

TLP561J

Triac Driver
Programmable Controllers
AC-Output Module
Solid State Relay

The TOSHIBA TLP561J 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.

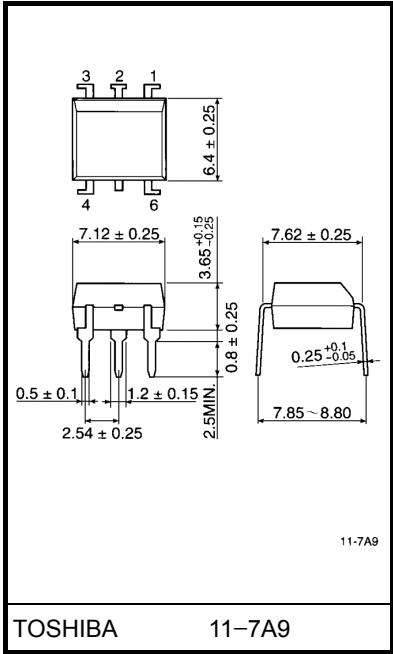
- Peak off-state voltage: 600V(min.)
- On-state current: 100mA(max.)
- Isolation voltage: 2500V_{rms}(min.)
- UL recognized: UL1577, file no. E67349
- Isolation operating voltage: 2500V_{ac} or 300V_{dc} for isolation Groupe C*¹
- Trigger LED current

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

*Ex. (IFT7); TLP561J(IFT7)
(Note): Application type name for certification test, please use standard product type name, i.e.
TLP561J(IFT7): TLP561J

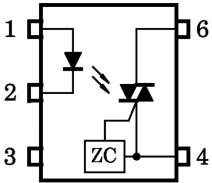
*1: According to VDE0110, table 4.

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}	600	V
	On-state RMS current	$I_{T(RMS)}$	100	mA
			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, 1min., R.H. ≤ 60%)		BV_S	2500	V _{rms}

Recommended Operating Conditions

Characteristic	Symbol	Min.	Typ.	Max.	Unit
Supply voltage	V_{AC}	—	—	240	V _{ac}
Forward current	I_F	15	20	25	mA
Peak on-state current	I_{TP}	—	—	—	A
Operating temperature	T_{opr}	-25	—	85	°C

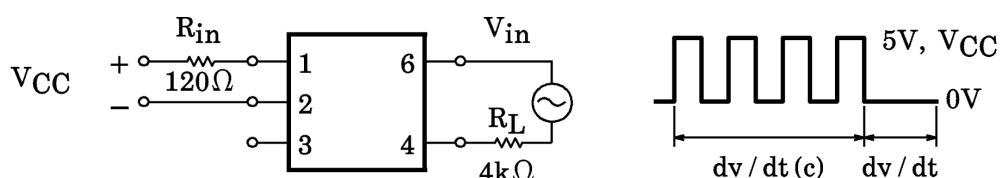
Individual Electrical Characteristics (Ta = 25°C)

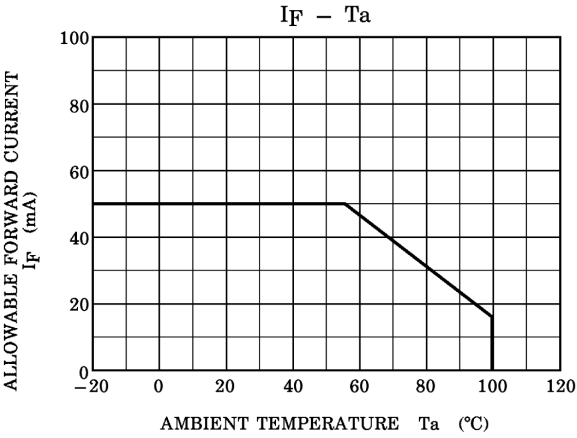
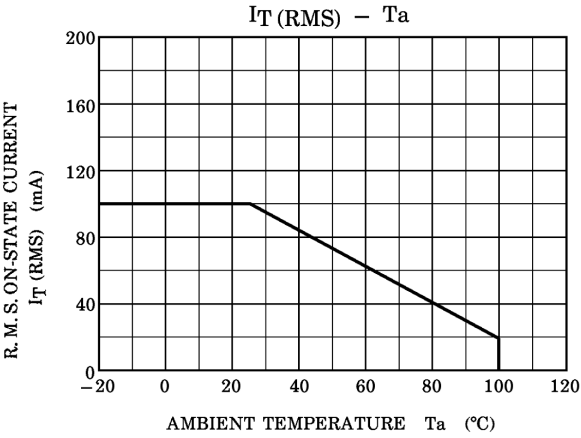
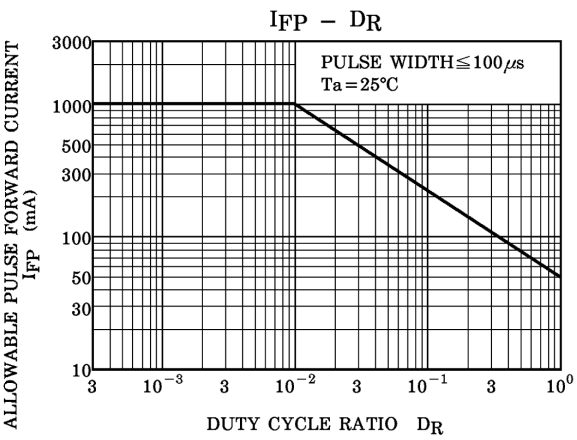
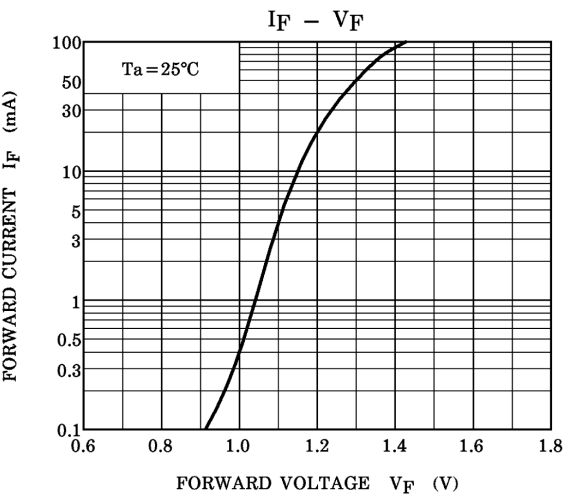
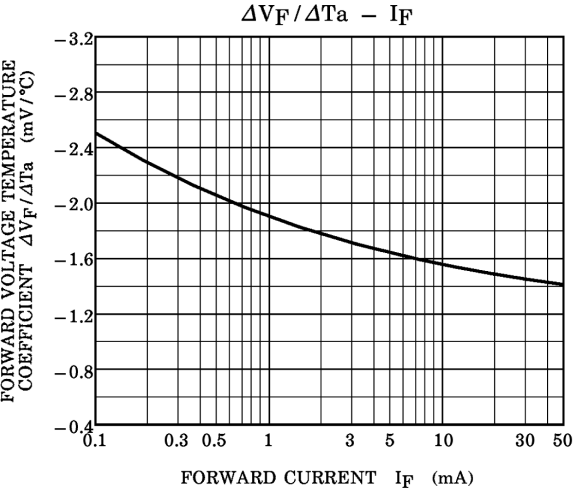
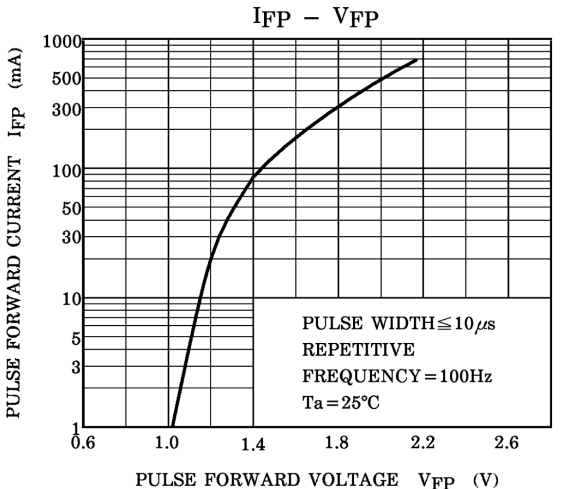
Characteristic		Symbol	Test Condition	Min.	Typ.	Max.	Unit
LED	Forward voltage	V_F	$I_F = 10\text{mA}$	1.0	1.15	1.3	V
	Reverse current	I_R	$V_R = 5\text{V}$	—	—	10	μA
	Capacitance	C_T	$V = 0, f = 1\text{MHz}$	—	30	—	pF
Detector	Peak off-state current	I_{DRM}	$V_{\text{DRM}} = 600\text{V}$	—	10	1000	nA
	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	$V_{\text{in}} = 240\text{V}_{\text{rms}}, T_a = 85^\circ\text{C}$ (Fig.1)	200	500	—	$\text{V}/\mu\text{s}$
	Critical rate of rise of commutating voltage	$dv/dt(c)$	$V_{\text{in}} = 60\text{V}_{\text{rms}}, I_T = 15\text{mA}$ (Fig.1)	—	0.2	—	$\text{V}/\mu\text{s}$

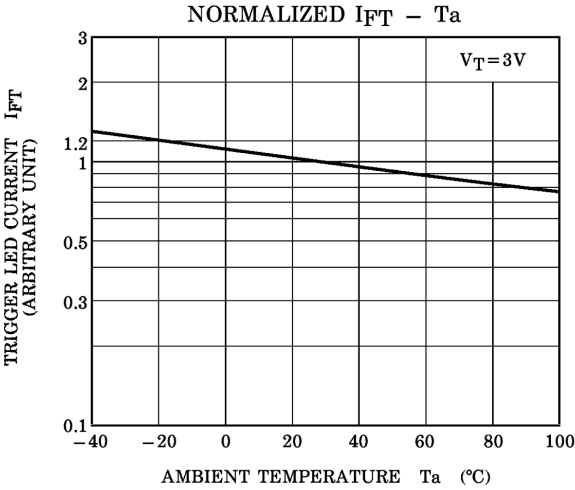
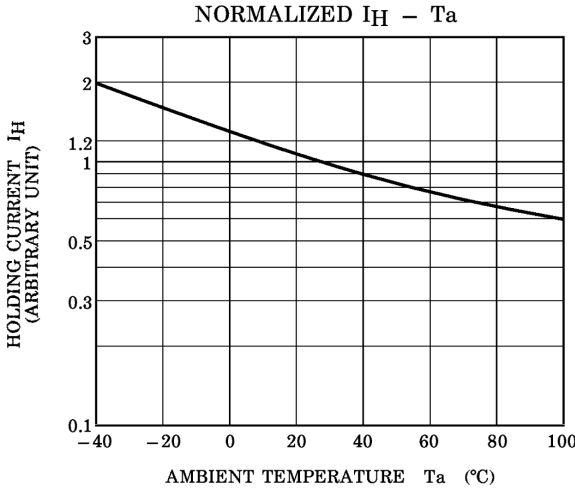
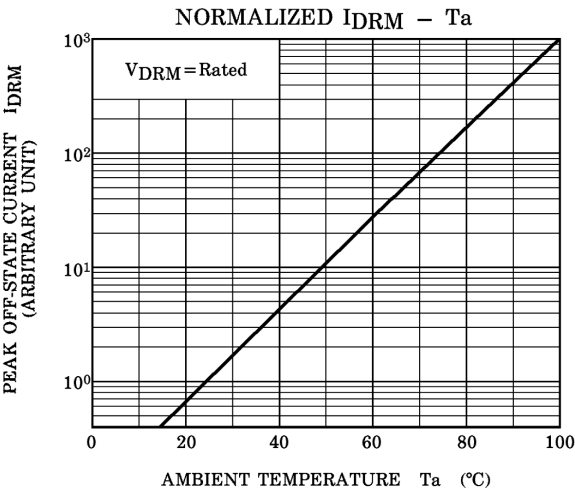
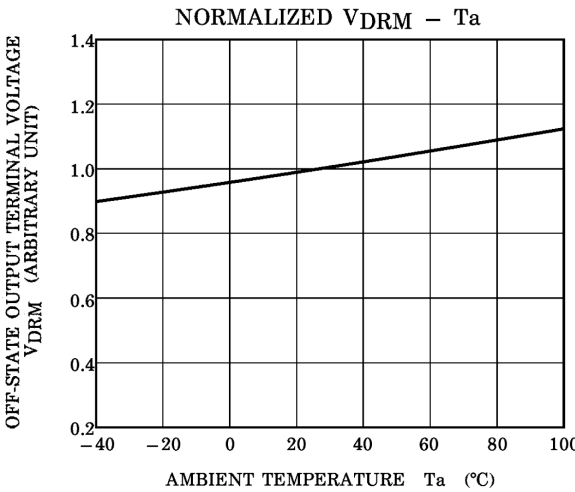
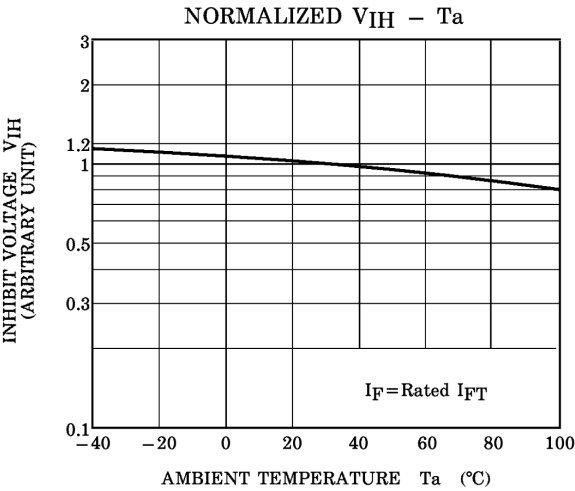
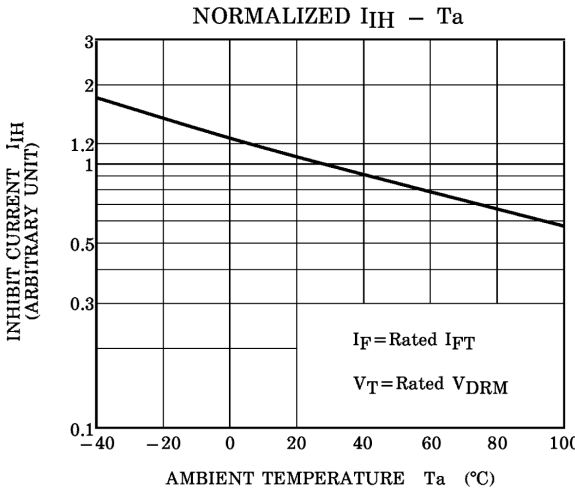
Coupled Electrical Characteristics (Ta = 25°C)

Characteristics	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Trigger LED current	I_{FT}	$V_T = 6\text{V}, R_L = 100\Omega$	—	5	10	mA
Inhibit voltage	V_{IH}	$I_F = \text{Rated } I_{\text{FT}}$	—	—	50	V
Leakage in inhibited state	I_{IH}	$I_F = \text{Rated } I_{\text{FT}}$ $V_T = \text{Rated } V_{\text{DRM}}$	—	200	600	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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