

TLP561G

Triac Driver
Programmable Controllers
AC-Output Module
Solid State Relay

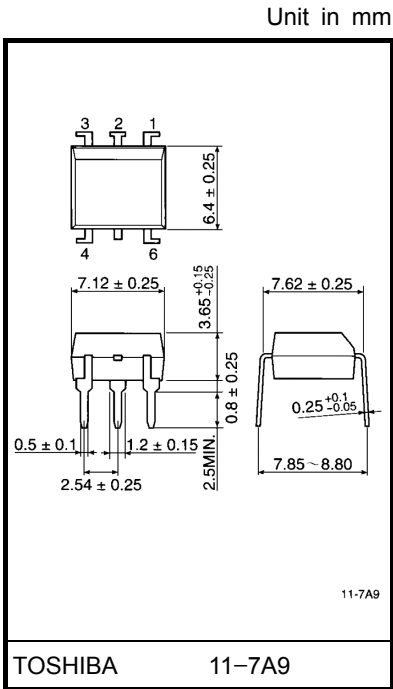
The TOSHIBA TLP561G consists of a zero voltage crossing turn-on photo-triac optically coupled to a gallium arsenide infrared emitting diode in a six lead plastic DIP package.

- 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

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

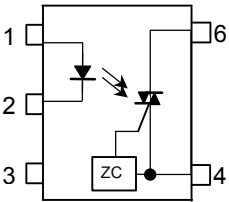
*Ex. (IFT5); TLP561G (IFT5)
(Note) Application type name for certification test, please use standard product type name, i.e.
TLP561G (IFT5): TLP561G

*1: According to VDE0110, table 4.



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)		ΔI _F / °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	I _{T(RMS)}	100	mA
		Ta = 70°C		50	
	On-state current derating (Ta ≥ 25°C)		ΔI _T / °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

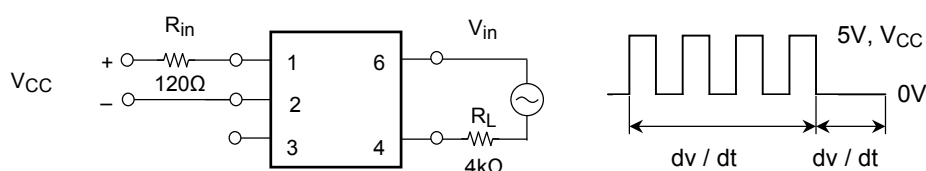
Characteristic	Symbol	Min.	Typ.	Max.	Unit
Supply voltage	V_{AC}	—	—	120	V_{ac}
Forward current	I_F	15	20	25	mA
Peak on-state current	I_{TP}	—	—	1	A
Operating temperature	T_{opr}	-25	—	85	°C

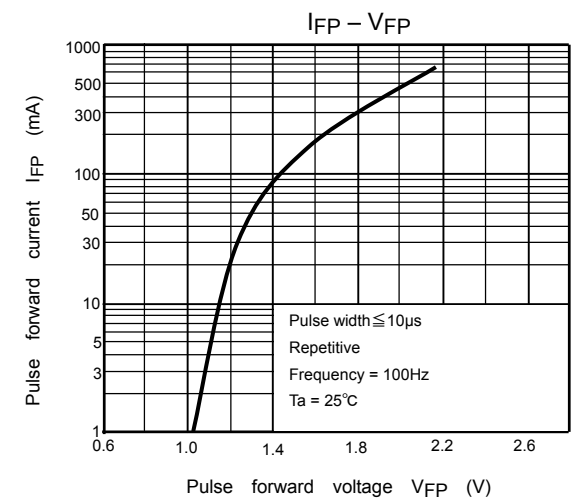
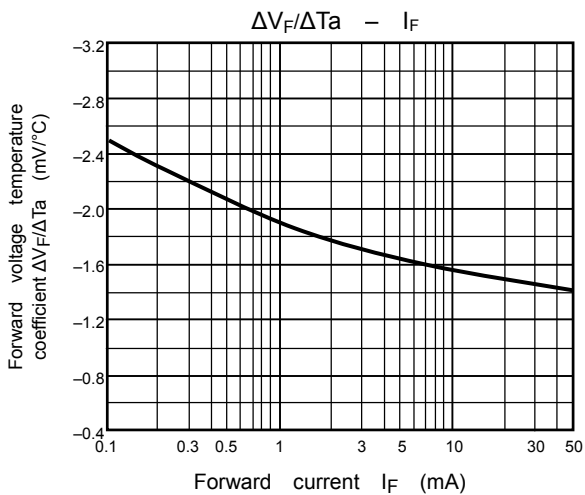
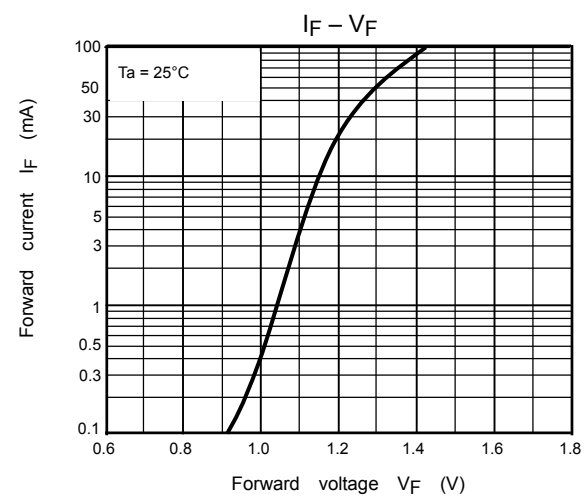
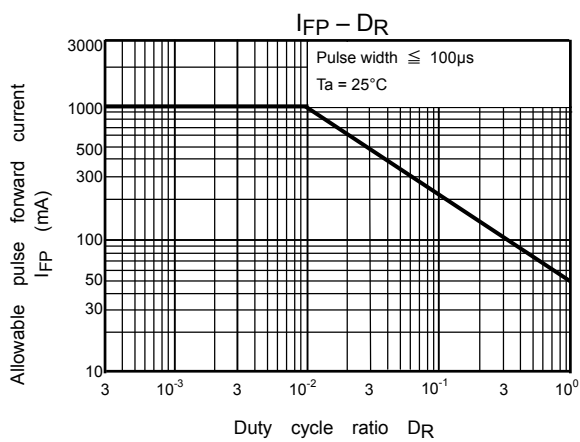
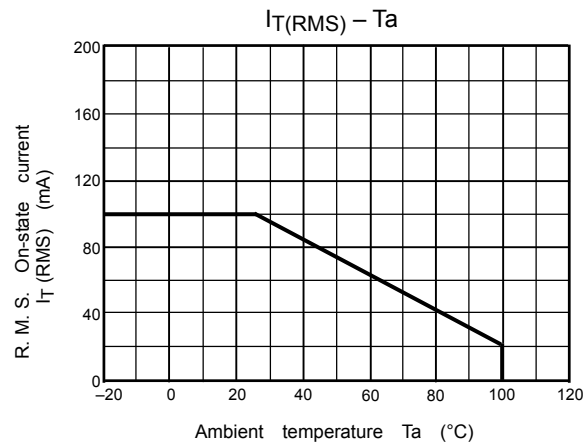
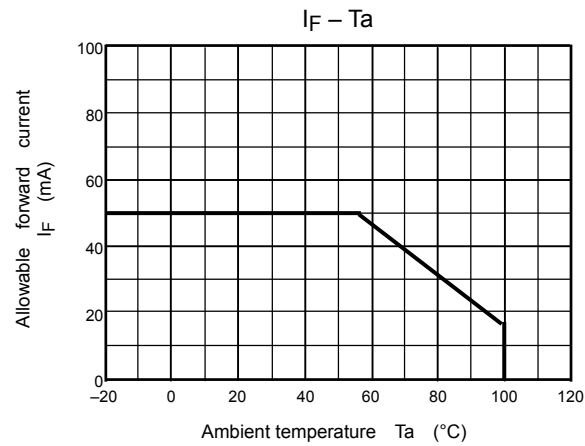
Individual Electrical Characteristics (Ta = 25°C)

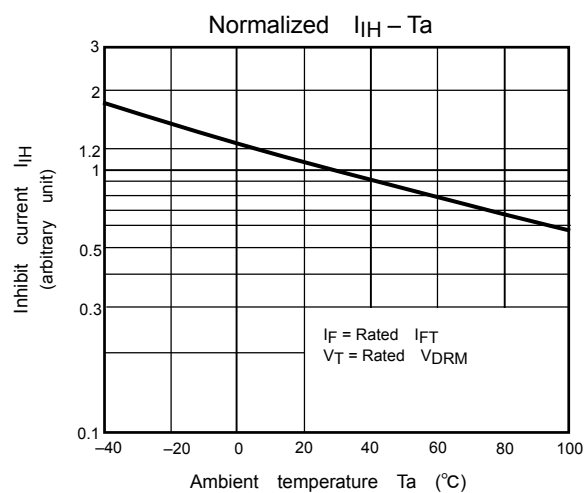
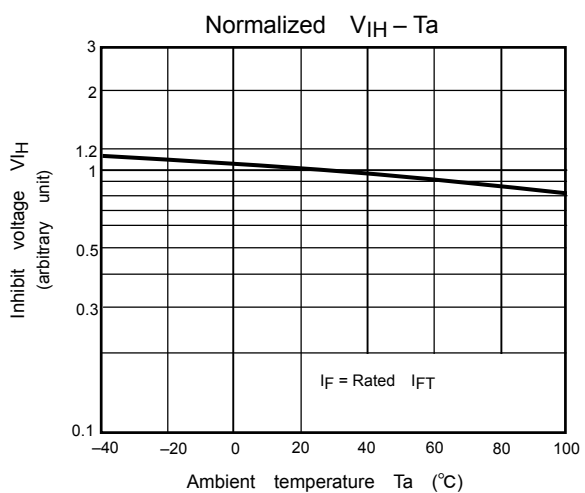
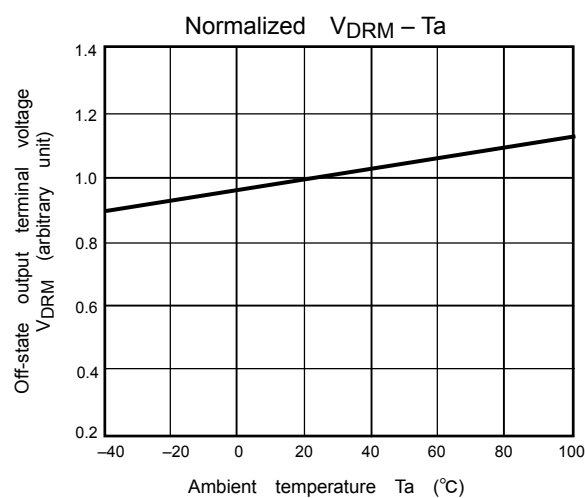
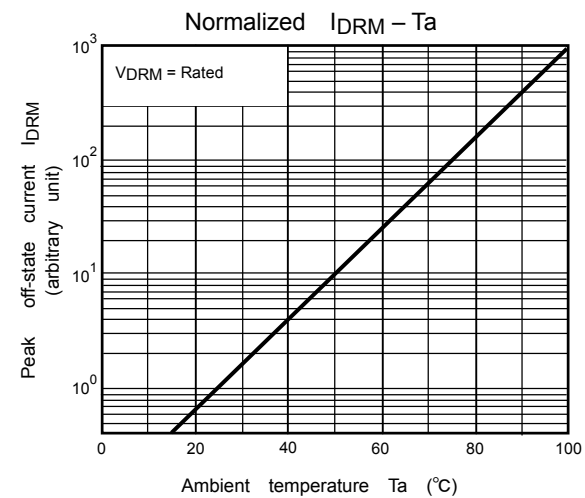
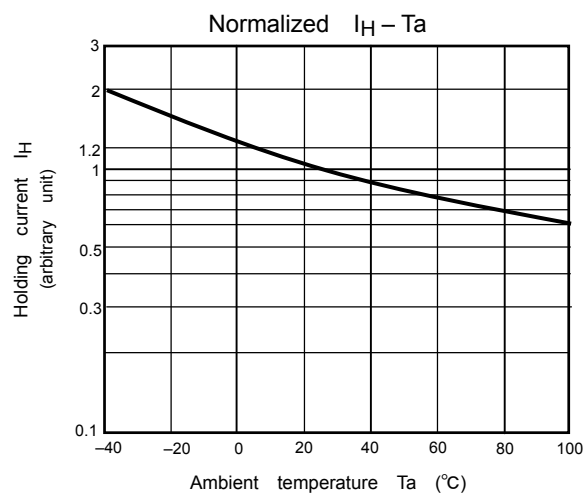
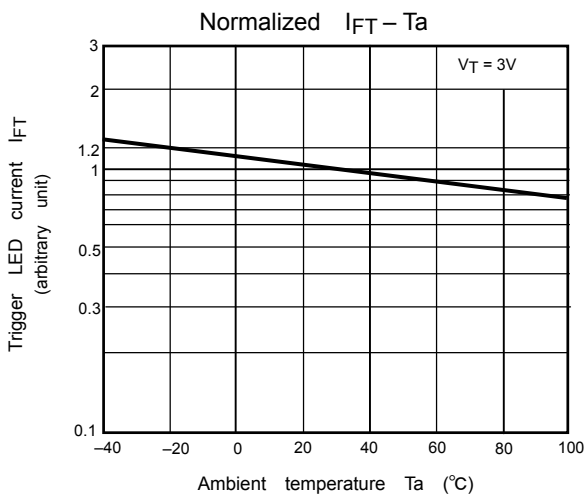
Characteristic		Symbol	Test Condition	Min.	Typ.	Max.	Unit
LED	Forward voltage	V_F	$I_F = 10\text{mA}$	1.0	1.15	1.3	V
	Reverse current	I_R	$V_R = 5\text{V}$	—	—	10	μA
	Capacitance	C_T	$V = 0, f = 1\text{MHz}$	—	30	—	pF
Detector	Peak off-state current	I_{DRM}	$V_{\text{DRM}} = 400\text{V}$	—	10	100	nA
	Peak on-state voltage	V_{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 / μs
	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 / 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}	$I_F = \text{rated } I_{\text{FT}}$	—	—	40	V
Leakage in inhibited state	I_{IH}	$I_F = \text{rated } I_{\text{FT}}$ $V_T = \text{rated } V_{\text{DRM}}$	—	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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