

# TLP561G

- Triac Driver
- Programmable Controllers
- AC-Output Module
- Solid State Relay

The TOSHIBA TLP561G consists of a zero voltage crossing turn-on photo-triac optically coupled to a gallium arsenide infrared emitting diode in a six lead plastic DIP package.

- Peak off-state voltage: 400V(min.)
- On-state current: 100mA(max.)
- Isolation voltage: 2500V<sub>rms</sub>(min.)
- UL recognized: file no. E67349
- Isolation operating voltage: 2500V<sub>ac</sub> or 300V<sub>dc</sub> for isolation groupe C\*1
- Trigger LED current

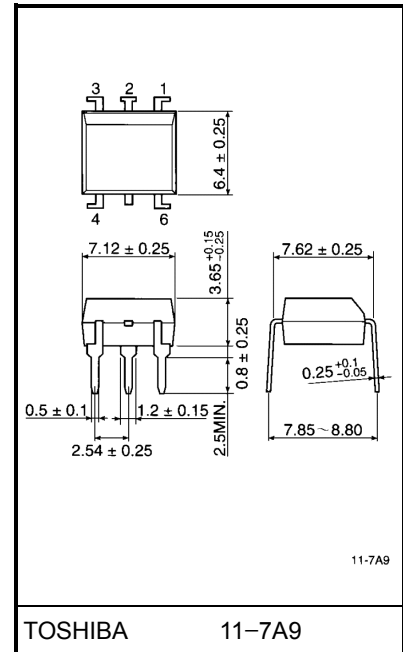
Classification*	Trigger LED Current (mA)		Marking Of Classification
	V <sub>T</sub> = 6V, T <sub>a</sub> = 25°C		
	Min.	Max.	
(IFT5)	—	5	T5
(IFT7)	—	7	T5, T7
Standard	—	10	T5, T7, blank

\*Ex. (IFT5); TLP561G (IFT5)

(Note) Application type name for certification test, please use standard product type name, i.e.  
TLP561G (IFT5): TLP561G

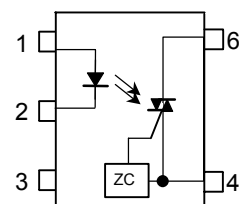
\*1: According to VDE0110, table 4.

Unit in mm



Weight: 0.39g

### Pin Configuration (top view)



- 1 : ANODE
- 2 : CATHODE
- 3 : N.C.
- 4 : TERMINAL 1
- 6 : TERMINAL 2

## Maximum Ratings (Ta = 25°C)

Characteristic		Symbol	Rating	Unit
LED	Forward current	$I_F$	50	mA
	Forward current derating (Ta ≥ 53°C)	$\Delta I_F / ^\circ\text{C}$	-0.7	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	$V_{DRM}$	400	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 (100µs pulse, 120pps)	$I_{TP}$	2	A
	Peak nonrepetitive surge current (Pw = 10ms, DC = 10%)	$I_{TSM}$	1.2	A
Junction temperature	$T_j$	115	°C	
Storage temperature range		$T_{stg}$	-55~125	°C
Operating temperature range		$T_{opr}$	-40~100	°C
Lead soldering temperature (10s)		$T_{sol}$	260	°C
Isolation voltage (AC, 1 min., R.H. ≤ 60%)		$BV_S$	2500	V <sub>rms</sub>

## Recommended Operating Conditions

Characteristic	Symbol	Min.	Typ.	Max.	Unit
Supply voltage	$V_{AC}$	—	—	120	V <sub>ac</sub>
Forward current	$I_F$	15	20	25	mA
Peak on-state current	$I_{TP}$	—	—	1	A
Operating temperature	$T_{opr}$	-25	—	85	°C

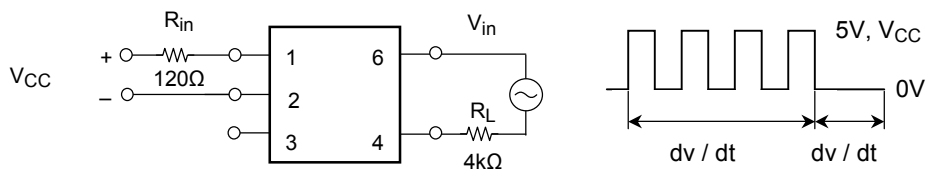
## Individual Electrical Characteristics (Ta = 25°C)

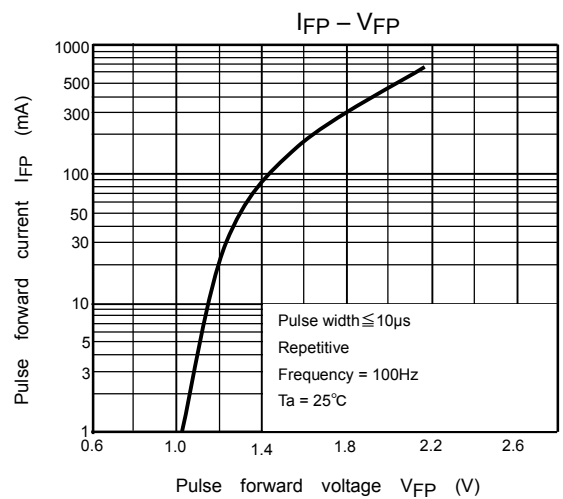
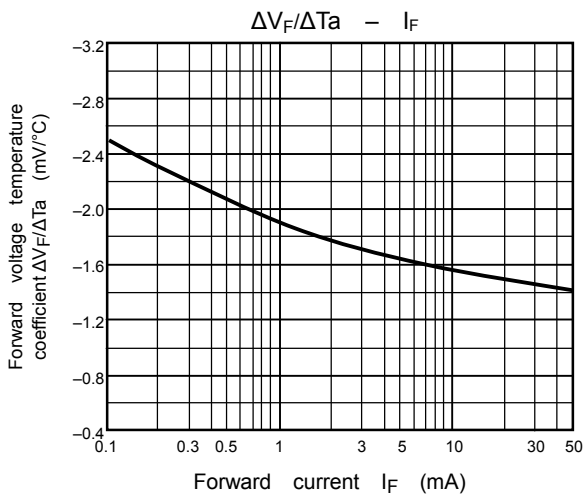
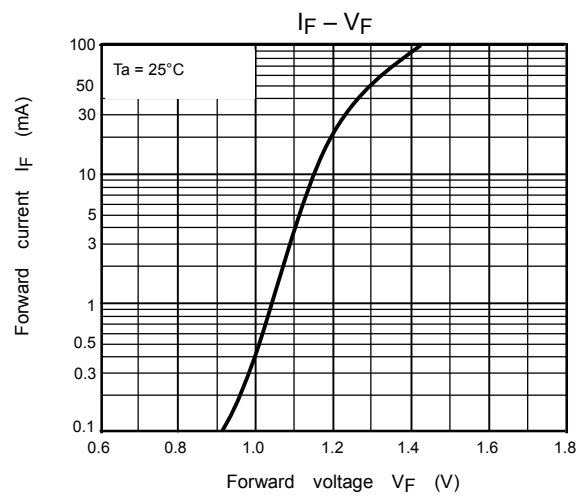
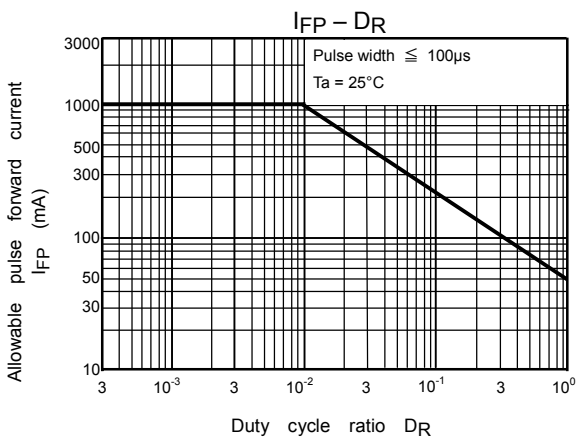
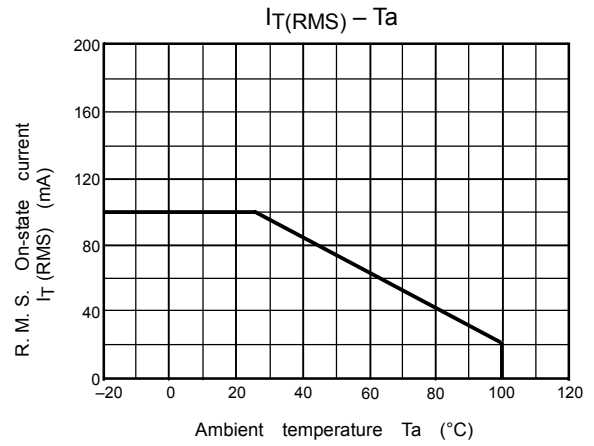
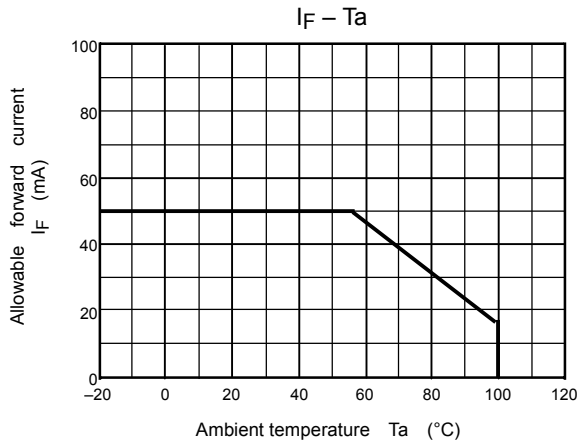
Characteristic		Symbol	Test Condition	Min.	Typ.	Max.	Unit
LED	Forward voltage	$V_F$	$I_F = 10\text{mA}$	1.0	1.15	1.3	V
	Reverse current	$I_R$	$V_R = 5\text{V}$	—	—	10	$\mu\text{A}$
	Capacitance	$C_T$	$V = 0, f = 1\text{MHz}$	—	30	—	pF
Detector	Peak off-state current	$I_{\text{DRM}}$	$V_{\text{DRM}} = 400\text{V}$	—	10	100	nA
	Peak on-state voltage	$V_{\text{TM}}$	$I_{\text{TM}} = 100\text{mA}$	—	1.7	3.0	V
	Holding current	$I_H$	—	—	0.6	—	mA
	Critical rate of rise of off-state voltage	$dv/dt$	$V_{\text{in}} = 120\text{V}_{\text{rms}}, T_a = 85^\circ\text{C}$ (Fig.1)	200	500	—	V / $\mu\text{s}$
	Critical rate or rise of commutating voltage	$dv/dt (c)$	$V_{\text{in}} = 30\text{V}_{\text{rms}}, I_T = 15\text{mA}$ (Fig.1)	—	0.2	—	V / $\mu\text{s}$

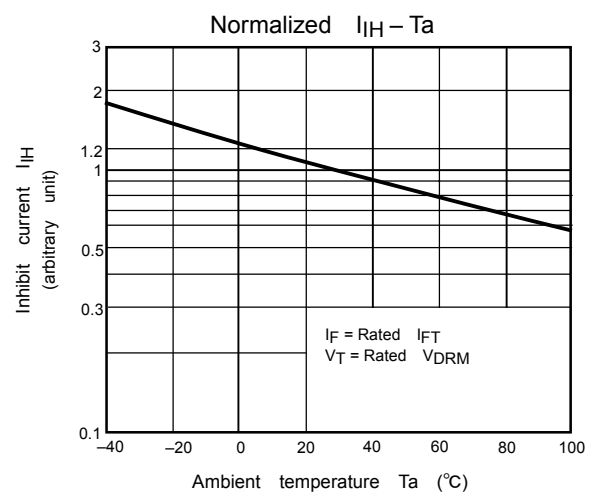
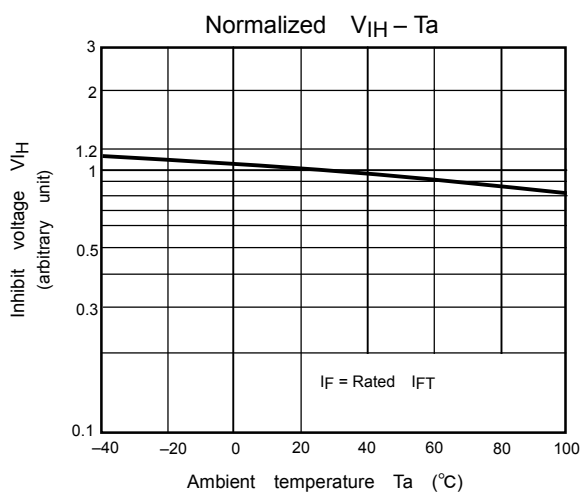
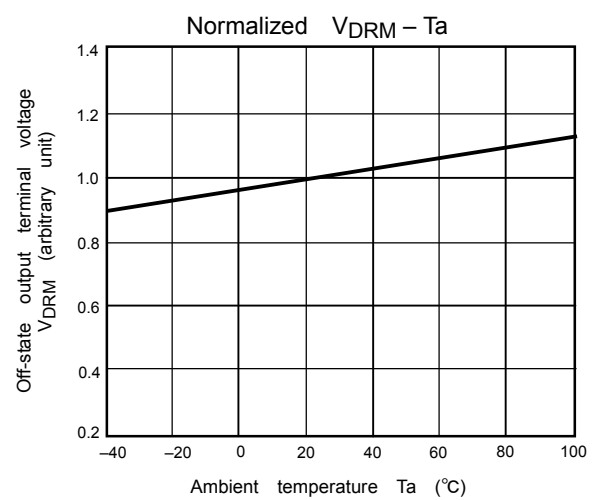
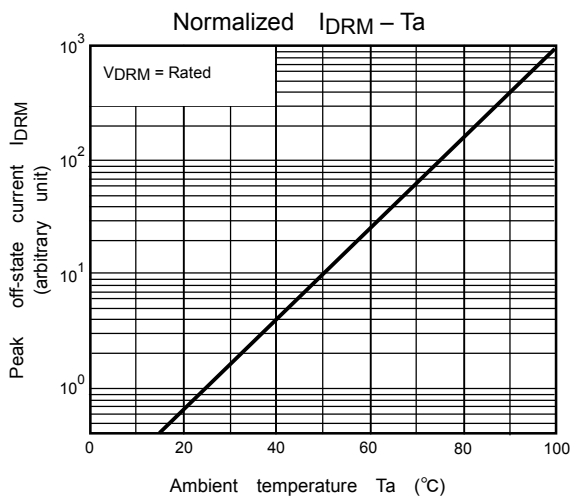
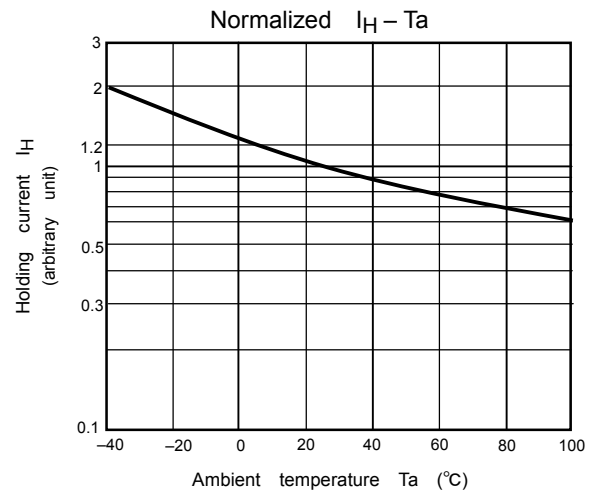
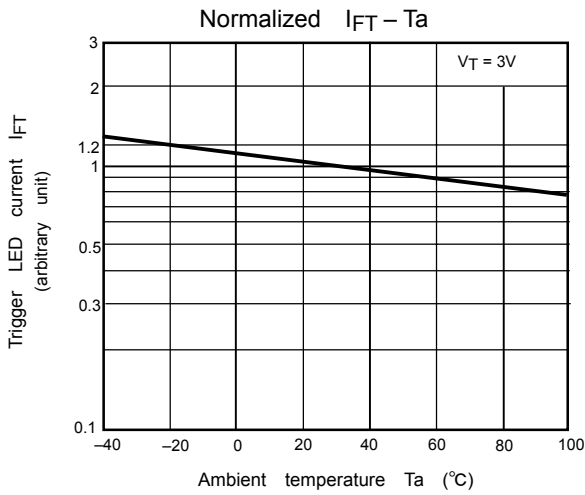
## Coupled Electrical Characteristics (Ta = 25°C)

Characteristic	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Trigger LED current	$I_{\text{FT}}$	$V_T = 3\text{V}, R_L = 100\Omega$	—	5	10	mA
Inhibit voltage	$V_{\text{IH}}$	$I_F = \text{rated } I_{\text{FT}}$	—	—	40	V
Leakage in inhibited state	$I_{\text{IH}}$	$I_F = \text{rated } I_{\text{FT}}$ $V_T = \text{rated } V_{\text{DRM}}$	—	100	300	$\mu\text{A}$
Capacitance (input to output)	$C_S$	$V_S = 0, f = 1\text{MHz}$	—	0.8	—	pF
Isolation resistance	$R_S$	$V_S = 500\text{V}$	$5 \times 10^{10}$	$10^{14}$	—	$\Omega$
Isolation voltage	$BV_S$	AC, 1 minute	2500	—	—	$V_{\text{rms}}$
		AC, 1 second, in oil	—	5000	—	
		DC, 1 minute, in oil	—	5000	—	$V_{\text{dc}}$

Fig.1:  $dv/dt$  test circuit







**RESTRICTIONS ON PRODUCT USE**

000707EBC

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