

TOSHIBA Photocoupler GaAs Ired & Photo-Thyristor

TLP741G

- Office Machine
- Household Use Equipment
- Solid State Relay
- Switching Power Supply

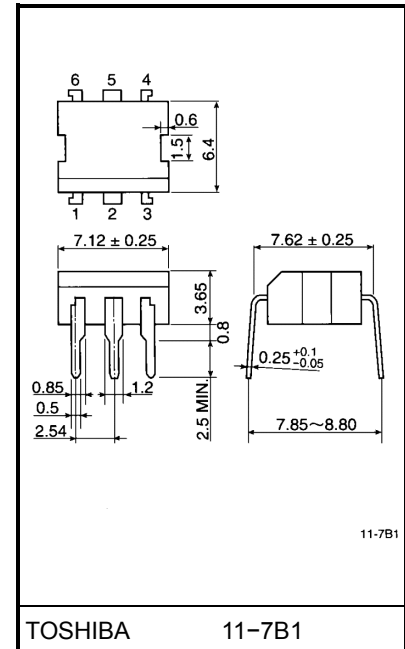
The TOSHIBA TLP741G consists of a photo-thyristor optically coupled to a gallium arsenide infrared emitting diode in a six lead plastic DIP package.

- Peak off-state voltage: 400V(min.)
- Trigger LED current: 10mA(max.)
- On-state current: 150mA(max.)
- UL recognized: UL1577, file no. E67349
- BSI approved: BS EN60065: 1994
Certificate no. 6617
BS EN60950: 1992
Certificate no. 7366
- Isolation voltage: 4000V_{rms}(min.)
- Option (D4) type
VDE approved: DIN VDE0884/08, 87
Certificate no. 65640
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)"

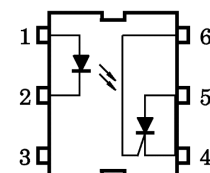
	7.62mm pich standard type	10.16mm pich (LF2) type
• Creepage distance:	7.0mm(min.)	8.0mm(min.)
Clearance:	7.0mm(min.)	8.0mm(min.)
Insulation thickness:	0.5mm(min.)	0.5mm(min.)

Unit in mm



Weight: 0.35 g

Pin Configuration (top view)



- 1 : ANODE
- 2 : CATHODE
- 3 : NC
- 4 : CATHODE
- 5 : ANODE
- 6 : GATE

Maximum Ratings (Ta = 25°C)

Characteristic		Symbol	Rating	Unit
LED	Forward current	I_F	60	mA
	Forward current derating (Ta ≥ 39°C)	$\Delta I_F / ^\circ\text{C}$	-0.7	mA / °C
	Peak forward current (100µs pulse, 100pps)	I_{FP}	1	A
	Power dissipation	P_D	100	mW
	Power dissipation derating (Ta ≥ 25°C)	$\Delta P_D / ^\circ\text{C}$	-1.0	mW / °C
	Reverse voltage	V_R	5	V
	Junction temperature	T_j	125	°C
Detector	Peak forward voltage(R _{GK} = 27kΩ)	V_{DRM}	400	V
	Peak reverse voltage(R _{GK} = 27kΩ)	V_{RRM}	400	V
	On-state current	$I_{T(RMS)}$	150	mA
	On-state current derating (Ta ≥ 25°C)	$\Delta I_T / ^\circ\text{C}$	-2.0	mA / °C
	Peak on-state current (100µs pulse, 120pps)	I_{TP}	3	A
	Peak one cycle surge current	I_{TSM}	2	A
	Peak reverse gate voltage	V_{GM}	5	V
	Power dissipation	P_D	150	mW
	Power dissipation derating (Ta ≥ 25°C)	$\Delta P_D / ^\circ\text{C}$	-2.0	mW / °C
	Junction temperature	T_j	100	°C
Storage temperature range		T_{stg}	-55~125	°C
Operating temperature range		T_{opr}	-55~100	°C
Lead soldering temperature (10s)		T_{sol}	260	°C
Total package power dissipation		P_T	250	mW
Total package power dissipation derating (Ta ≥ 25°C)		$\Delta P_T / ^\circ\text{C}$	-3.3	mW / °C
Isolation voltage (AC, 1 min., R.H. ≤ 60%)		BV_S	4000	V _{rms}

Recommended Operating Conditions

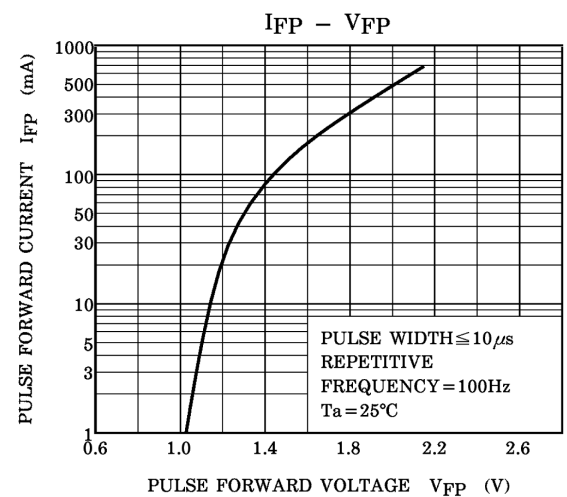
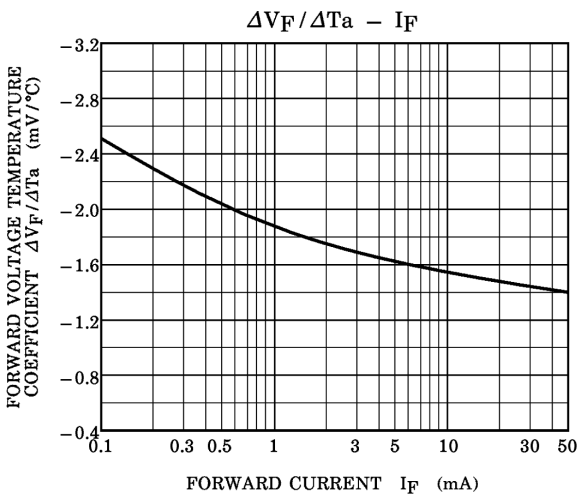
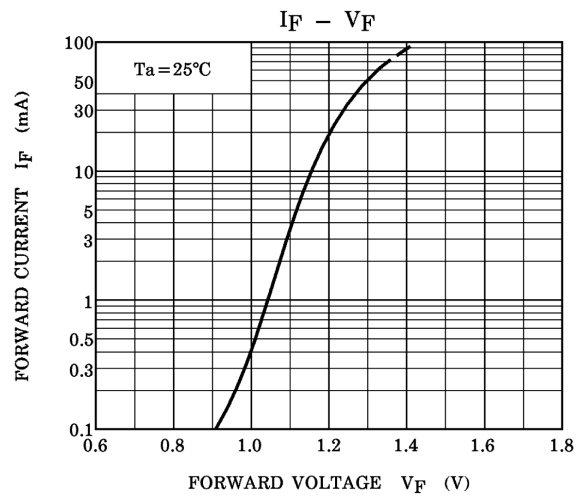
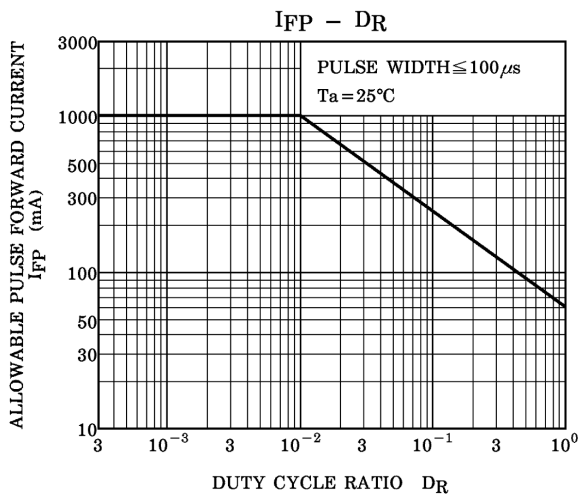
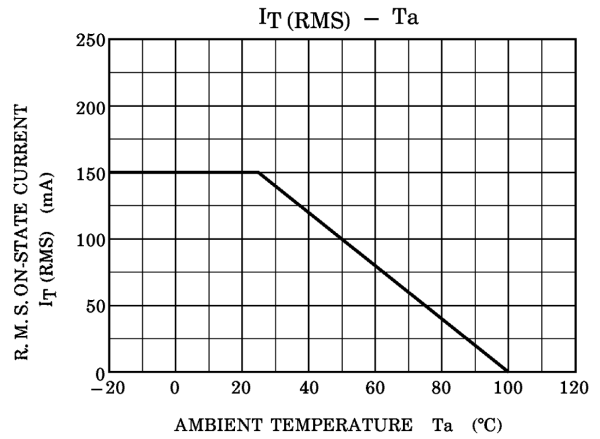
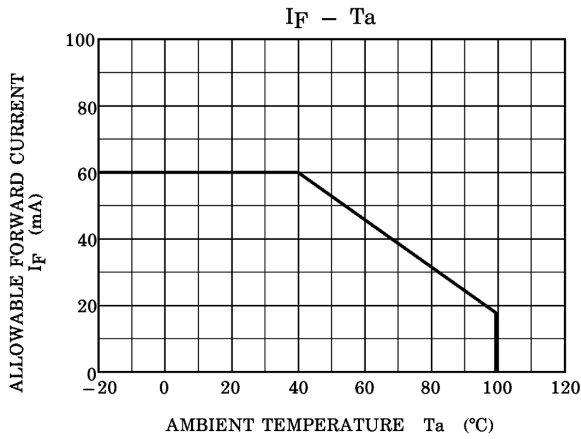
Characteristic	Symbol	Min.	Typ.	Max.	Unit
Supply voltage	V_{AC}	—	—	120	V _{ac}
Forward current	I_F	15	20	25	mA
Operating temperature	T_{opr}	-25	—	85	°C
Gate to cathode resistance	R_{GK}	—	27	33	kΩ
Gate to cathode capacity	C_{GK}	—	0.01	0.1	µF

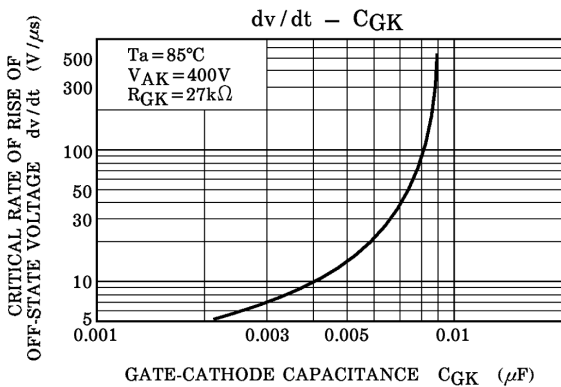
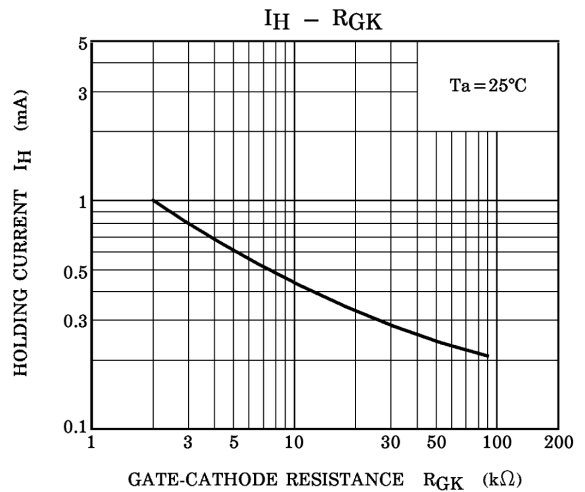
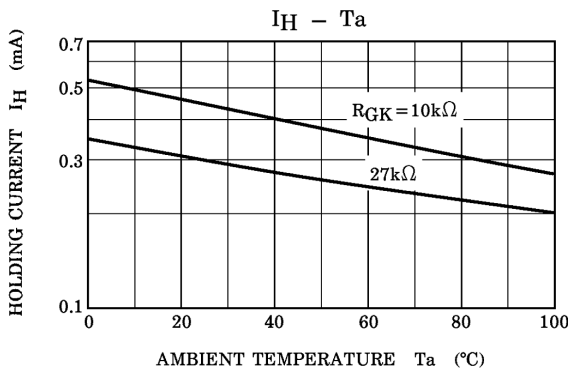
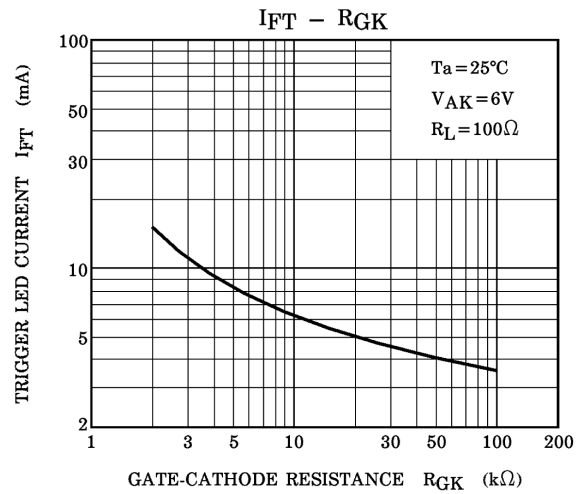
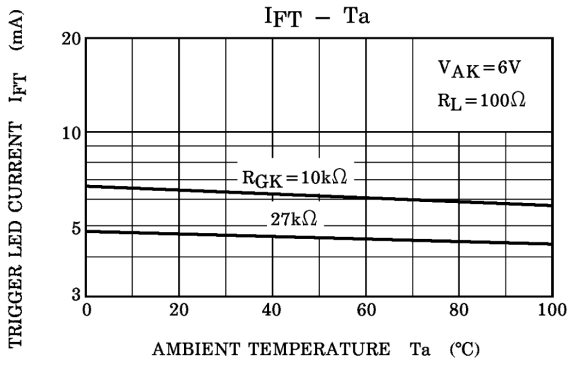
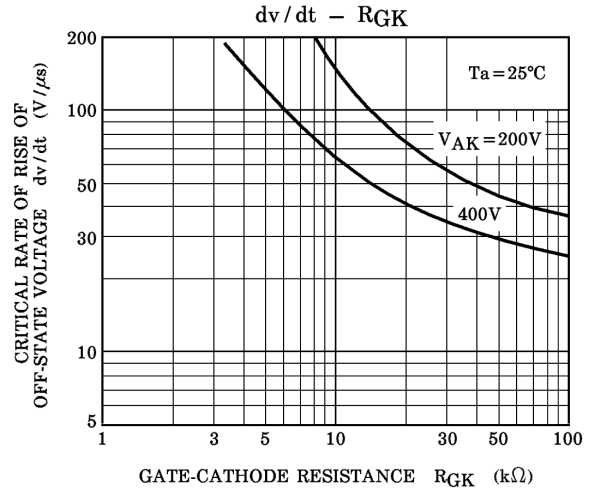
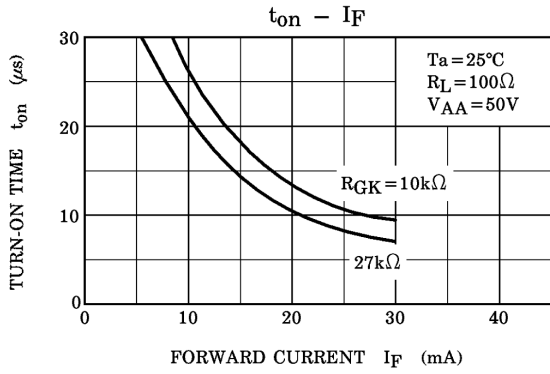
Individual Electrical Characteristics (Ta = 25°C)

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	Off-state current	I_{DRM}	$V_{AK} = 400\text{V}$ $R_{GK} = 27\text{k}\Omega$	Ta = 25°C	—	10	5000	nA
				Ta = 100°C	—	1	100	μA
	Reverse current	I_{RRM}	$V_{KA} = 400\text{V}$ $R_{GK} = 27\text{k}\Omega$	Ta = 25°C	—	10	5000	nA
				Ta = 100°C	—	1	100	μA
	On-state voltage	V_{TM}	$I_{TM} = 100\text{mA}$	—	0.9	1.3	V	
	Holding current	I_H	$R_{GK} = 27\text{k}\Omega$	—	0.2	—	mA	
	Off-state dv / dt	dv/dt	$V_D = 280\text{V}, R_{GK} = 27\text{k}\Omega$	5	10	—	V/ μs	
Capacitance	C_j	$V = 0, f = 1\text{MHz}$	Anode to gate	—	20	—	pF	
			Gate to cathode	—	350	—		

Coupled Characteristics (Ta = 25°C)

Characteristic	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Trigger LED current	I_{FT}	$V_{AK} = 6\text{V}, R_{GK} = 27\text{k}\Omega$	—	4	10	mA
Turn-on time	t_{ON}	$I_F = 30\text{mA}, V_{AA} = 50\text{V}, R_{GK} = 27\text{k}\Omega$	—	10	—	μs
Coupled dv/dt	dv/dt	$V_S = 500\text{V}, R_{GK} = 27\text{k}\Omega$	500	—	—	V/ μs
Capacitance (input to output)	C_S	$V_S = 0, f = 1\text{MHz}$	—	0.8	—	pF
Isolation resistance	R_S	$V_S = 500\text{V}$	1×10^{12}	10^{14}	—	Ω
Isolation voltage	BV_S	AC, 1 minute	4000	—	—	V_{rms}
		AC, 1 second, in oil	—	10000	—	
		DC, 1 minute, in oil	—	10000	—	V_{dc}





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