

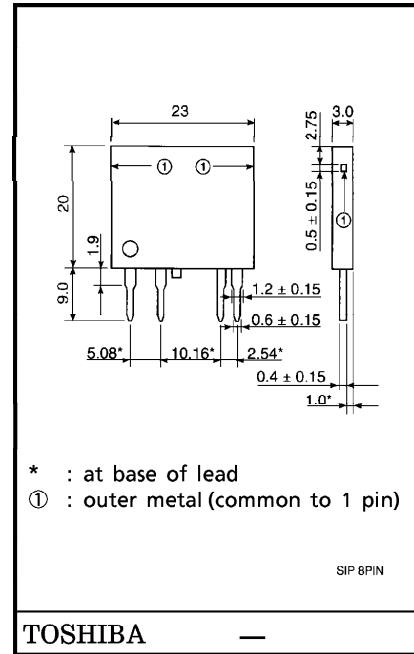
TENTATIVE

TOSHIBA PHOTOCOUPLER GaAs LED + PHOTO-TRIAC + TRIAC

TLP3566, TLP3567

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

Unit in mm



The TOSHIBA TLP3566 series consist of a GaAs infrared LED optically coupled to photo-triac and main triac in a 4 pin plastic SIP.

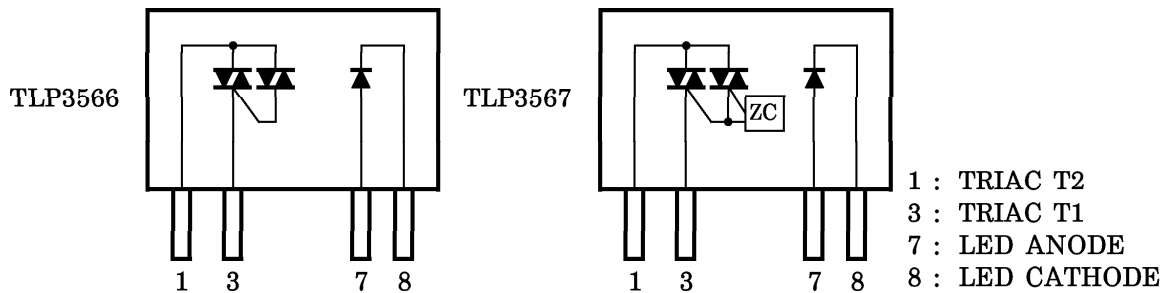
TLP3566 : Non Zero Crossing Type

TLP3567 : Zero Crossing Type

- Peak Off-State Voltage : 600V (MIN.)
- Trigger LED Current : 15mA (MAX.)
 · TLP3566 : 15mA (MAX.)
 · TLP3567 : 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)



961001EBC2

● TOSHIBA is continually working to improve the quality and the reliability of its products. Nevertheless, semiconductor devices in general can malfunction or fail due to their inherent electrical sensitivity and vulnerability to physical stress. It is the responsibility of the buyer, when utilizing TOSHIBA products, to observe standards of safety, and to avoid situations in which a malfunction or failure of a TOSHIBA product could cause loss of human life, bodily injury or damage to property. In developing your designs, please ensure that TOSHIBA products are used within specified operating ranges as set forth in the most recent products specifications. Also, please keep in mind the precautions and conditions set forth in the TOSHIBA Semiconductor Reliability Handbook.

● Gallium arsenide (GaAs) is a substance used in the products described in this document. GaAs dust and fumes are toxic. Do not break, cut or pulverize the product, or use chemicals to dissolve them. When disposing of the products, follow the appropriate regulations. Do not dispose of the products with other industrial waste or with domestic garbage.

● The products described in this document are subject to foreign exchange and foreign trade control laws.

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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)	$\Delta I_F / ^\circ\text{C}$	-0.5	mA / °C
	Peak Forward Current (100µs 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}	600	V
	On-State RMS Current	Ta = 40°C	2.0	A
		Ta = 60°C	1.5	
	On-State Current Derating (Ta ≥ 40°C)	$\Delta I_T / ^\circ\text{C}$	-25	mA / °C
	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	°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, and pins 7 and 8 shorted together.

RECOMMENDED OPERATING CONDITIONS

CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT
Supply Voltage	V_{AC}	—	—	240	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}	$V_{DRM} = 600\text{V}, T_a = 110^\circ\text{C}$	—	—	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	$V_{in} = 400\text{V}$	200	500	—	$\text{V}/\mu\text{s}$
	Critical Rate of Rise of Commutating Voltage	$dv/dt(c)$	$I_T = 1.0\text{A}$ $V_{in} = 240\text{V}_{rms}$	—	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}	$V_T = 6\text{V}$	TLP3566	—	—	15
				TLP3567			10
Inhibit Voltage (Note 2)	V_{IH}	$I_F = \text{Rated } I_{FT}$	—	—	50	V	
Leakage in Inhibited State (Note 2)	I_{IH}	$I_F = \text{Rated } I_{FT}$ $V_T = \text{Rated } V_{DRM}$	—	400	—	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 TLP3567

