

TOSHIBA PHOTOCOUPLER GaAIAs IRED & PHOTO-TRIAC

TLP3064(S)

OFFICE MACHINE
HOUSEHOLD USE EQUIPMENT
TRIAC DRIVER
SOLID STATE RELAY

The TOSHIBA TLP3064(S) consists of a zero voltage crossing turn-on photo-triac optically coupled to a GaAIAs infrared emitting diode in a six lead plastic DIP package.

- Peak Off-State Voltage : 600 V(Min)
- Trigger LED Current : 3 mA(Max)
- On-State Current : 100 mA(Max)
- Isolation Voltage : 5000 Vrms(Min)
- UL Recognized : UL1577, File No.E67349
- SEMKO Approved : SS EN60065
SS EN60950, File No.9841113
- BSI Approved : BS EN60065, File No.8385
BS EN60950, File No.8386

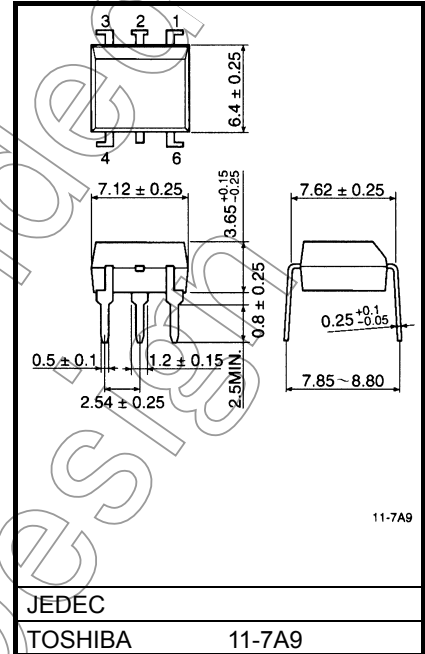
- Option (D4) type
VDE approved: DIN EN60747-5-2
Approved No. 40009302
Maximum operating insulation voltage: 890 VPK
Highest permissible over voltage: 8000 VPK

(Note):When a EN60747-5-2 approved type is needed, please designate the "Option (D4)"

Construction Mechanical Rating

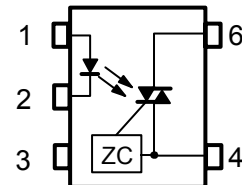
	7.62 mm pitch Standard Type	10.16 mm pitch TLPxxxxF Type
Creepage Distance	7.0 mm (Min)	8.0 mm (Min)
Clearance	7.0 mm (Min)	8.0 mm (Min)
Insulation Thickness	0.5 mm (Min)	0.5 mm (Min)

Unit: in mm



Weight: 0.39 g (typ.)

Pin Configuration (top view)



- 1: Anode
 - 2: Cathode
 - 3: N.C.
 - 4: Terminal 1
 - 6: Terminal 2
- ZC: Zero-cross Circuit

Absolute Maximum Ratings ($T_a = 25^\circ\text{C}$)

CHARACTERISTIC		SYMBOL	RATING	UNIT
LED	Forward Current	I_F	30	mA
	Forward Current Derating ($T_a \geq 25^\circ\text{C}$)	$\Delta I_F / ^\circ\text{C}$	-0.3	mA / $^\circ\text{C}$
	Peak Forward Current (100 μs pulse, 100 pps)	I_{FP}	1	A
	Reverse Voltage	V_R	5	V
	Junction Temperature	T_J	125	$^\circ\text{C}$
DETECTOR	Off-State Output Terminal Voltage	V_{DRM}	600	V
	On-State RMS Current	$T_a = 25^\circ\text{C}$	100	mA
		$T_a = 70^\circ\text{C}$	50	
	On-State Current Derating ($T_a \geq 25^\circ\text{C}$)	$\Delta I_T / ^\circ\text{C}$	-1.1	mA / $^\circ\text{C}$
	Peak On-State Current (100 μs pulse, 120 pps)	I_{TP}	2	A
	Peak Nonrepetitive Surge Current ($P_w = 10 \text{ ms}$)	I_{TSM}	1.2	A
	Junction Temperature	T_J	115	$^\circ\text{C}$
	Storage Temperature Range	T_{stg}	-55 to 150	$^\circ\text{C}$
Operating Temperature Range	T_{opr}	-40 to 100	$^\circ\text{C}$	
Lead Soldering Temperature (10 s)	T_{sol}	260	$^\circ\text{C}$	
Isolation Voltage (AC, 1 min., R.H. $\leq 60\%$)	(Note 2) BV_S	5000	Vrms	

Note: Using continuously under heavy loads (e.g. the application of high temperature/current/voltage and the significant change in temperature, etc.) may cause this product to decrease in the reliability significantly even if the operating conditions (i.e. operating temperature/current/voltage, etc.) are within the absolute maximum ratings.

Please design the appropriate reliability upon reviewing the Toshiba Semiconductor Reliability Handbook ("Handling Precautions"/"Derating Concept and Methods") and individual reliability data (i.e. reliability test report and estimated failure rate, etc.).

(Note 2) Device considered a two-terminal device: Pins 1, 2 and 3 shorted together and pin 4 and pin 6 shorted together.

Recommended Operating Conditions

CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT
Supply Voltage	V_{AC}	—	—	240	V_{ac}
Forward Current	I_F	4.5	6	7.5	mA
Peak On-State Current	I_{TP}	—	—	1	A
Operating Temperature	T_{opr}	-10	—	85	$^\circ\text{C}$

Note: Recommended operating conditions are given as a design guideline to obtain expected performance of the device. Additionally, each item is an independent guideline respectively. In developing designs using this product, please confirm specified characteristics shown in this document.

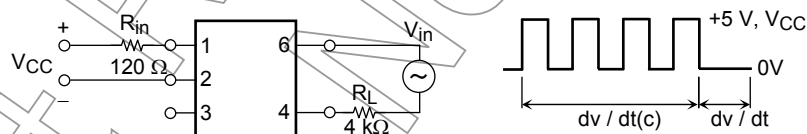
Individual Electrical Characteristics (Ta=25°C)

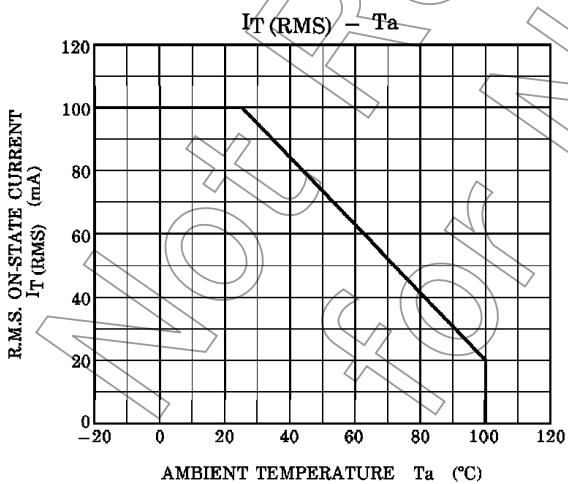
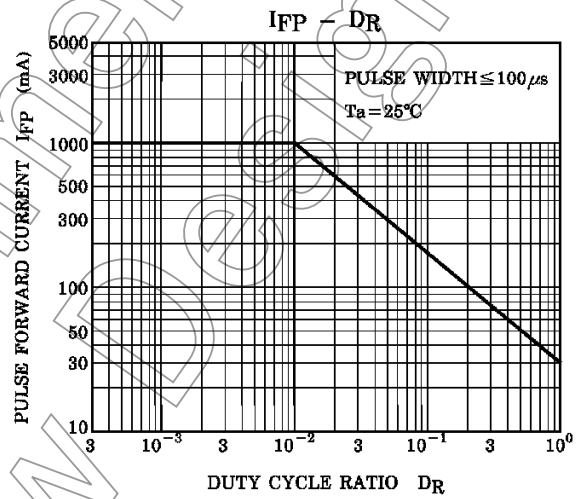
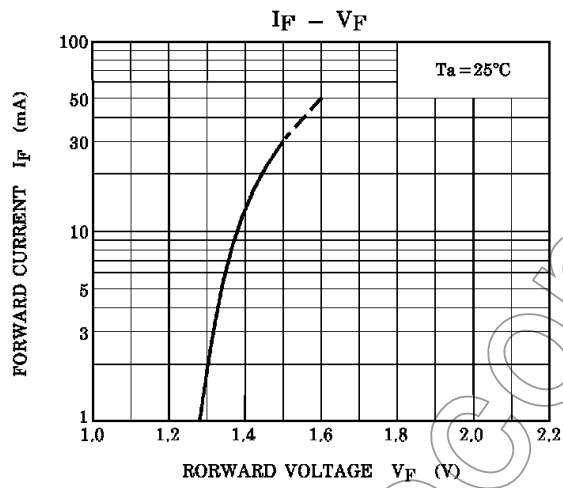
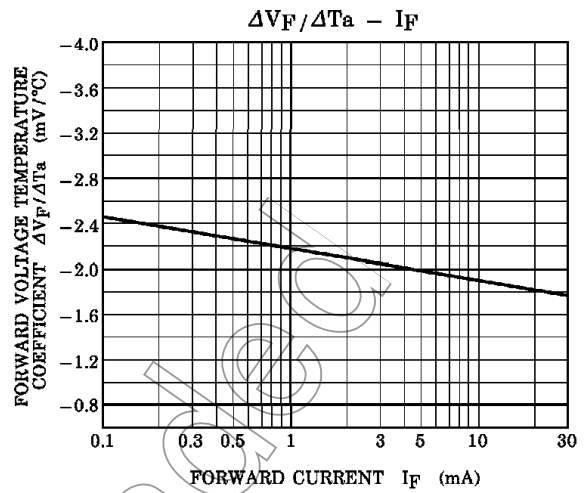
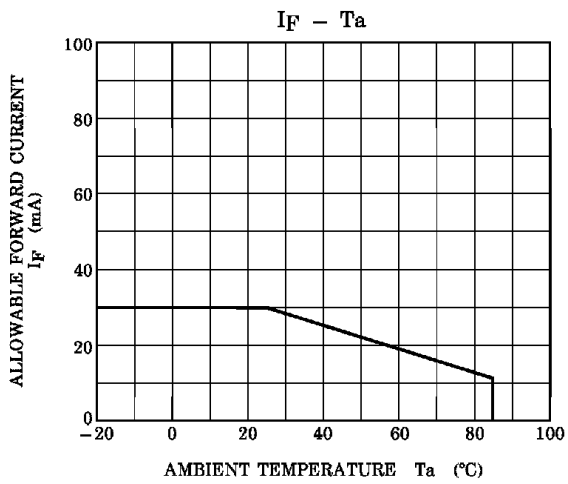
CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
LED	Forward Voltage	V _F	I _F = 10 mA	1.2	1.4	1.7	V
	Reverse Current	I _R	V _R = 3 V	—	—	10	μA
	Capacitance	C _T	V = 0, f = 1 MHz	—	30	—	pF
DETECTOR	Peak Off-State Current	I _{DRM}	V _{DRM} = 600 V	—	10	1000	nA
	Peak On-State Voltage	V _{TM}	I _{TM} = 100 mA	—	—	3.0	V
	Holding Current	I _H	—	—	0.6	—	mA
	Critical Rate of Rise of Off-State Voltage	dv / dt	V _{in} = 240 Vrms, Ta = 85°C (Fig.1)	200	500	—	V/μs
	Critical Rate of Rise of Commutating Voltage	dv / dt(c)	V _{in} = 60 Vrms, I _T = 15 mA (Fig.1)	—	0.2	—	V/μs

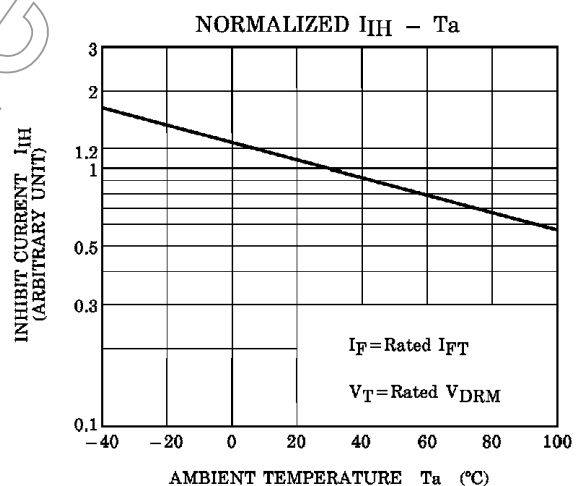
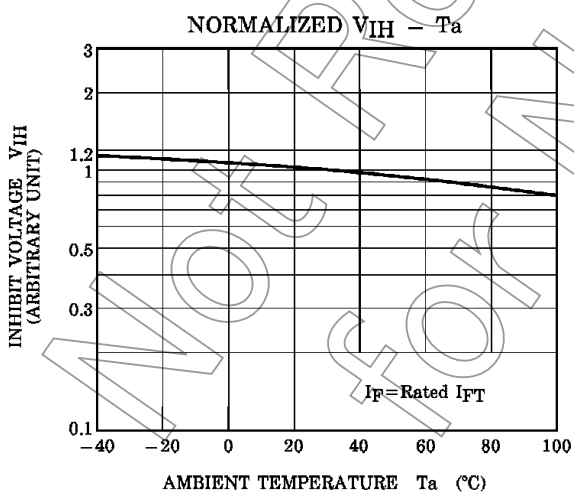
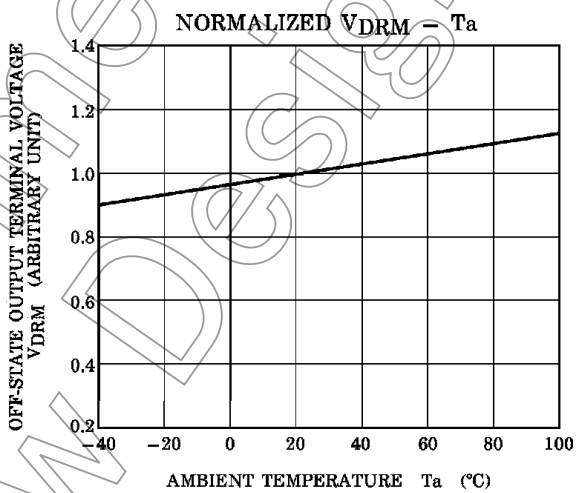
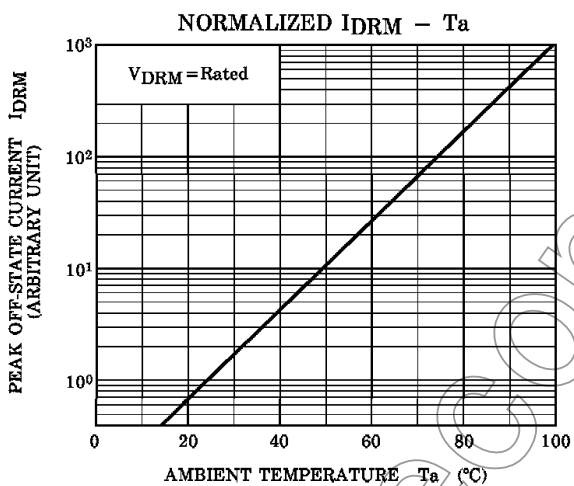
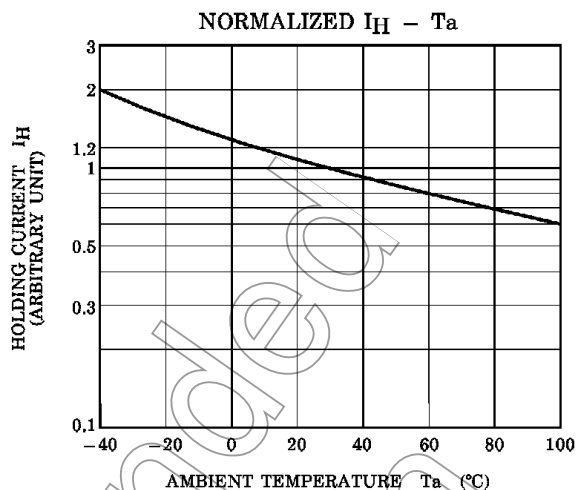
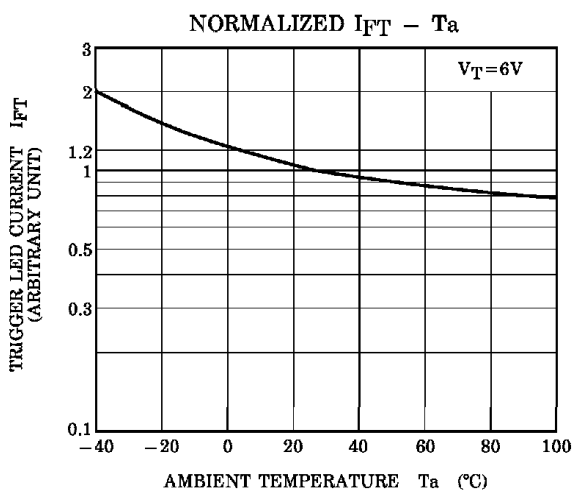
Coupled Electrical Characteristics (Ta=25°C)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Trigger LED Current	I _{FT}	V _T = 3 V, Resistive Load	—	—	3	mA
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}	—	—	600	μA
Capacitance (Input to Output)	C _S	V _S = 0, f = 1 MHz	—	0.8	—	pF
Isolation Resistance	R _S	V _S = 500 V, R.H. ≤ 60%	1×10 ¹²	10 ¹⁴	—	Ω
Isolation Voltage	BVs	AC, 1 minute	5000	—	—	Vrms
		AC, 1 second, in oil	—	10000	—	
		DC, 1 minute, in oil	—	10000	—	Vdc

Fig. 1 dv / dt test circuit







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