

TENTATIVE

TOSHIBA PHOTOCOUPLER GaAs LED + PHOTO-TRIAC + TRIAC

TLP3560, TLP3561

INVERTER FOR AIR CONDITIONER

HOUSEHOLD USE EQUIPMENT

VENDING MACHINE

GAME MACHINE

AC-OUTPUT MODULE

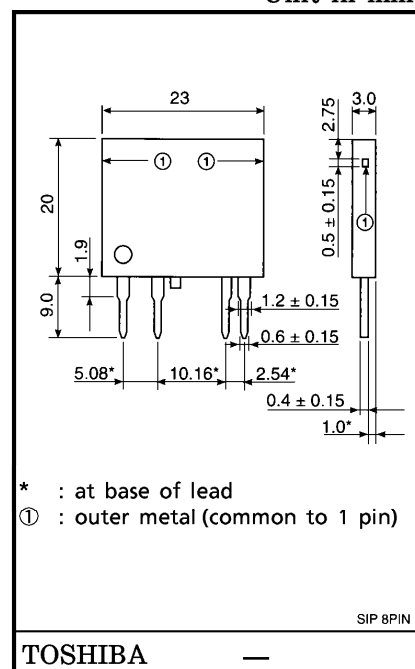
The TOSHIBA TLP3560 series consist of a GaAs infrared LED optically coupled to photo-triac and main triac in a 4 pin plastic SIP package.

TLP3560 : Non Zero Crossing Type

TLP3561 : Zero Crossing Type

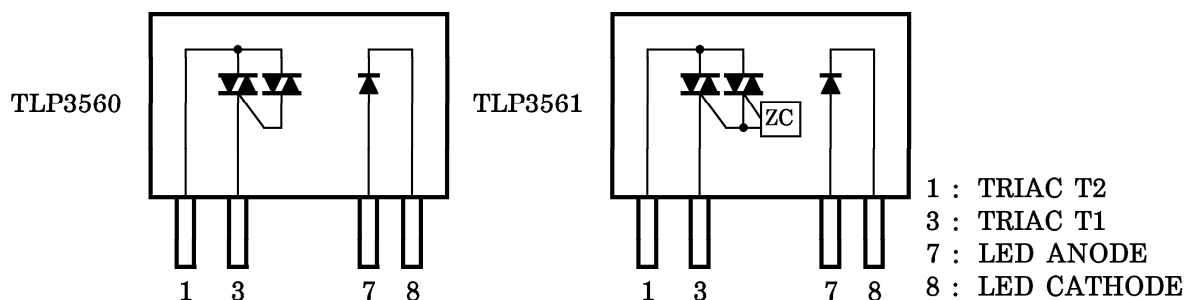
- Peak Off-State Voltage : 400V (MIN.)
- Trigger LED Current : 10mA (MAX.)
- On-State Current : 2Arms (MAX.) @Ta=40°C
- Isolation Voltage : 2500Vrms (MIN.)
- Nonrepetitive Surge Current : 12A peak @1cycle (MAX.)
- Isolation Creepage Path : 6.4mm (MIN.)
- Distance Between T1 and T2 : 3.5mm (MIN.) (5.08mm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

Unit in mm



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℃)		ΔI _F /℃	−0.5	mA/℃
	Peak Forward Current(100μs pulse, 100pps)		I _{FP}	1	A
	Reverse Voltage		V _R	5	V
	Junction Temperature		T _j	125	℃
DETECTOR	Off-State Output Terminal Voltage		V _{DRM}	400	V
	On-State RMS Current	Ta=40℃	I _T (RMS)	2.0	A
		Ta=60℃		1.5	
	On-State Current Derating (Ta≧40℃)		ΔI _T /℃	−25	mA/℃
	Peak Current from snubber Circuit (100μs Pulse, 120pps)		I _{SP}	2	A
	Peak Nonrepetitive Surge Current (50Hz, peak)		I _{TSM}	12	A
	Junction Temperature		T _j	120	℃
	Storage Temperature Range		T _{stg}	−40~125	℃
Operating Temperature Range		T _{opr}	−30~85	℃	
Lead Soldering Temperature (10s)		T _{sol}	260	℃	
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

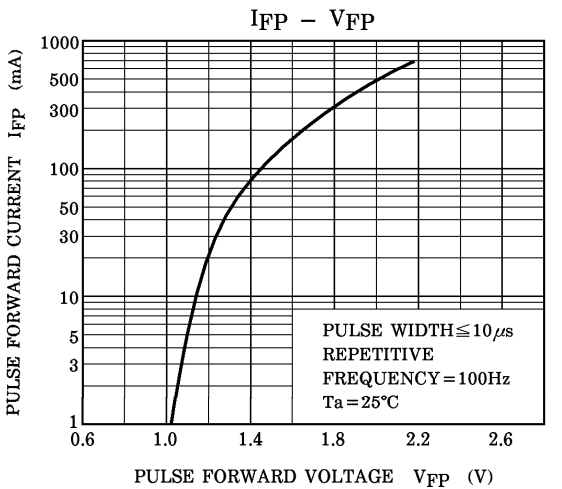
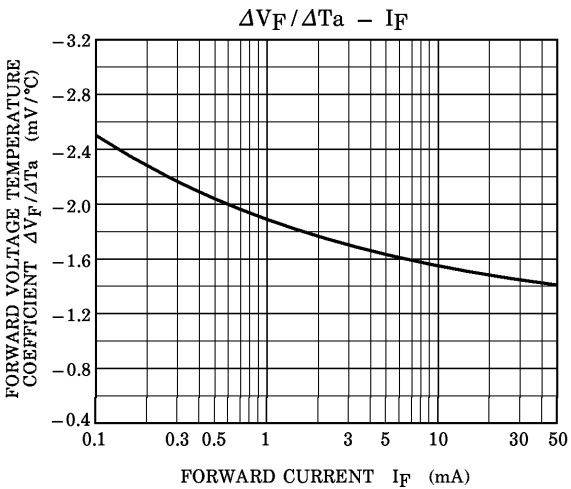
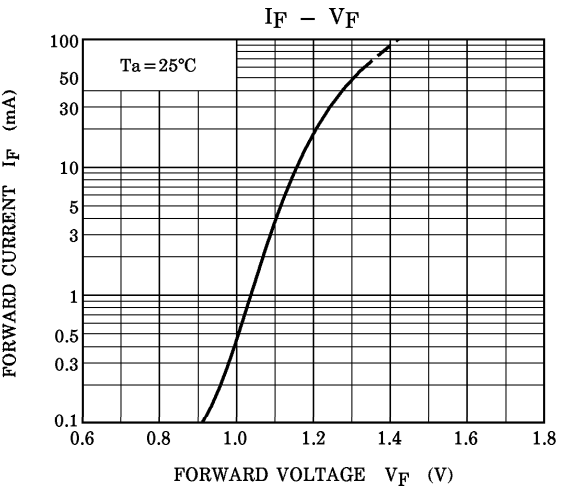
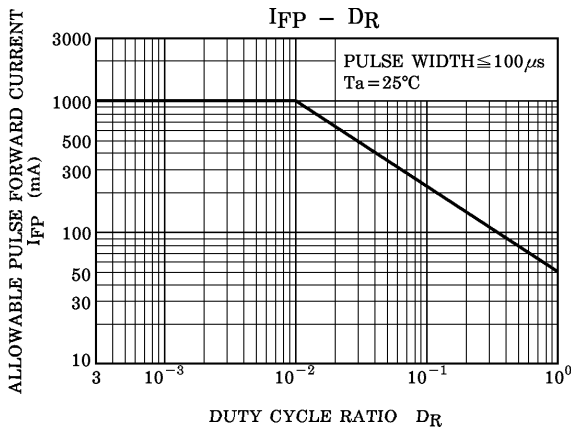
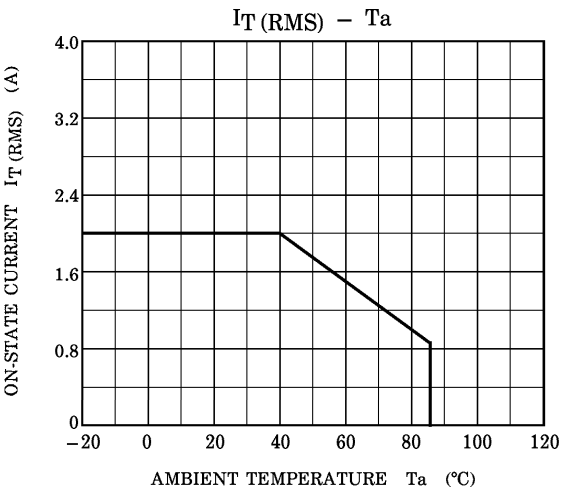
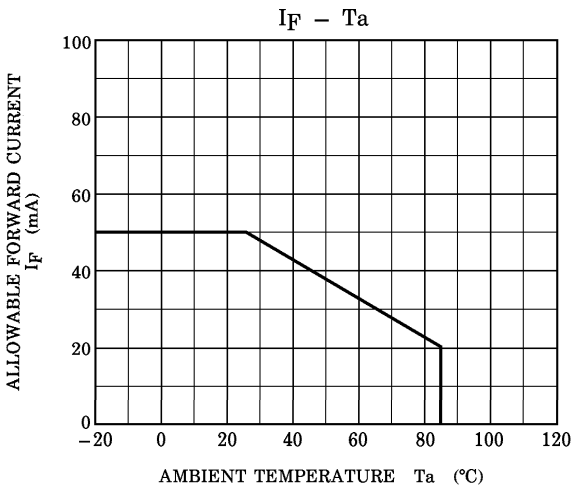
INDIVIDUAL ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
LED	Forward Voltage	V_F	$I_F = 10\text{mA}$	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}	$V_{\text{DRM}} = 400\text{V}, T_a = 110^\circ\text{C}$	—	—	100	μA
	Peak On-State Voltage	V_{TM}	$I_{\text{TM}} = 1.5\text{A}$	—	—	3.0	V
	Holding Current	I_H	$R_L = 100\Omega$	—	—	25	mA
	Critical Rate of Rise of Off-State Voltage	dv/dt	$V_{\text{in}} = 250\text{V}$	200	500	—	$\text{V}/\mu\text{s}$
	Critical Rate of Rise of Commutating Voltage	$dv/dt(c)$	$I_T = 1.0\text{A}$ $V_{\text{in}} = 120\text{Vrms}$	—	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}	$I_F = \text{Rated } I_{\text{FT}}$	—	—	50	V
Leakage in Inhibited State (Note 2)	I_{IH}	$I_F = \text{Rated } I_{\text{FT}}$ $V_T = \text{Rated } V_{\text{DRM}}$	—	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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