TOSHIBA Photo Coupler GaAs Ired & Photo−Triac

TLP666G

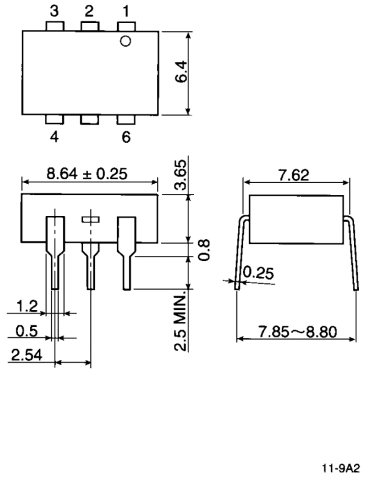
Office machine

Household use equipment

Triac driver

Solid State Relay

Unit in mm



JEDEC	—
EIAJ	—
TOSHIBA	11−9A2

Weight: 0.44 g

The TOSHIBA TLP666G 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.

- Peak off−state voltage: 400V(min.)
- Trigger LED current: 10mA(max.)
- On−state current: 100mA(max.)
- UL recognized: UL1577, file no. E67349
- Isolation voltage: 5000V_{rms}(min.)
- Option(D4) type

  VDE approved: DIN VDE0884/08.87,

  Certificate no.68383

  Maximum operating insulation voltage: 630V_{PK}

  Highest permissible over voltage: 6000V_{PK}

  (Note 1) When a VDE0884 approved type is needed, please designate the "option(D4)"

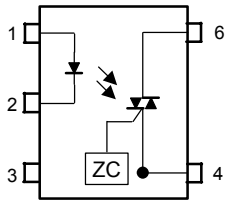
- Structural parameter

  Creepage distance: 7.0mm(min.)

  Clearance: 7.0mm(min.)

  Insulation thickness: 0.5mm(min.)

Pin Configurations (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 (P_W=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 solder temperature (10s)			T_{sold}	260	°C
Isolation voltage (AC, 1min., R.H.≤ 60%) (Note 2)			BV_S	5000	V_{rms}

(Note 2) Pins 1,2 and 3 shorted together and pins 4 and 6 shorted together.

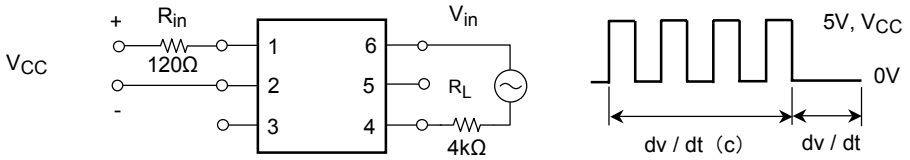
Recommended Operating Conditions

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

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=5 V	—	—	10	μA
	Capacitance	C_T	V=0, f=1MHz	—	30	—	pF
Detector	Peak off−state current	I_{DRM}	V_{DRM}=400V	—	10	100	nA
	Peak on−state voltage	V_{TM}	I_{TM}=100mA	—	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}, Ta=85°C (Note 3)	200	500	—	V / μs
	Critical rate of rise of commutating voltage	dv/dt(c)	V_{in}=30V_{rms}, I_T=15mA (Note 3)	—	0.2	—	V / μs

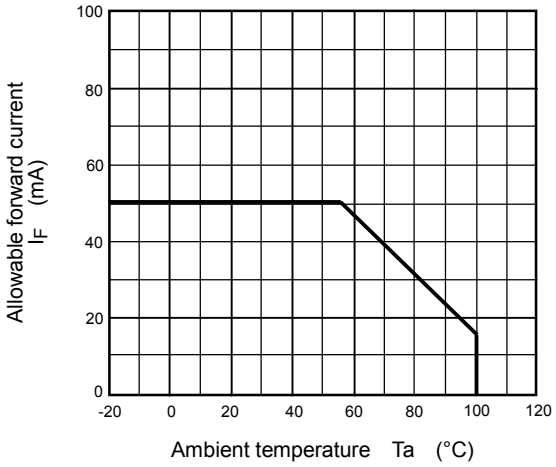
(Note 3) dv / dt test circuit



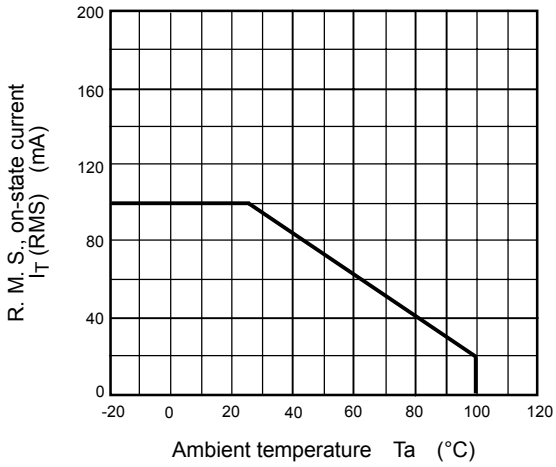
Coupled Electrical Characteristics (Ta = 25°C)

Characteristic	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Trigger LED current	I_{FT}	V_T=3V	—	5	10	mA
Inhibit voltage	V_{IH}	I_F=rated I_{FT}	—	—	40	V
Leakage in inhibited state	I_{IH}	I_F=rated I_{FT} V_T=rated V_{DRM}	—	100	300	μA
Capacitance (input to output)	C_S	V_S=0, f=1MHz	—	0.8	—	pF
Isolation resistance	R_S	V_S=500V, R.H.≤ 60%	5×10^{12}	10^{14}	—	Ω
Isolation voltage	BV_S	AC, 1 minute	5000	—	—	V_{rms}
		AC, 1 second, in oil	—	10000	—	
		DC, 1 minute, in oil	—	10000	—	Vdc

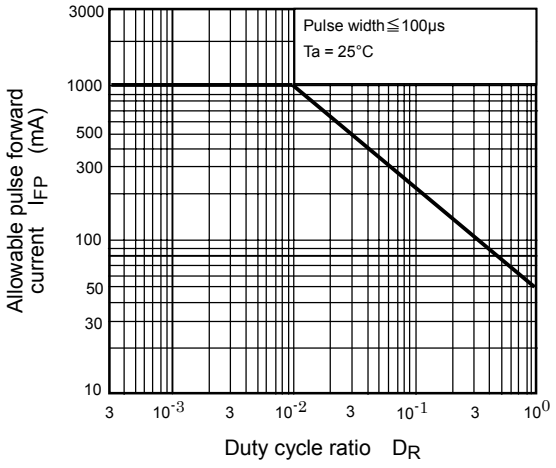
$I_F - T_a$



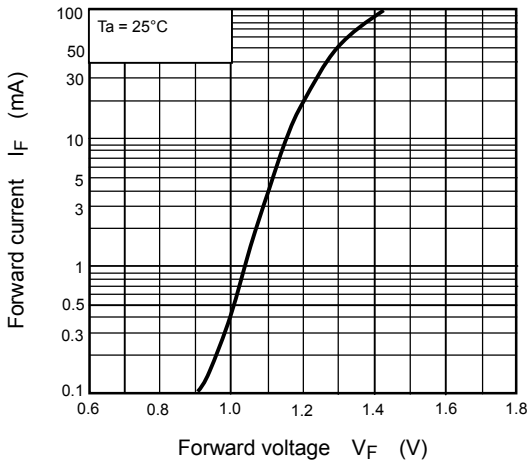
I_T (RMS) – T_a



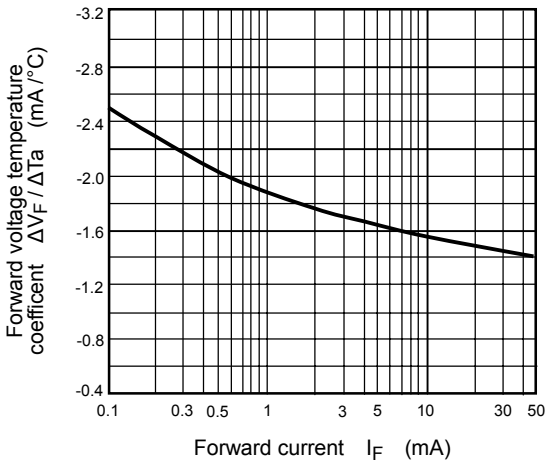
$I_{FP} - D_R$



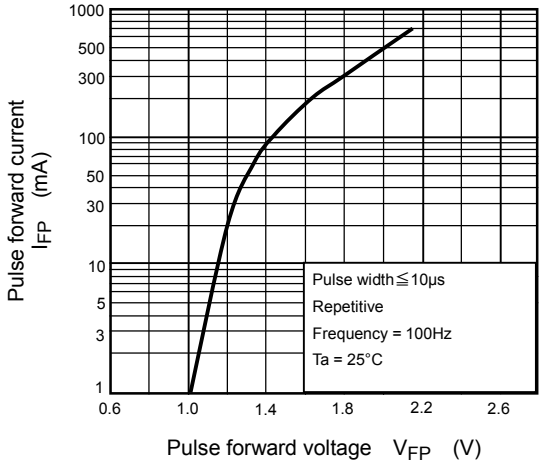
$I_F - V_F$



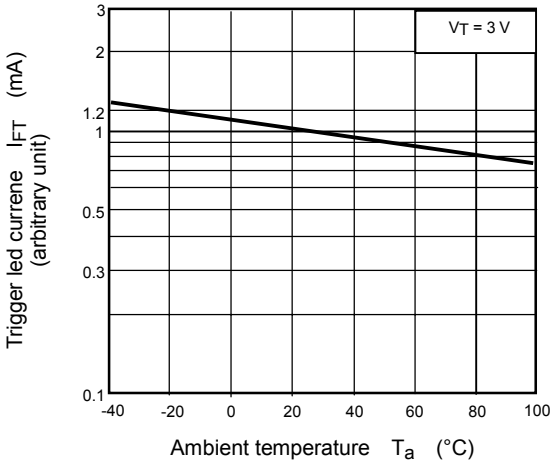
$\Delta V_F / \Delta Ta - I_F$



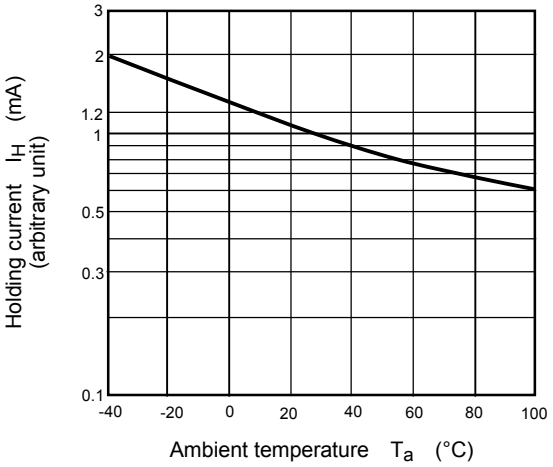
$I_{FP} - V_{FP}$



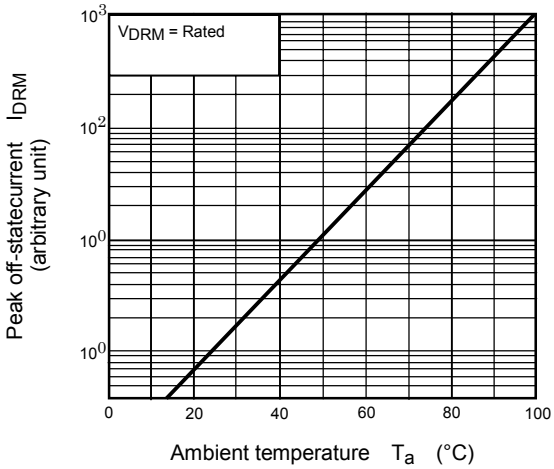
Normalized $I_{FT} - T_a$



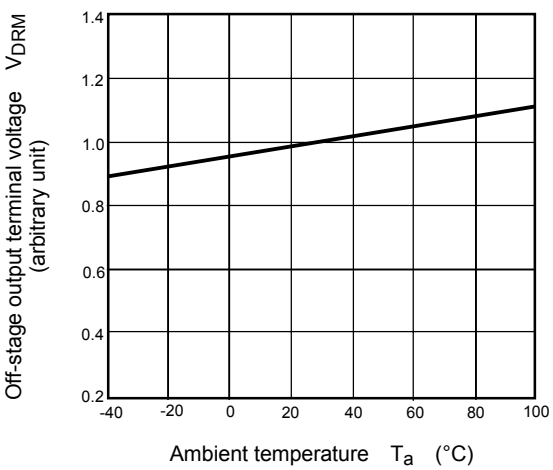
Normalized $I_H - T_a$



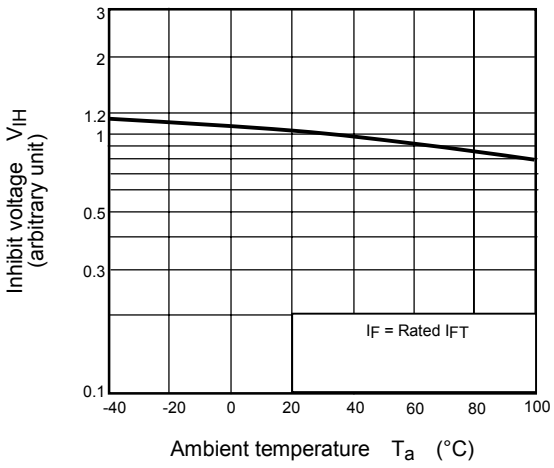
Normalized $I_{DRM} - T_a$



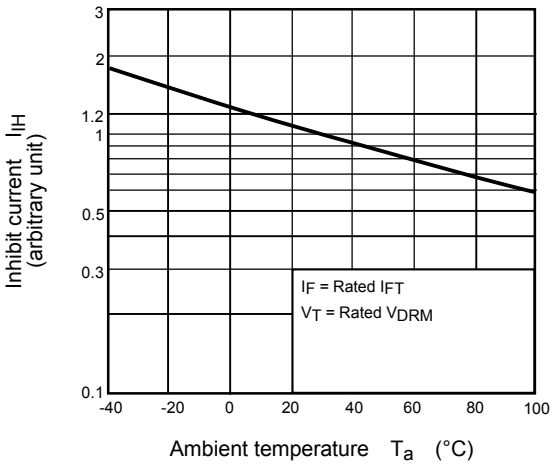
Normalized $V_{DRM} - T_a$



Normalized $V_{IH} - T_a$



Normalized $I_{IH} - T_a$



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