

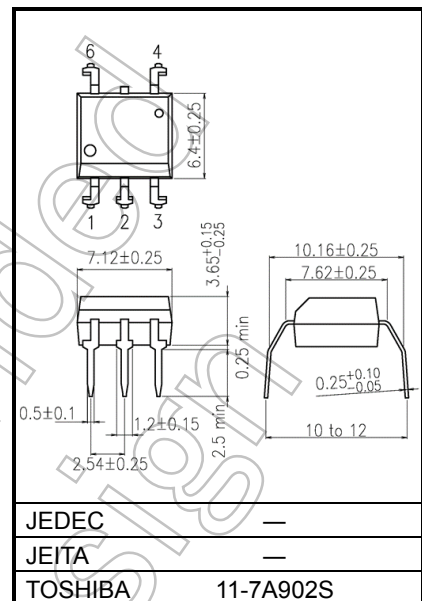
TLP3061F(S), TLP3062F(S), TLP3063F(S)

Unit: mm

OFFICE MACHINE
HOUSEHOLD USE EQUIPMENT
TRIAC DRIVER
SOLID STATE RELAY

The TOSHIBA TLP3061F(S), TLP3062F(S), TLP3063F(S) consist of a zero voltage crossing turn-on photo-triac optically coupled to an infrared emitting diode in a six lead plastic DIP package.

- Peak Off-State Voltage : 600 V (min)
- Trigger LED Current : 15 mA (max) (TLP3061F(S))
10 mA (max) (TLP3062F(S))
5 mA (max) (TLP3063F(S))
- On-State Current : 100 mA (max)
- Isolation Voltage : 5000 Vrms (min)
- UL-recognized : UL 1577, File No.E67349
- cUL-recognized : CSA Component Acceptance Service No.5A
File No.E67349
- CQC-approved : GB4943.1, GB8898 Japan Factory
- VDE-approved : EN 60747-5-5, EN 62368-1 (Note1)



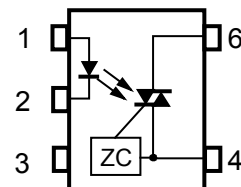
weight: 0.39g (typ.)

Note 1 : When a VDE approved type is needed, please designate the **Option (D4)**.

- Construction mechanical rating

	10.16 mm pitch TLPxxxxF type
Creepage Distance	8.0 mm (Min)
Clearance	8.0 mm (Min)
Insulation Thickness	0.5 mm (Min)

Pin Configuration (top view)



- 1: Anode
- 2: Cathode
- 3: N.C.
- 4: Terminal 1
- 6: Terminal 2

ZC: Zero-cross Circuit

Start of commercial production
1996-09

Absolute Maximum Ratings (Ta = 25°C)

Characteristic		Symbol	Rating	Unit	
LED	Forward current	I _F	50	mA	
	Forward current derating (Ta ≥ 53°C)	ΔI _F / °C	-0.7	mA / °C	
	Peak forward current (100 μs pulse, 100 pps)	I _{FP}	1	A	
	Power dissipation	P _D	100	mW	
	Power dissipation derating (Ta ≥ 53°C)	ΔP _D / °C	-1.4	mW / °C	
	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	I _{T(RMS)}	Ta = 25°C	100	mA
			Ta = 70°C	50	
	On-state current derating (Ta ≥ 25°C)	ΔI _T / °C	-1.1	mA / °C	
	Peak on-state current (100 μs pulse, 120 pps)	I _{TP}	2	A	
	Peak nonrepetitive surge current (P _w = 10 ms)	I _{TSM}	1.2	A	
	Power dissipation	P _D	300	mW	
	Power dissipation derating (Ta ≥ 25°C)	ΔP _D / °C	-4.0	mW / °C	
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		
Total package power dissipation	P _T	330	mW		
Total package power dissipation derating (Ta ≥ 25°C)	ΔP _T / °C	-4.4	mW / °C		
Isolation voltage (AC, 60 s., R.H. ≤ 60 %)	(Note 1) B _{Vs}	5000	V _{rms}		

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 1) Device considered a two terminal device: Pins 1, 2 and 3 shorted together and pins 4 and 6 shorted together.

Recommended Operating Conditions

Characteristic	Symbol	Min.	Typ.	Max.	Unit
Supply voltage	V _{AC}	—	—	240	Vac
Forward current	I _F *	15	20	25	mA
Peak on-state current	I _{TP}	—	—	1	A
Operating temperature	T _{opr}	-25	—	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.

* In the case of TLP3062

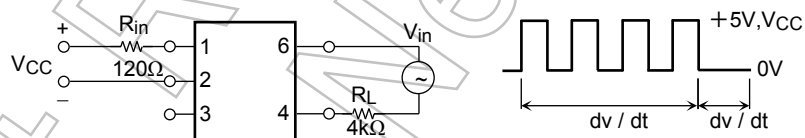
Individual Electrical Characteristics (Ta = 25°C)

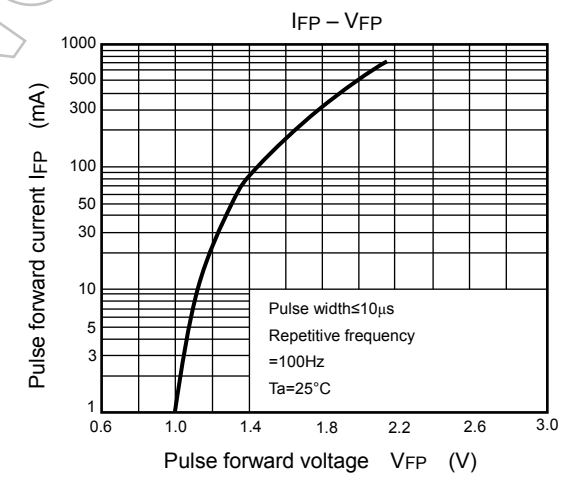
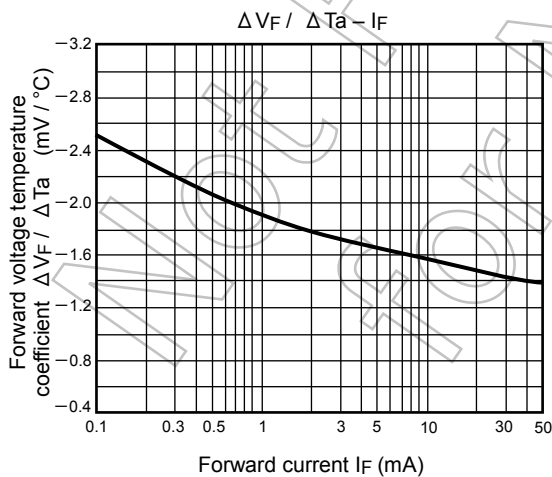
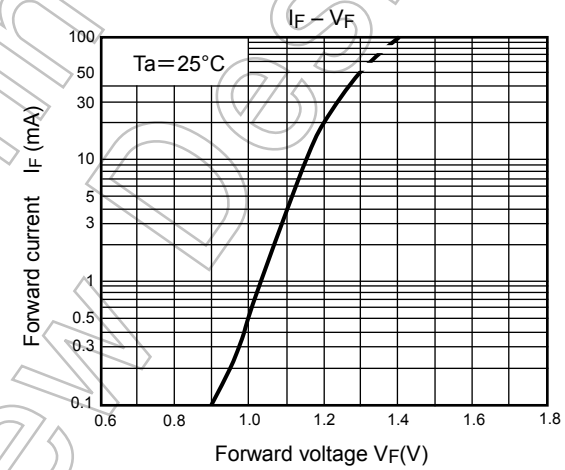
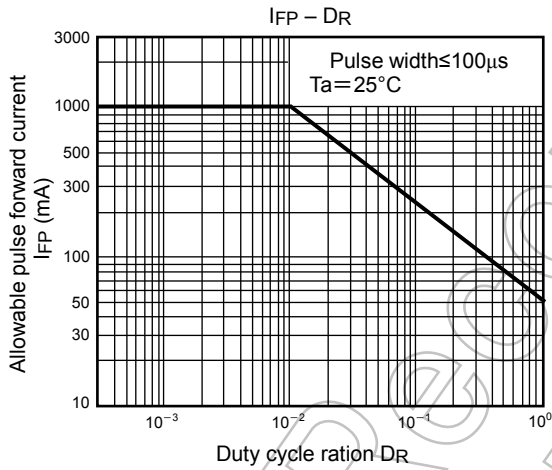
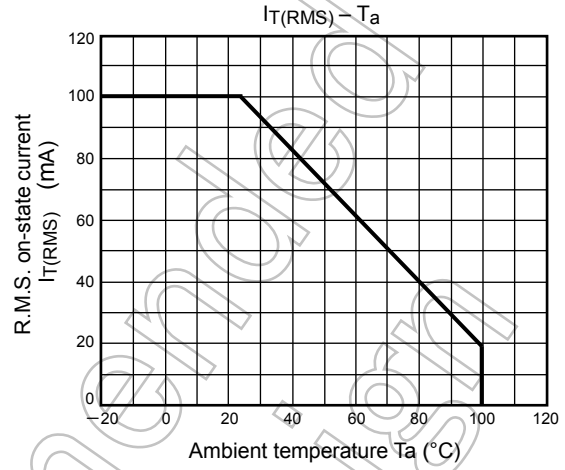
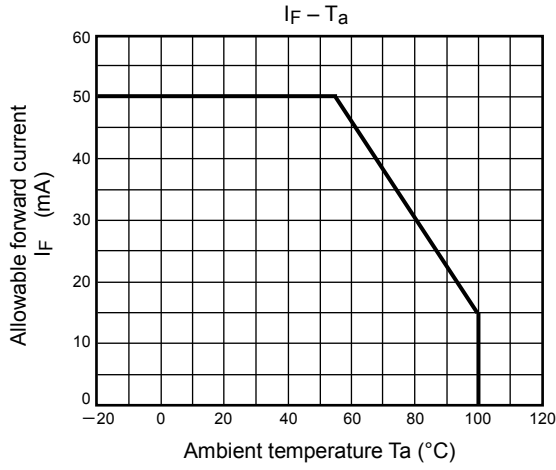
Characteristic		Symbol	Test Condition	Min.	Typ.	Max.	Unit
LED	Forward voltage	V_F	$I_F = 10 \text{ mA}$	1.0	1.15	1.3	V
	Reverse current	I_R	$V_R = 5 \text{ V}$	—	—	10	μA
	Capacitance	C_T	$V = 0 \text{ V}, f = 1 \text{ MHz}$	—	10	—	pF
Detector	Peak off-state current	I_{DRM}	$V_{DRM} = 600 \text{ V}$	—	10	1000	nA
	Peak on-state voltage	V_{TM}	$I_{TM} = 100 \text{ mA}$	—	1.7	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)

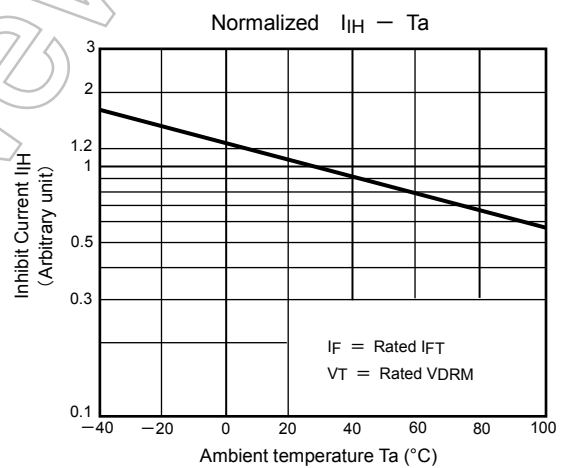
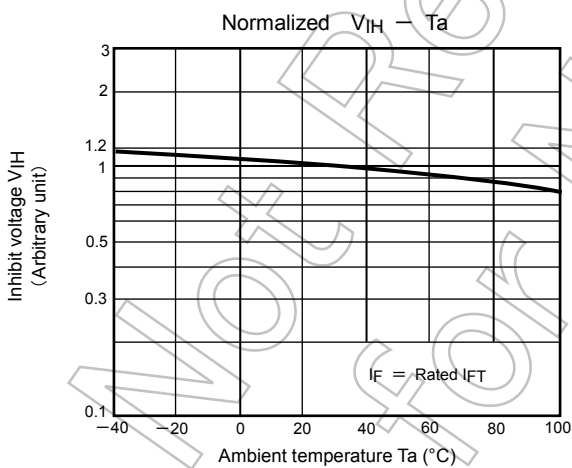
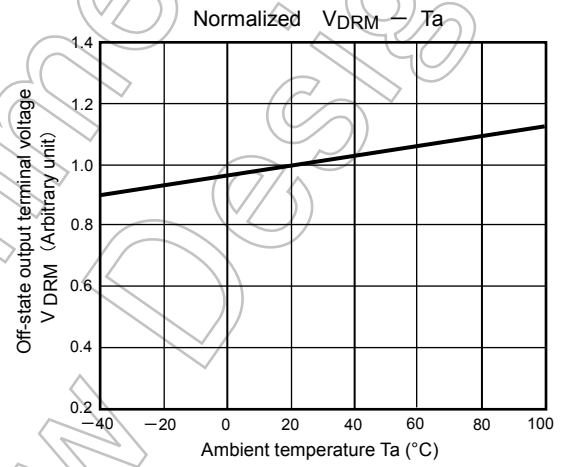
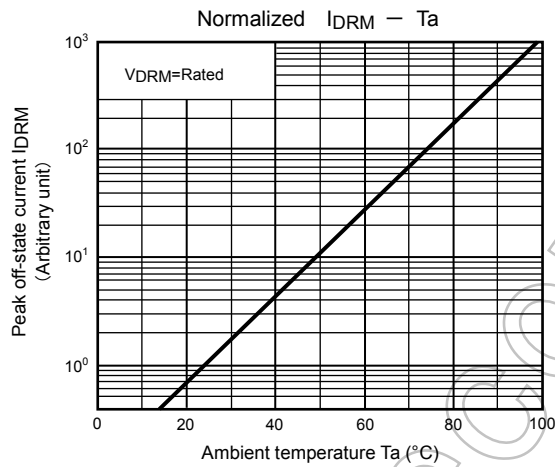
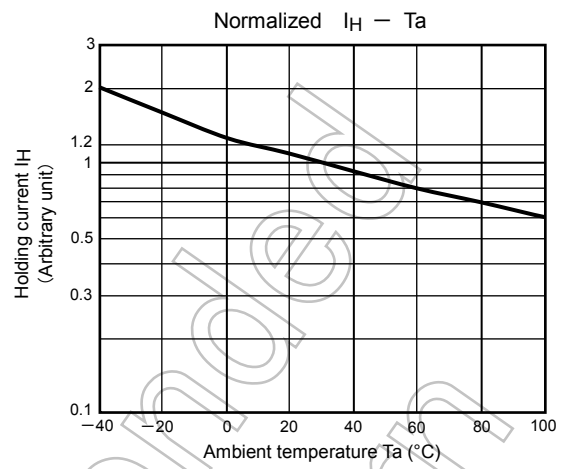
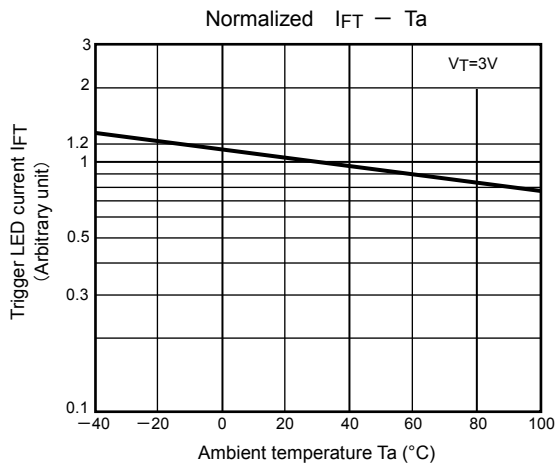
Characteristic		Symbol	Test Condition	Min.	Typ.	Max.	Unit
Trigger LED current	TLP3061F(S)	I_{FT}	$V_T = 3 \text{ V}$	—	—	15	mA
	TLP3062F(S)			—	5	10	
	TLP3063F(S)			—	—	5	
Inhibit voltage	V_{IH}	$I_F = \text{rated } I_{FT}$	—	—	50	V	
Leakage in inhibited state	I_{IH}	$I_F = \text{rated } I_{FT}$ $V_T = \text{rated } V_{DRM}$	—	100	300	μA	
Capacitance input to output	C_S	$V_S = 0 \text{ V}, f = 1 \text{ MHz}$	—	0.8	—	pF	
Isolation resistance	R_S	$V_S = 500 \text{ V}, R.H. \leq 60 \%$	5×10^{10}	10^{14}	—	Ω	
Isolation voltage	BVS	AC, 60 s	5000	—	—	Vrms	

Fig. 1 dv / dt test circuit





NOTE: The above characteristics curves are presented for reference only and not guaranteed by production test, unless otherwise noted.



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