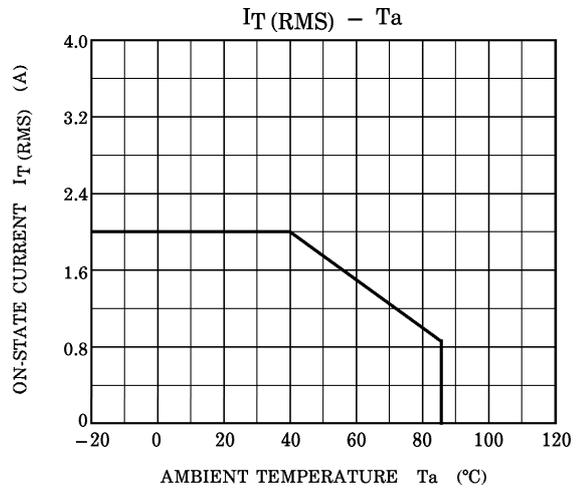
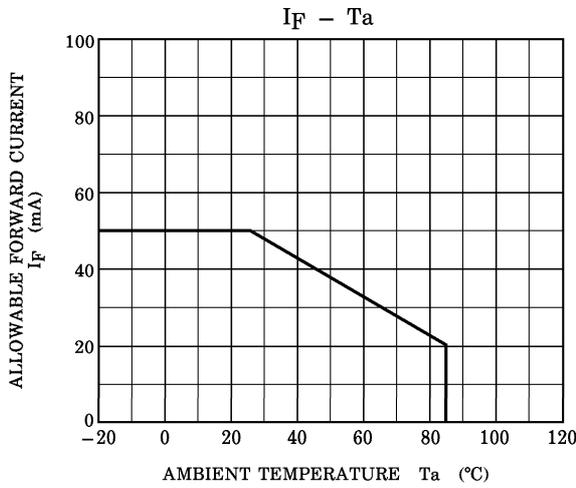
INDIVIDUAL ELECTRICAL CHARACTERISTICS (Ta = 25°C)

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

COUPLED ELECTRICAL CHARACTERISTICS (Ta = 25°C)

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

(Note 2) Applicable to TLP3561



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