

TLP560J

Triac Driver
Programmable Controllers
AC-Output Module
Solid State Relay

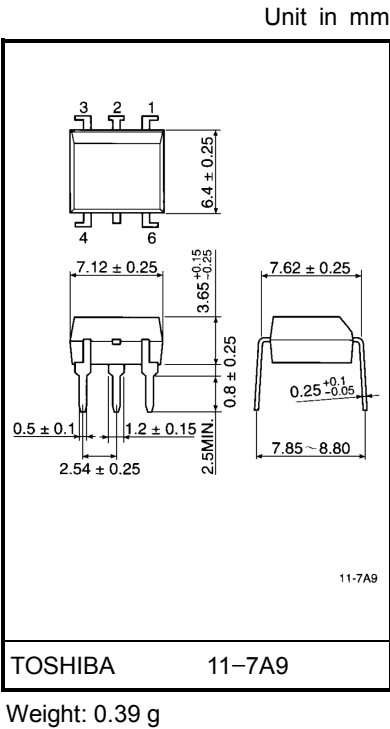
The TOSHIBA TLP560J consists of a photo-triac optically coupled to a gallium arsenide infrared emitting diode in a six lead plastic DIP package.

- 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

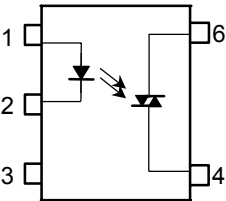
Classi- fication*	Trigger LED Current (mA)		Marking Of Classification
	V _T =6V, T _a =25°C		
	Min.	Max.	
(IFT7)	—	7	T7
Standard	—	10	T7, blank

*Ex. (IFT7); TLP560J(IFT7)
(Note) Application type name for certification test, please use standard product type name, i.e.
TLP560J(IFT7): TLP560J

*1: According to VDE0110, table 4.



Pin Configuration (top view)



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

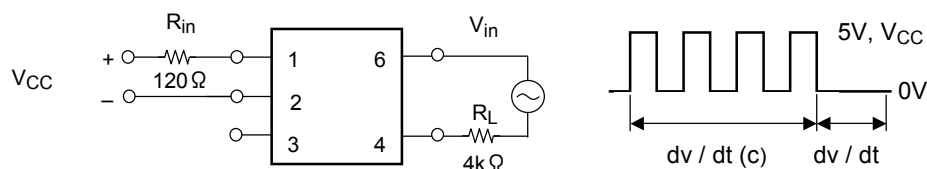
Individual Electrical Characteristics (Ta = 25°C)

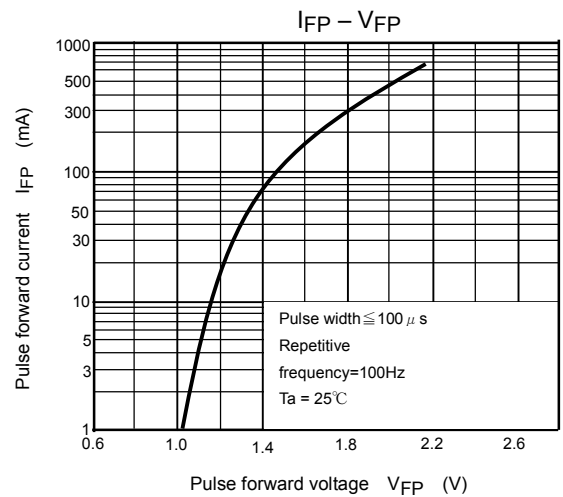
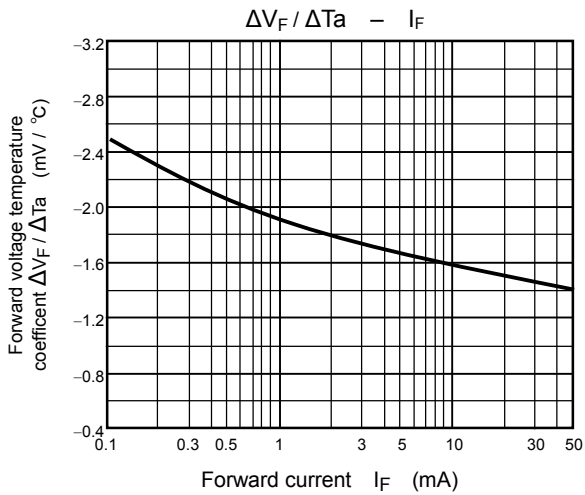
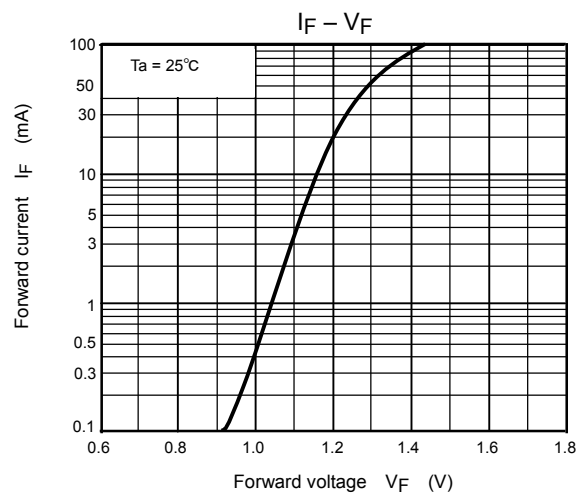
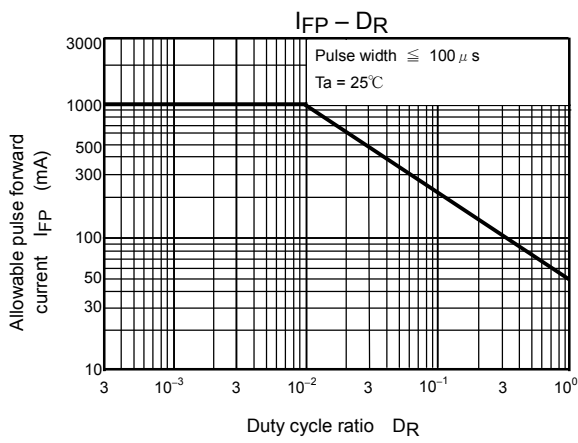
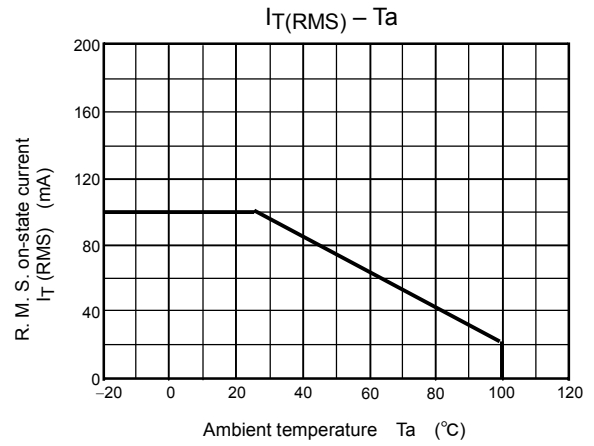
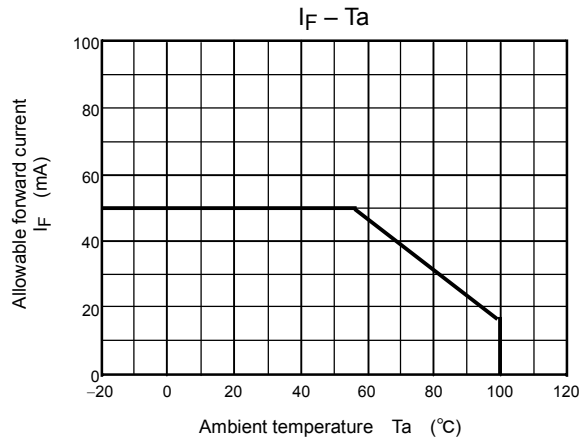
Characteristic		Symbol	Test Condition	Min.	Typ.	Max.	Unit
LED	Forward voltage	V_F	$I_F=10\text{mA}$	1.0	1.15	1.3	V
	Reverse current	I_R	$V_R=5\text{V}$	—	—	10	μA
	Capacitance	C_T	$V=0, f=1\text{MHz}$	—	10	—	pF
Detector	Peak off-state current	I_{DRM}	$V_{\text{DRM}}=600\text{V}$	—	10	1000	nA
	Peak on-state voltage	V_{TM}	$I_{\text{TM}}=100\text{mA}$	—	1.7	3.0	V
	Holding current	I_H	—	—	1.0	—	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)	—	500	—	V / μs
	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	—	V / μs

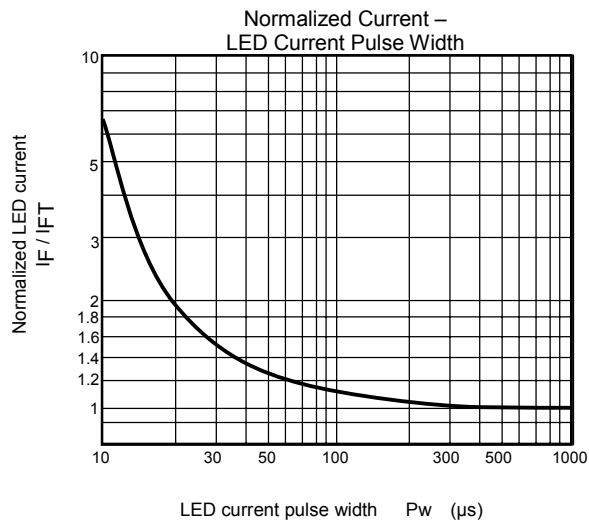
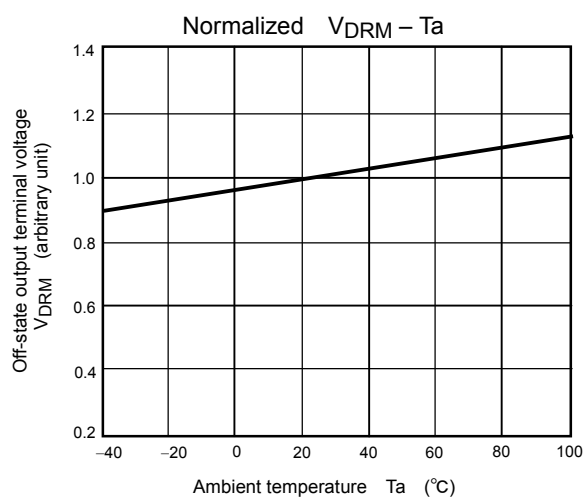
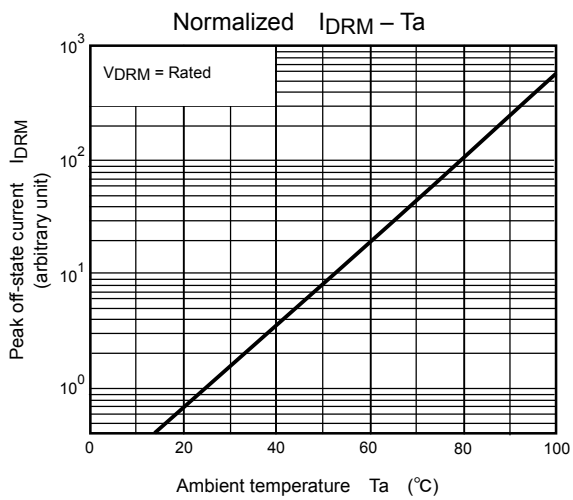
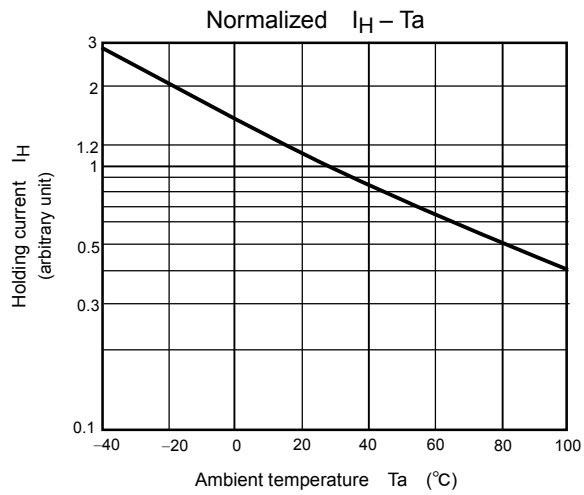
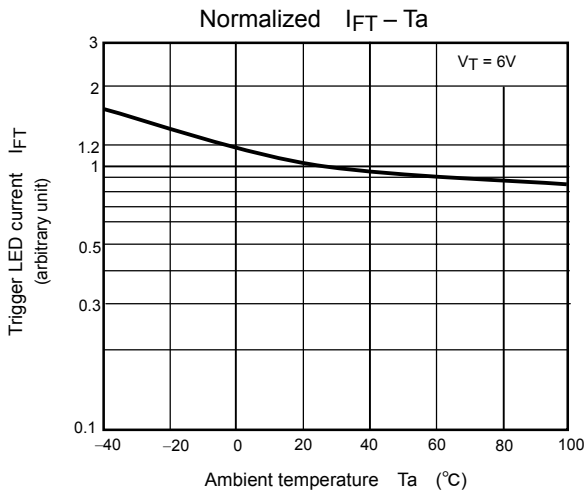
Coupled Electrical Characteristics (Ta = 25°C)

Characteristic	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Trigger LED current	I_{FT}	$V_T=6\text{V}, R_L=100\Omega$	—	5	10	mA
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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