

# 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 GaAlAs 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

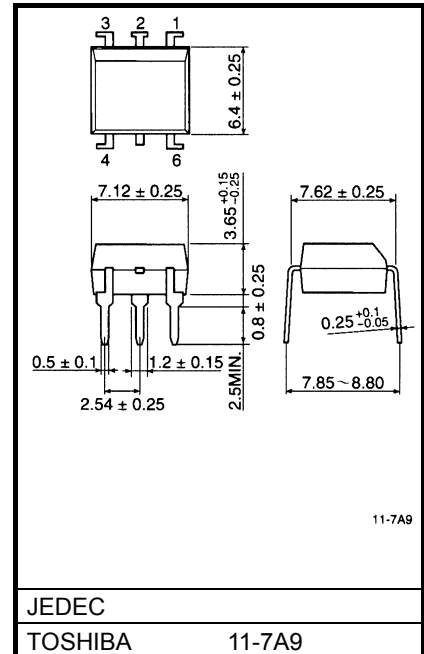
VDE approved: DIN EN60747-5-2  
 Approved No. 40009302  
 Maximum operating insulation voltage: 890 VPK  
 Highest permissible over voltage: 8000 VPK

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

Construction Mechanical Rating

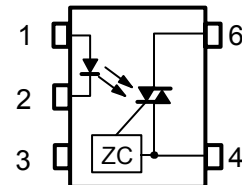
	7.62 mm pitch Standard Type	10.16 mm pitch TLPxxxxF Type
Creepage Distance	7.0 mm (Min)	8.0 mm (Min)
Clearance	7.0 mm (Min)	8.0 mm (Min)
Insulation Thickness	0.5 mm (Min)	0.5 mm (Min)

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 (Ta = 25°C)

CHARACTERISTIC		SYMBOL	RATING	UNIT
LED	Forward Current	$I_F$	30	mA
	Forward Current Derating (Ta ≥ 25°C)	$\Delta I_F / ^\circ\text{C}$	-0.3	mA / °C
	Peak Forward Current (100 μs pulse, 100 pps)	$I_{FP}$	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 = 25°C	100	mA
		Ta = 70°C	50	
	On-State Current Derating (Ta ≥ 25°C)	$\Delta I_T / ^\circ\text{C}$	-1.1	mA / °C
	Peak On-State Current (100 μs pulse, 120 pps)	$I_{TP}$	2	A
	Peak Nonrepetitive Surge Current (Pw = 10 ms)	$I_{TSM}$	1.2	A
	Junction Temperature	$T_j$	115	°C
Storage Temperature Range	$T_{stg}$	-55 to 150	°C	
Operating Temperature Range	$T_{opr}$	-40 to 100	°C	
Lead Soldering Temperature (10 s)	$T_{sol}$	260	°C	
Isolation Voltage (AC, 1 min., R.H. ≤ 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	°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.

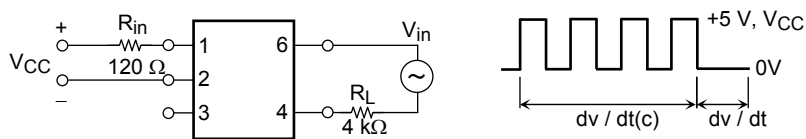
**Individual Electrical Characteristics (Ta=25°C)**

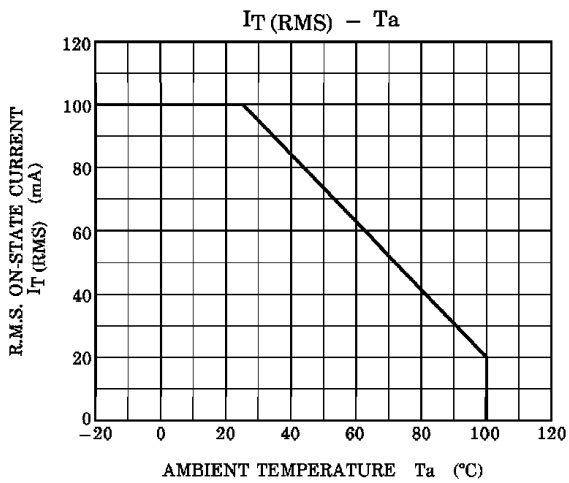
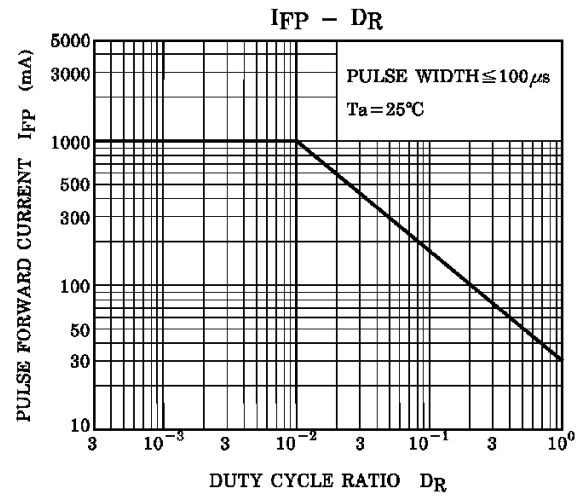
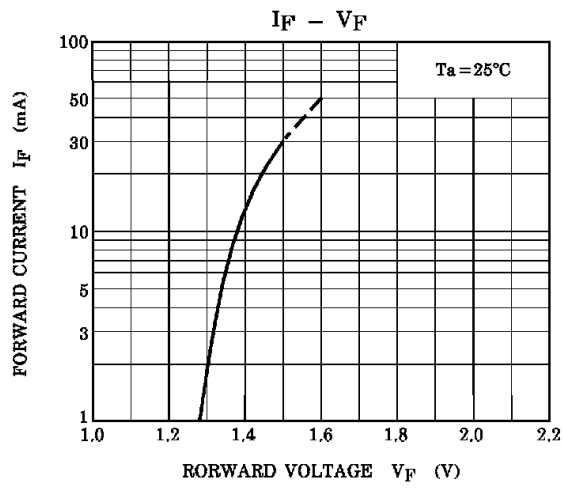
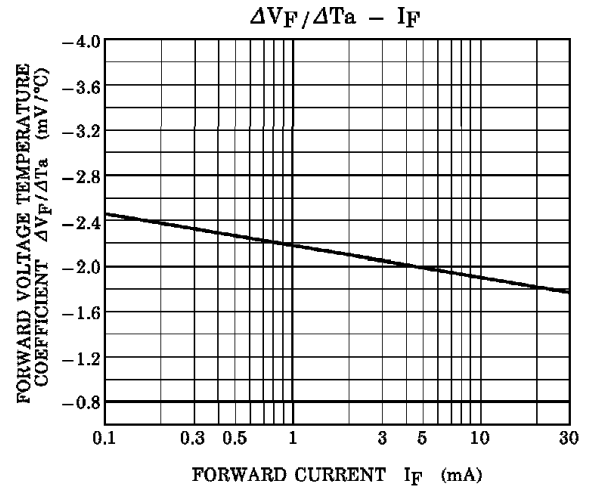
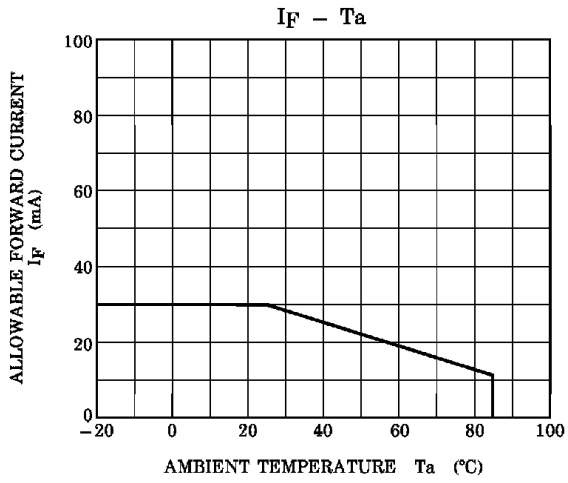
CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
LED	Forward Voltage	$V_F$	$I_F = 10 \text{ mA}$	1.2	1.4	1.7	V
	Reverse Current	$I_R$	$V_R = 3 \text{ V}$	—	—	10	$\mu\text{A}$
	Capacitance	$C_T$	$V = 0, f = 1 \text{ MHz}$	—	30	—	pF
DETECTOR	Peak Off-State Current	$I_{DRM}$	$V_{DRM} = 600 \text{ V}$	—	10	1000	nA
	Peak On-State Voltage	$V_{TM}$	$I_{TM} = 100 \text{ mA}$	—	—	3.0	V
	Holding Current	$I_H$	—	—	0.6	—	mA
	Critical Rate of Rise of Off-State Voltage	$dv / dt$	$V_{in} = 240 \text{ Vrms}, T_a = 85^\circ\text{C}$ (Fig.1)	200	500	—	$\text{V}/\mu\text{s}$
	Critical Rate of Rise of Commutating Voltage	$dv / dt(c)$	$V_{in} = 60 \text{ Vrms}, I_T = 15 \text{ mA}$ (Fig.1)	—	0.2	—	$\text{V}/\mu\text{s}$

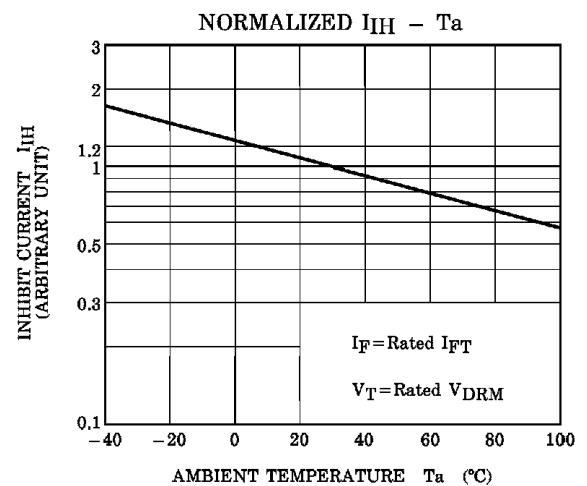
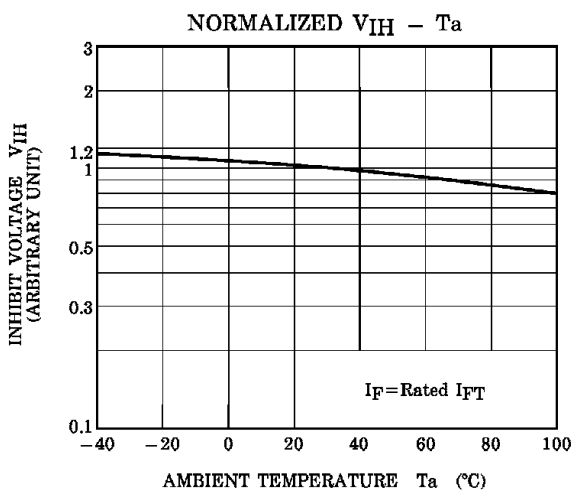
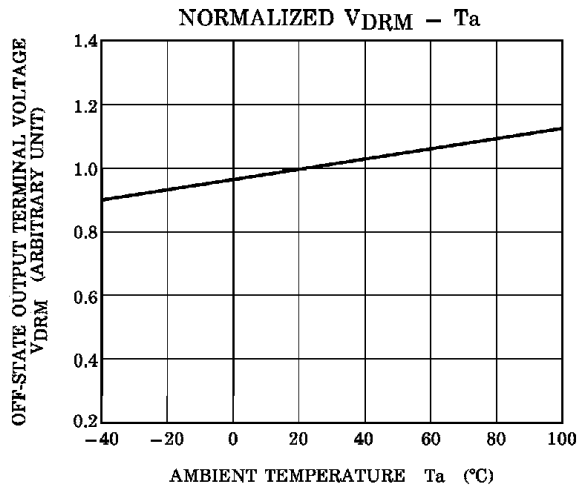
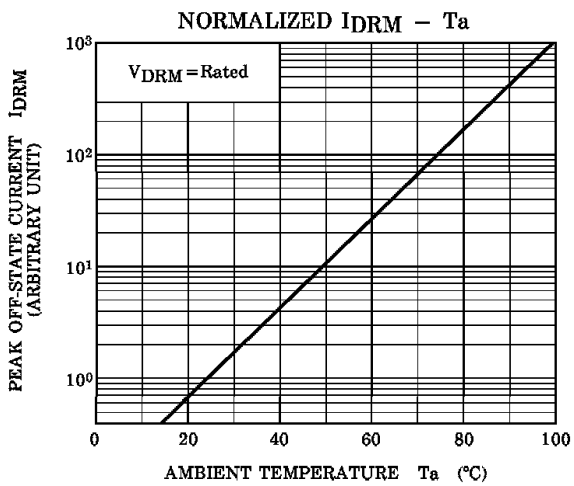
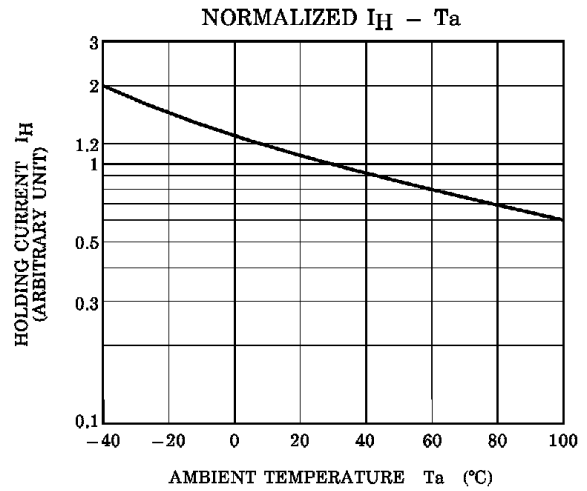
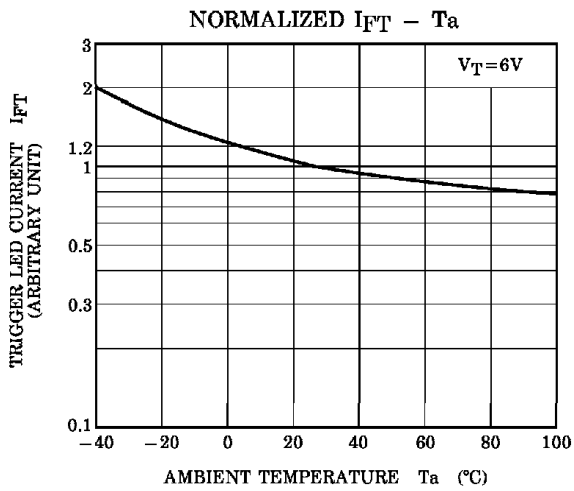
**Coupled Electrical Characteristics (Ta=25°C)**

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Trigger LED Current	$I_{FT}$	$V_T = 3 \text{ V}$ , Resistive Load	—	—	3	mA
Inhibit Voltage	$V_{IH}$	$I_F = \text{Rated } I_{FT}$	—	—	50	V
Leakage in Inhibited State	$I_{IH}$	$I_F = \text{Rated } I_{FT}, V_T = \text{Rated } V_{DRM}$	—	—	600	$\mu\text{A}$
Capacitance (Input to Output)	$C_S$	$V_S = 0, f = 1 \text{ MHz}$	—	0.8	—	pF
Isolation Resistance	$R_S$	$V_S = 500 \text{ V}, \text{R.H.} \leq 60\%$	$1 \times 10^{12}$	$10^{14}$	—	$\Omega$
Isolation Voltage	$BV_S$	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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