

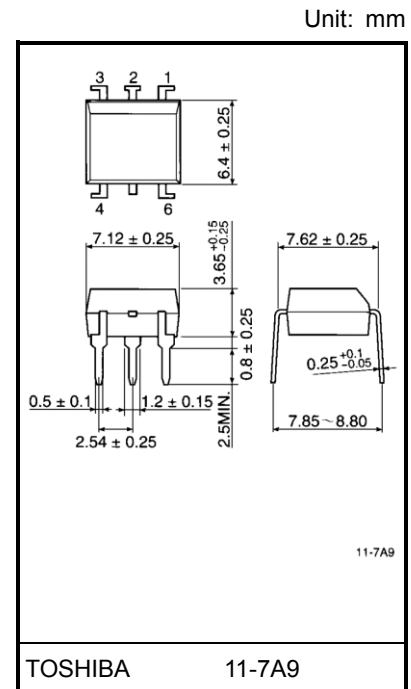
TLP560G

Triac Driver
 Programmable Controllers
 AC-Output Module
 Solid State Relay

The TOSHIBA TLP560G 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: 400 V (min)
- On-state current: 100 mA (max)
- Isolation voltage: 2500 Vrms (min)
- UL recognized: UL1577 File No. E67349
- cUL approved : CSA Component Acceptance Service No. 5A, File No.E67349
- Option (D4) VDE approved : DIN EN60747-5-5 (Note1)

Note 1: When a EN60747-5-5 approved type is needed, please designate "Option(D4)"



Weight: 0.39g (typ.)

Classification (Note 2)	Trigger LED Current (mA)		Marking of Classification
	$V_T = 3V, T_a = 25^\circ C$		
	Min	Max	
(IFT5)	—	5	T5
(IFT7)	—	7	T5, T7
Standard	—	10	T5, T7, blank

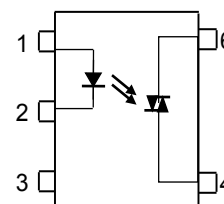
Note 2: Ex. (IFT5); TLP560G(IFT5)

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

TLP560G(IFT5): TLP560G

Note: According to VDE0110, table 4.

Pin Configuration (top view)



- 1 : Anode
- 2 : Cathode
- 3 : N.C.
- 4 : Triac Terminal
- 6 : Triac Terminal

Start of commercial production
 1982-12

Absolute 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	
	Diode power dissipation	P _D	100	mW	
	Diode power dissipation derating (Ta ≥ 53°C)	ΔP _D / °C	-1.4	mW/°C	
	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)	I _{TSM}	1.2	A	
	Output power dissipation	P _O	300	mW	
	Output power dissipation derating (Ta ≥ 25°C)	ΔP _O / °C	-3.0	mW / °C	
Junction temperature	T _J	115	°C		
Storage temperature range	T _{stg}	-55 to 125	°C		
Operating temperature range	T _{opr}	-40 to 100	°C		
Lead soldering temperature (10s)	T _{sol}	260	°C		
Isolation voltage (AC, 60 s, R.H. ≤ 60%)	BV _S	2500	V _{rms}		

Note: Using continuously under heavy loads (e.g. the application of high temperature/current/voltage and the significant change in temperature, etc.) may cause this product to decrease in the reliability significantly even if the operating conditions (i.e. operating temperature/current/voltage, etc.) are within the absolute maximum ratings.

Please design the appropriate reliability upon reviewing the Toshiba Semiconductor Reliability Handbook ("Handling Precautions"/"Derating Concept and Methods") and individual reliability data (i.e. reliability test report and estimated failure rate, etc).

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

Note: Recommended operating conditions are given as a design guideline to obtain expected performance of the device. Additionally, each item is an independent guideline respectively. In developing designs using this product, please confirm specified characteristics shown in this document.

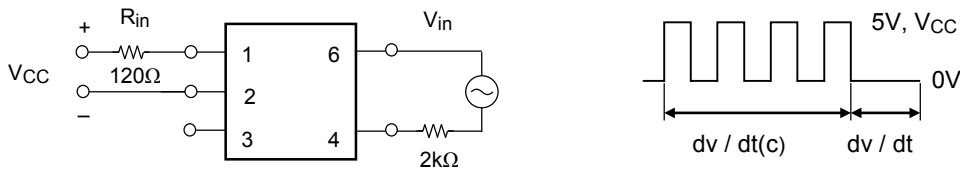
Electrical Characteristics (Ta = 25°C)

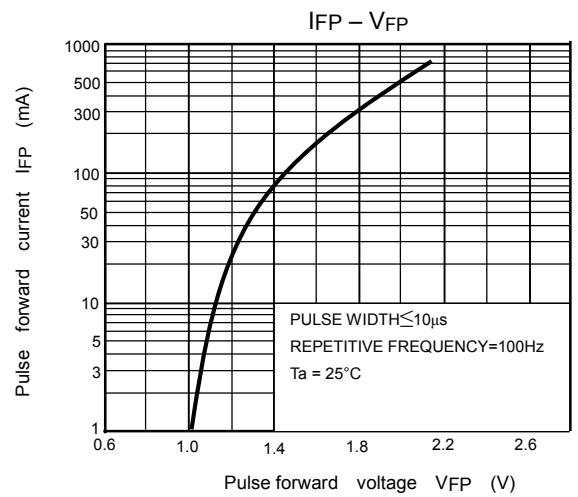
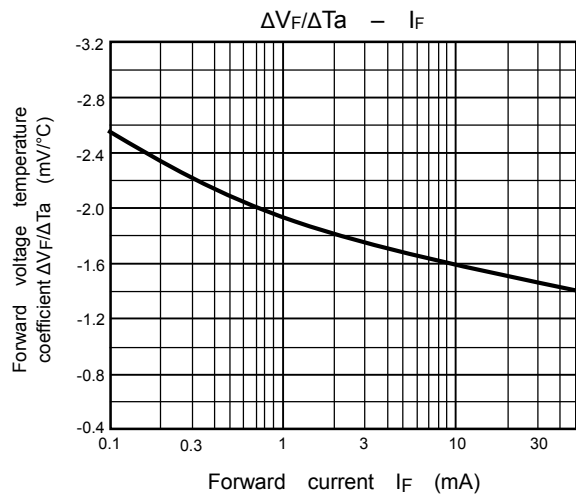
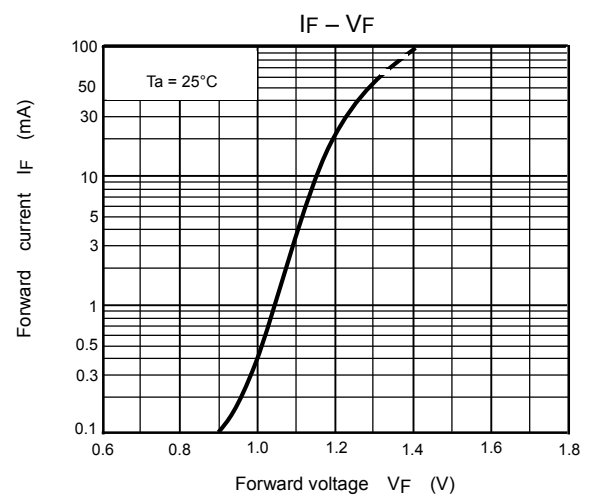
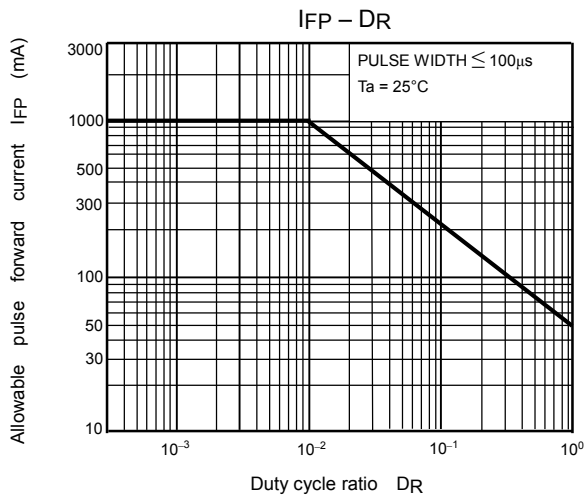
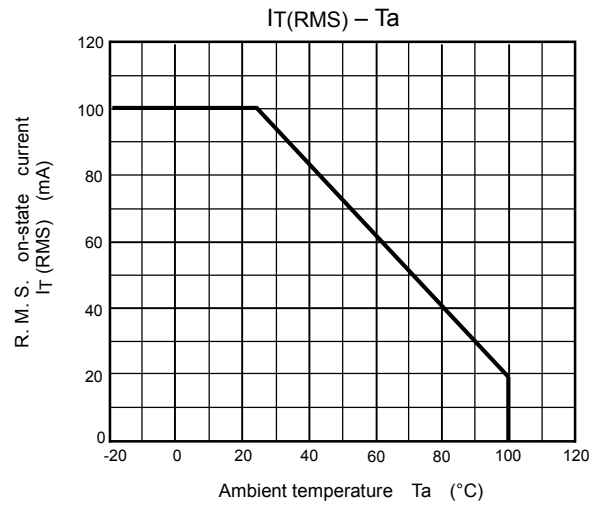
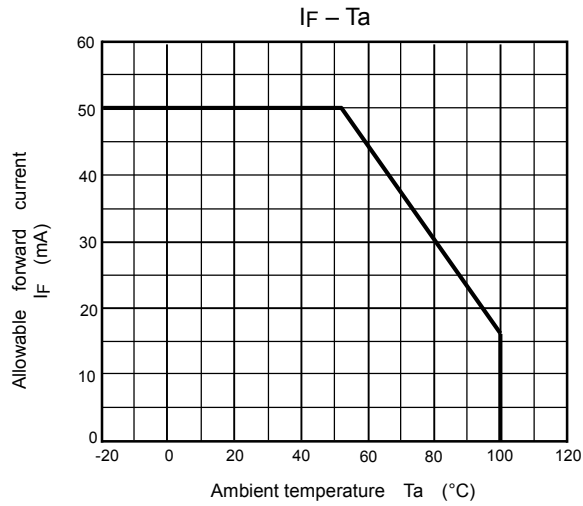
Characteristic		Symbol	Test Condition	Min	Typ.	Max	Unit
LED	Forward voltage	V _F	I _F = 10mA	1.0	1.15	1.3	V
	Reverse current	I _R	V _R = 5V	—	—	10	μA
	Capacitance	C _T	V = 0 V, f = 1 MHz	—	30	—	pF
Detector	Peak off-state current	I _{DRM}	V _{DRM} = 400 V	—	10	100	nA
	Peak on-state voltage	V _{TM}	I _{TM} = 100 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} = 120 Vrms, Ta = 85 °C (Fig.1)	200	500	—	V / μs
	Critical rate of rise of commutating voltage	dv / dt(c)	V _{in} = 30 Vrms, I _T = 15 mA (Fig.1)	—	0.2	—	V / μs

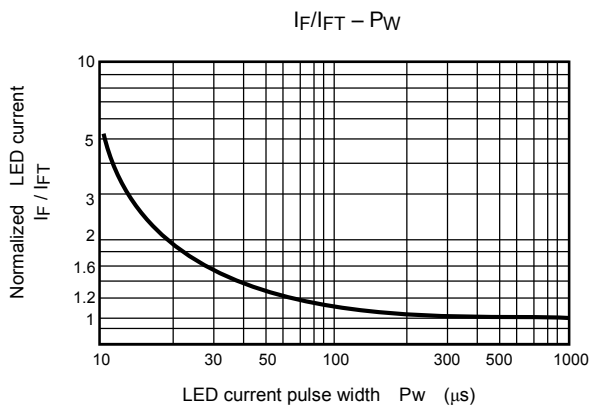
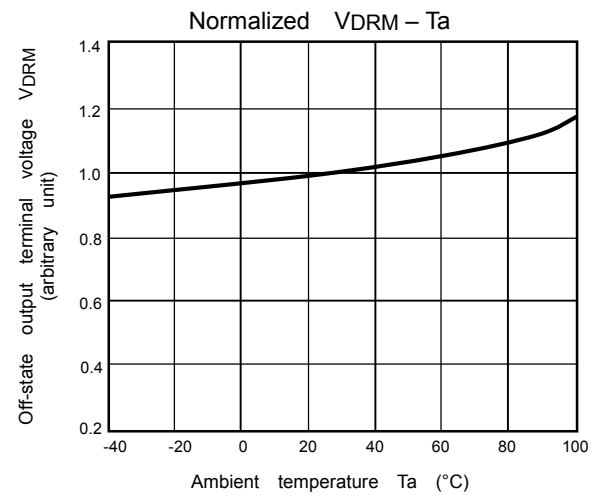
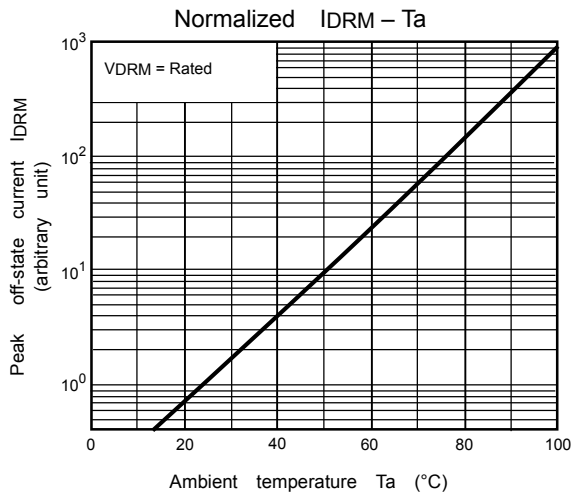
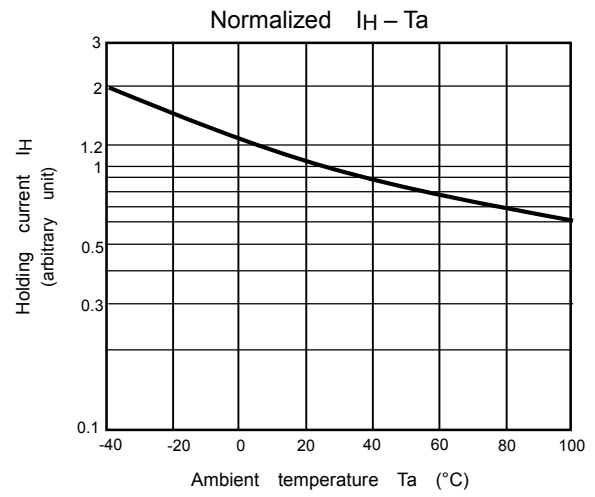
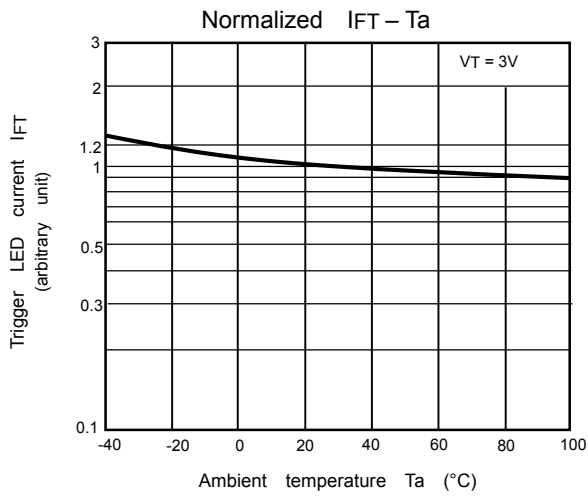
Coupled Electrical Characteristics (Ta = 25°C)

Characteristic	Symbol	Test Condition	Min	Typ.	Max	Unit
Trigger LED current	I _{FT}	V _T = 3V	—	5	10	mA
Capacitance (input to output)	C _S	V _S = 0 V, f = 1 MHz	—	0.8	—	pF
Isolation resistance	R _S	V _S = 500 V, R.H. ≤ 60%	5 × 10 ¹⁰	10 ¹⁴	—	Ω
Isolation voltage	BV _S	AC, 60 s	2500	—	—	Vrms
		AC, 1 s, in oil	—	5000	—	
		DC, 60 s, in oil	—	5000	—	Vdc

Fig. 1: dv / dt test circuit







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