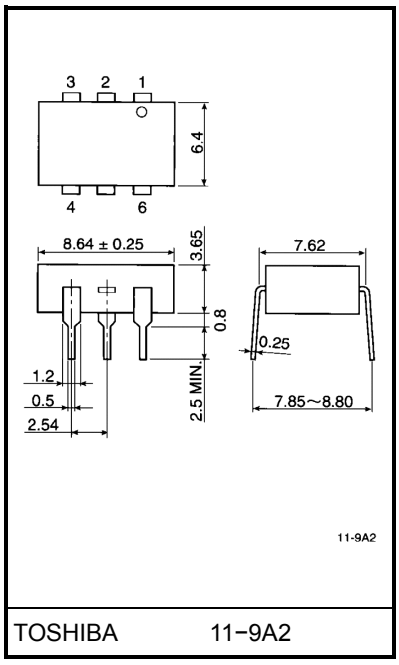
TOSHIBA Photocoupler GaAs Ired & Photo−Triac

TLP665G

Office Machine
Household Use Equipment
Triac Driver
Solid State Relay

Unit in mm



TOSHIBA 11−9A2

Weight: 0.44g

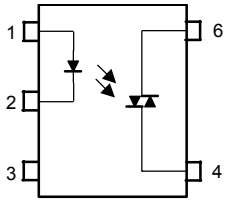
The TOSHIBA TLP665G consists of a photo-triac optically coupled to a gallium arsenide infrared emitting diode in a six lead plastic DIP.

- 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) When a VDE0884 approved type is needed, please designate the “option (D4)”
- Structural parameter

	7.62mm pitch standard type
Creepage distance	7.0 mm (min.)
Clearance	7.0 mm (min.)
Insulation thickness	0.5 mm (min.)

Pin Configuration (top view)



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

Maximum Ratings (Ta = 25°C)

LED	Forward current		I_F	50	mA
	Forward current derating (Ta ≤ 53°C)		ΔI_F / °C	−0.7	mA / °C
	Peak forward current (100 μs pulse, 100 pps)		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 soldering temperature (10s)			T_{sol}	260	°C
Isolation voltage (AC, 1 min., R.H.≤ 60%) (Note 1)			BV_S	5000	V_{rms}

(Note 1) Device considered a two terminal device: Pins 1, 2 and 3 shorted together pin 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−stage current	I_{TP}	—	—	1	A
Operating temperature	T_{opr}	−25	—	85	°C

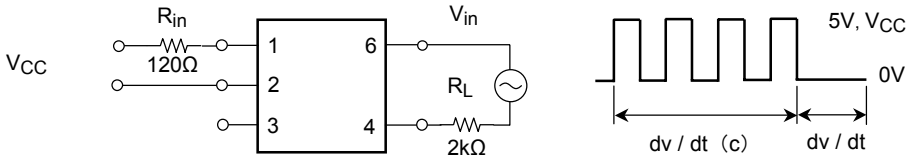
Electrical Characteristics (Ta = 25°C)

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 = 5V	—	—	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, Ta = 85°C (Note 2)	200	500	—	V / μs
	Critical rate of rise of commutating voltage	dv / dt (c)	V_{in} = 30V_{rms}, I_T = 15mA (Note 2)	—	0.2	—	V / μs

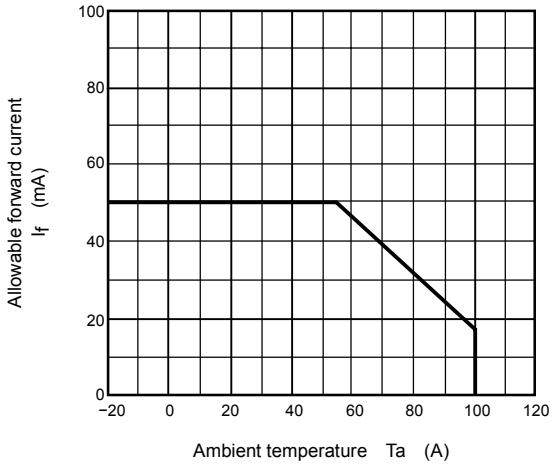
Coupled Electrical Characteristics (Ta = 25°C)

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, f = 1MHz	—	0.8	—	pF
Isolation resistance	R_S	V_S = 500V, R.H.≤ 60%	1×10^{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	—	V_{dc}

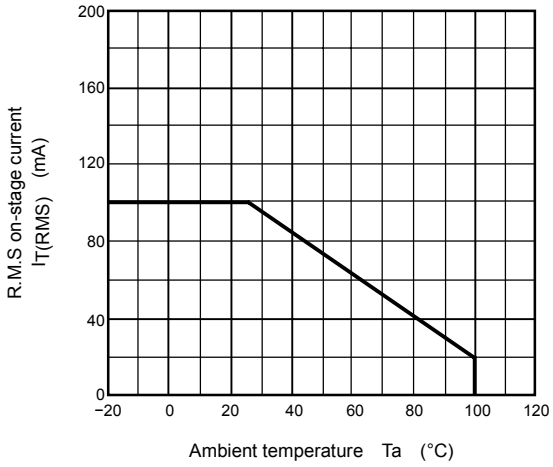
(Note 2) dv / dt test circuit



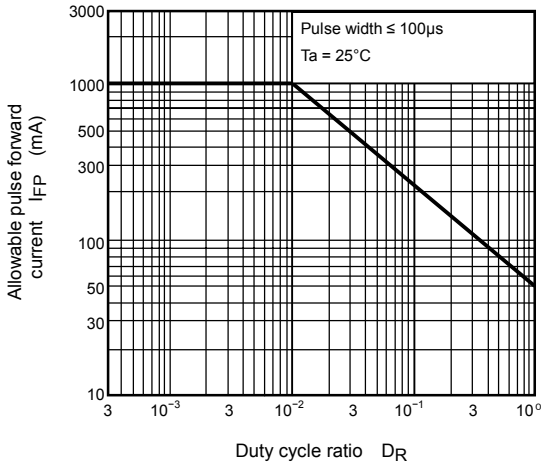
I_F – Ta



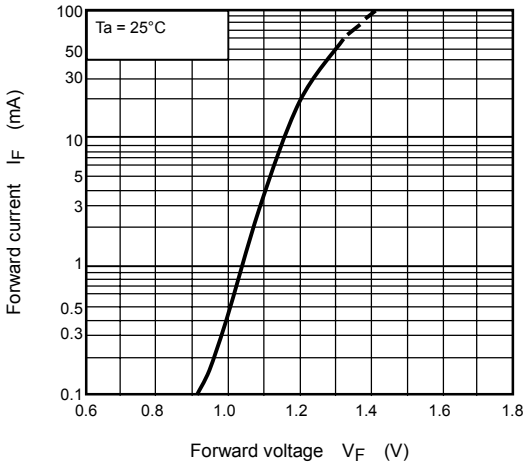
$I_{T\ (RMS)}$ – Ta



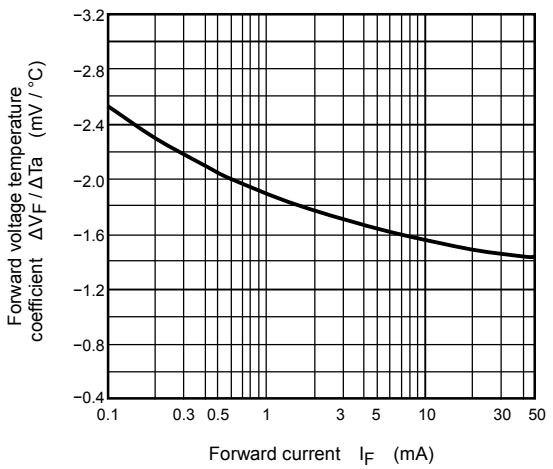
I_{FP} – D_R



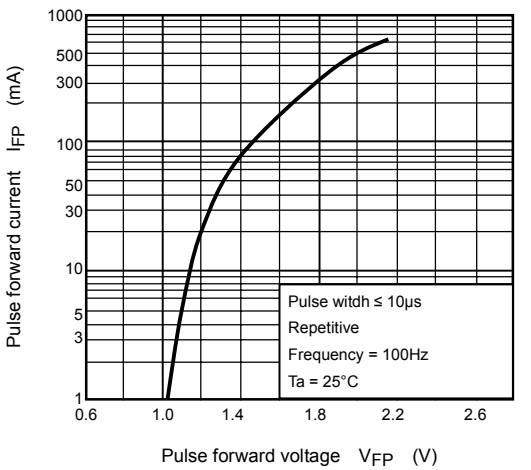
I_F – V_F



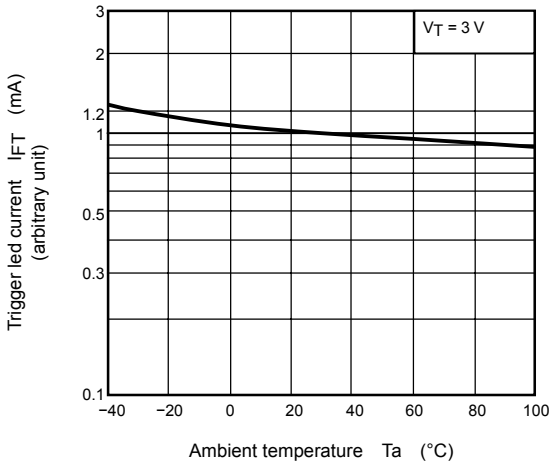
$\Delta V_F / \Delta Ta$ – I_F



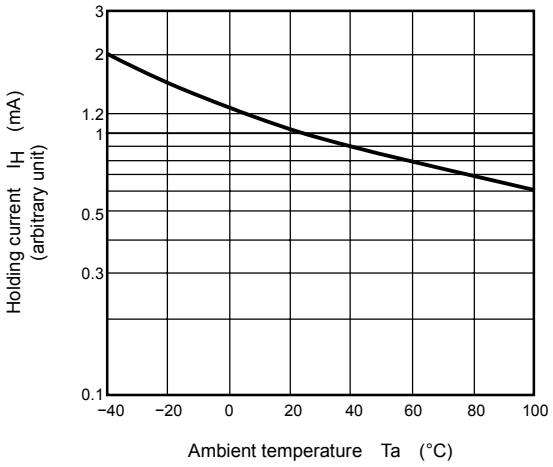
I_{FP} – V_{FP}



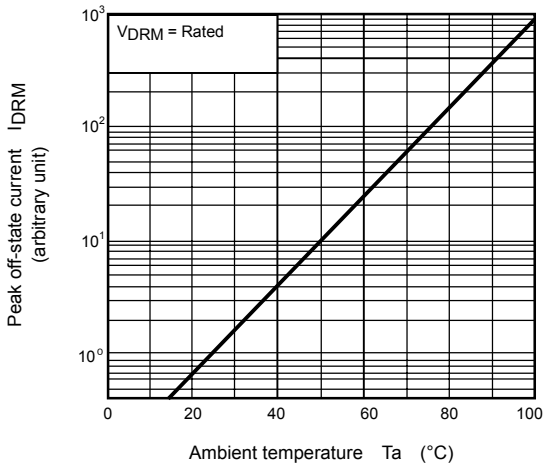
Normalized I_{FT} – Ta



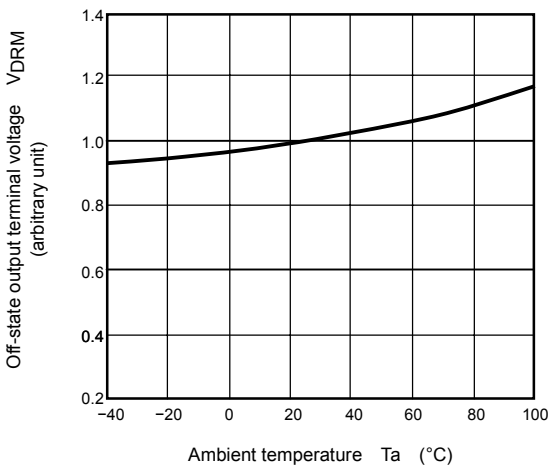
Normalized I_H – Ta



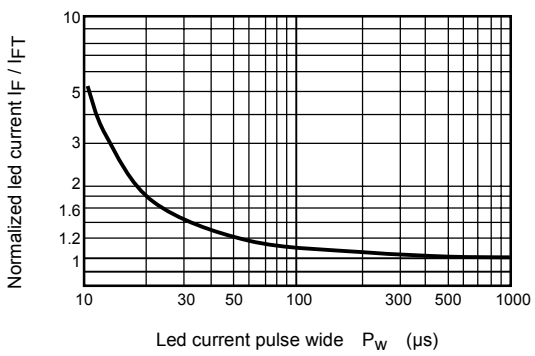
Normalized I_{DRM} – Ta



Normalized V_{DRM} – Ta



Normalized I_F / I_{FT} – P_W



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