

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_{rms}(min.)
- UL recognized: file no. E67349
- Isolation operating voltage: 2500V_{ac} or 300V_{dc} for isolation groupe C*1
- Trigger LED current

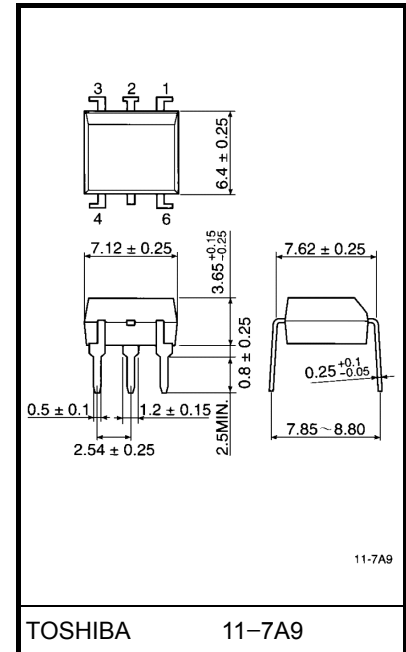
Classification*	Trigger LED Current (mA)		Marking Of Classification
	V _T = 6V, T _a = 25°C		
	Min.	Max.	
(IFT5)	—	5	T5
(IFT7)	—	7	T5, T7
Standard	—	10	T5, T7, blank

*Ex. (IFT5); TLP561G (IFT5)

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

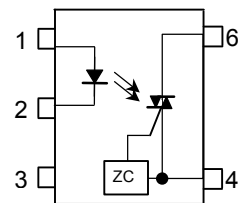
*1: According to VDE0110, table 4.

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_{rms}	

Recommended Operating Conditions

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

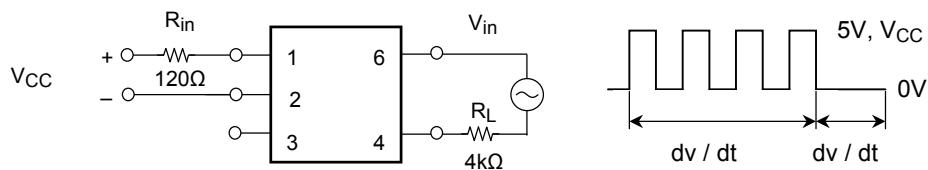
Individual Electrical Characteristics (Ta = 25°C)

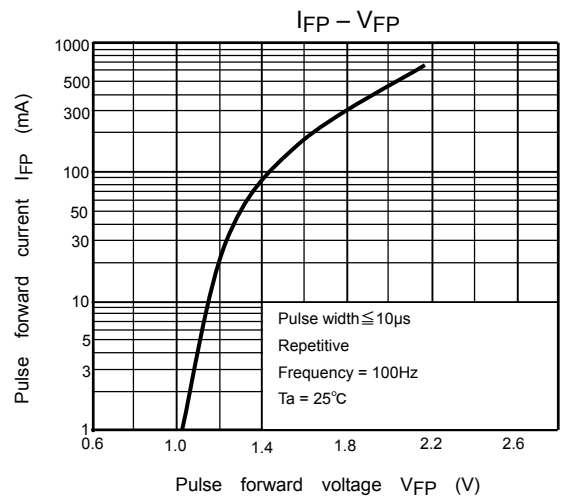
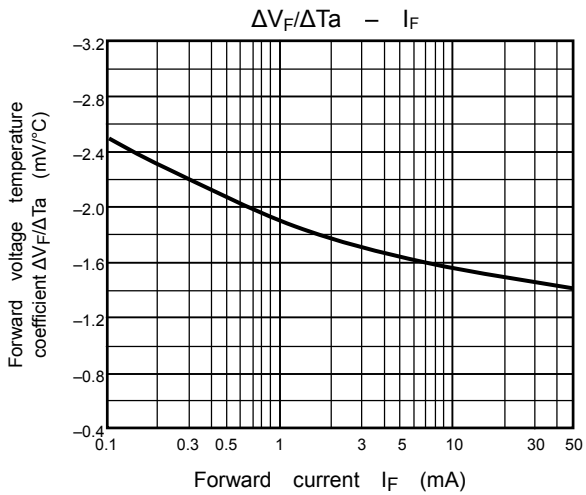
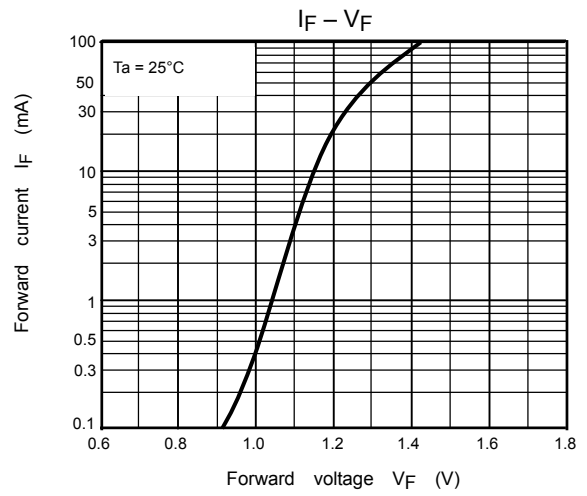
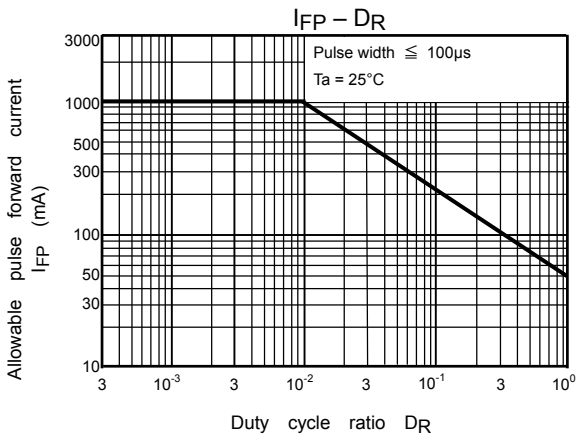
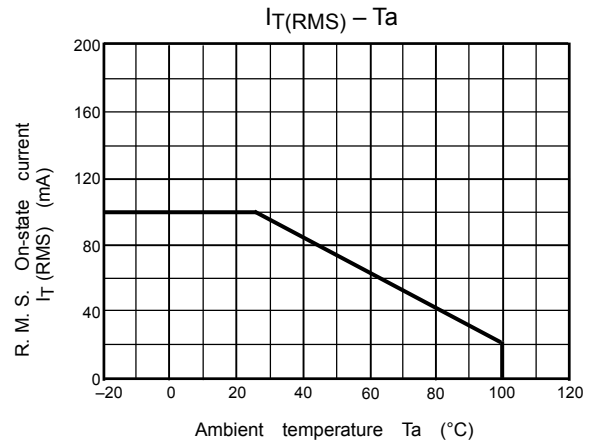
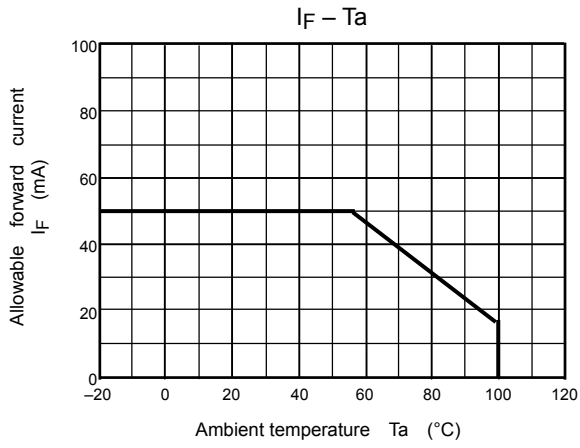
Characteristic		Symbol	Test Condition	Min.	Typ.	Max.	Unit
LED	Forward voltage	V_F	$I_F = 10\text{mA}$	1.0	1.15	1.3	V
	Reverse current	I_R	$V_R = 5\text{V}$	—	—	10	μA
	Capacitance	C_T	$V = 0, f = 1\text{MHz}$	—	30	—	pF
Detector	Peak off-state current	I_{DRM}	$V_{DRM} = 400\text{V}$	—	10	100	nA
	Peak on-state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

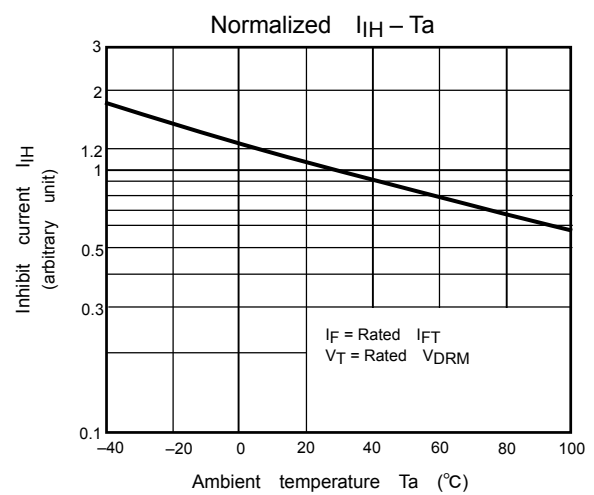
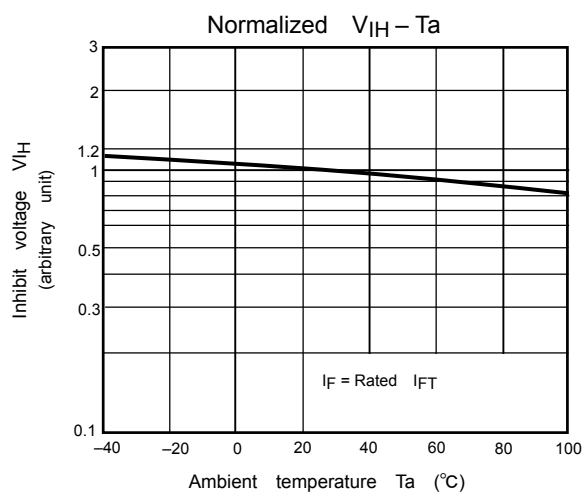
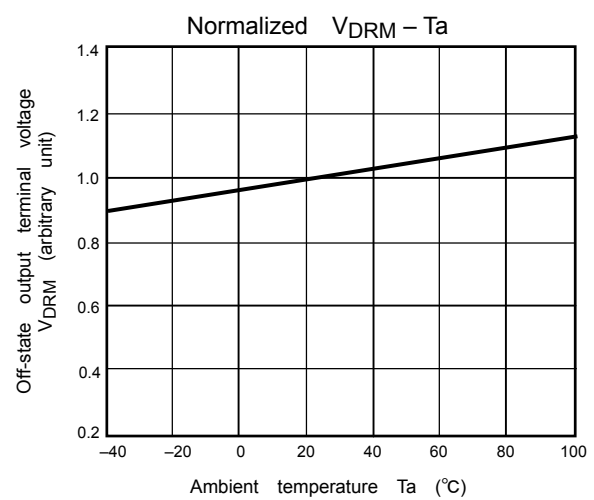
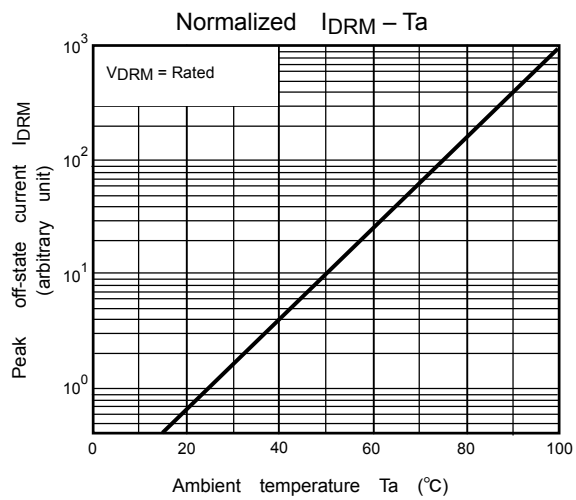
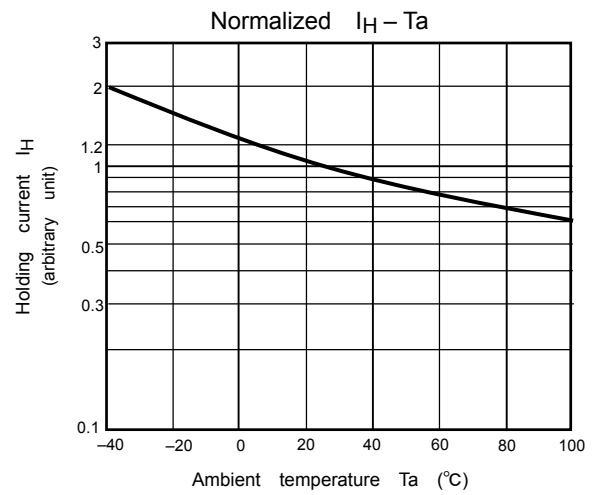
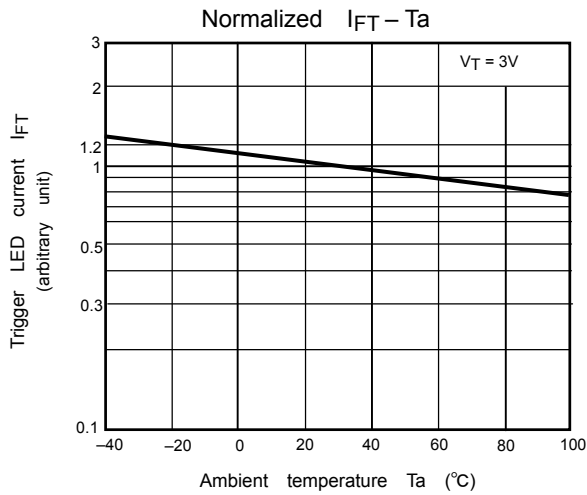
Coupled Electrical Characteristics (Ta = 25°C)

Characteristic	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Trigger LED current	I_{FT}	$V_T = 3\text{V}, R_L = 100\Omega$	—	5	10	mA
Inhibit voltage	V_{IH}	$I_F = \text{rated } I_{FT}$	—	—	40	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	$V_S = 0, f = 1\text{MHz}$	—	0.8	—	pF
Isolation resistance	R_S	$V_S = 500\text{V}$	5×10^{10}	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	—	V_{dc}

Fig.1: dv / dt test circuit







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20070701-EN

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