

TOSHIBA Photocoupler GaAs IRed & Photo-Thyristor

TLP741J

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

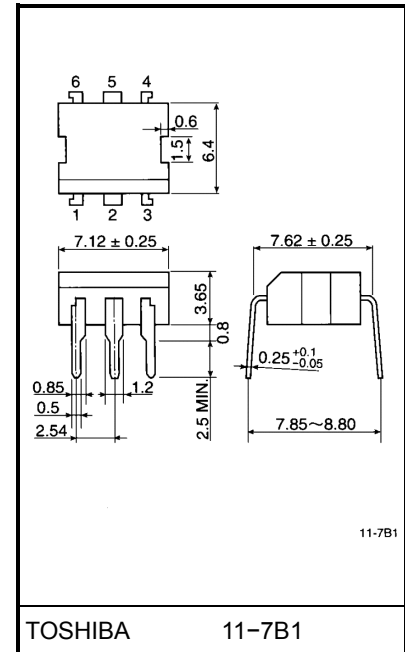
The TOSHIBA TLP741J consists of a photo-thyristor optically coupled to a gallium arsenide infrared emitting diode in a six lead plastic DIP package.

- Peak off-state voltage: 600 V (min.)
- Trigger LED current: 10 mA (max.)
- On-state current: 150 mA (max.)
- UL recognized: UL1577, file no. E67349
- BSI approved: BS EN60065: 1994
Certificate no. 6617
BS EN60950: 1992
Certificate no. 7366
Isolation voltage: 4000 V_{rms} (min.)
- Option (D4) type
VDE approved: DIN VDE0884 / 08,87
Certificate no. 65640
Maximum operating insulation voltage: 630 VPK
Highest permissible over voltage: 6000 VPK

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

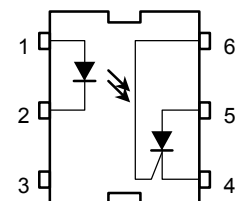
	7.62 mm pich standard type	10.16 mm pich (LF2) type
• Creepage distance:	7.0 mm (min.)	8.0 mm (min.)
Clearance:	7.0 mm (min.)	8.0 mm (min.)
Insulation thickness:	0.5 mm (min.)	0.5 mm (min.)

Unit in mm



Weight: 0.35 g

Pin Configuration (top view)



- 1 : ANODE
- 2 : CATHODE
- 3 : N.C.
- 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 (100 μs pulse, 100 pps)	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 (RGK = 27 kΩ)	V_{DRM}	600	V
	Peak reverse voltage (RGK = 27 kΩ)	V_{RRM}	600	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, 120 pps)	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 (10 s)		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

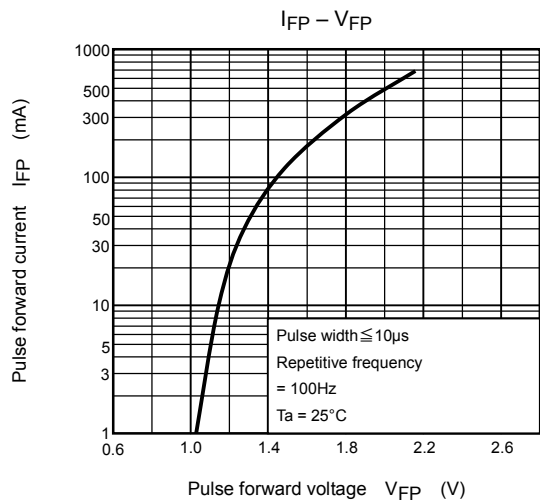
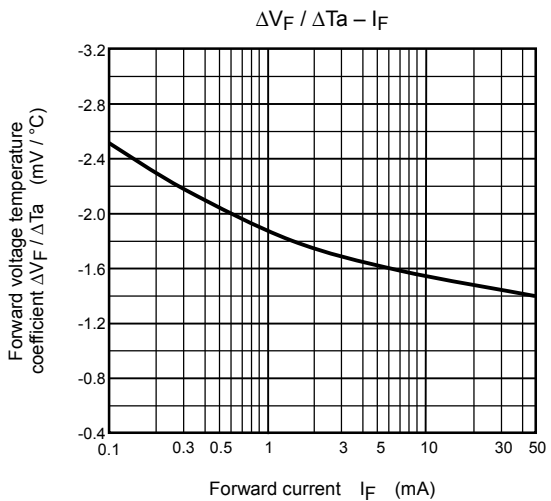
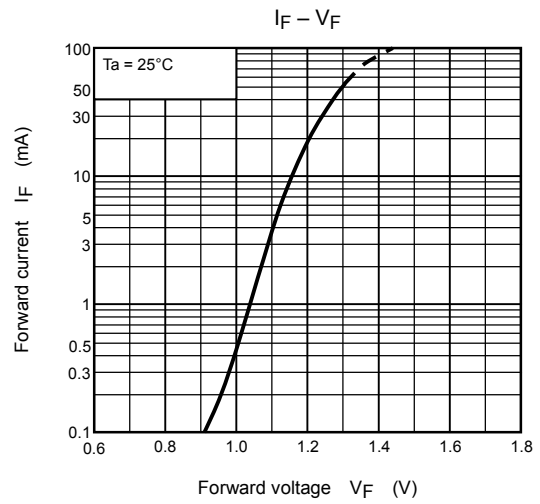
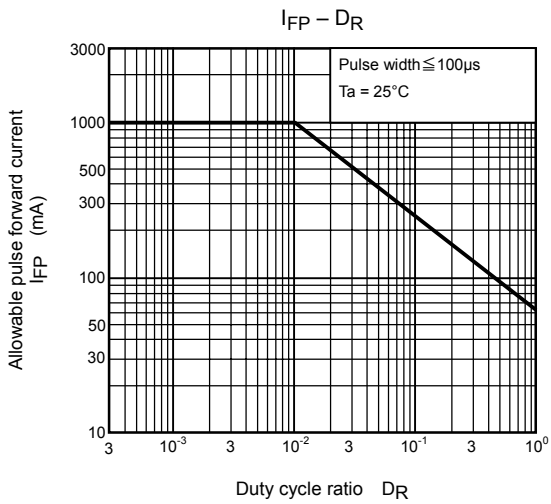
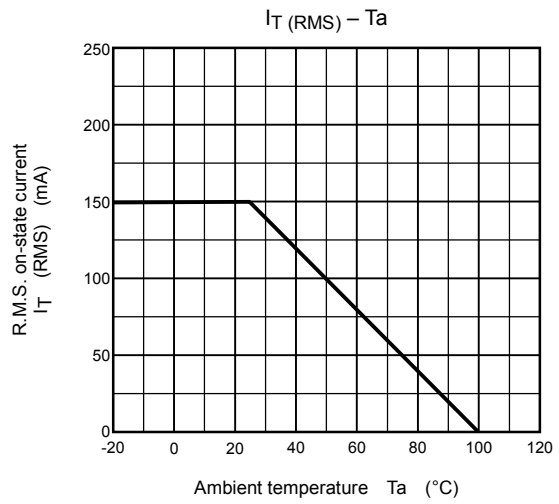
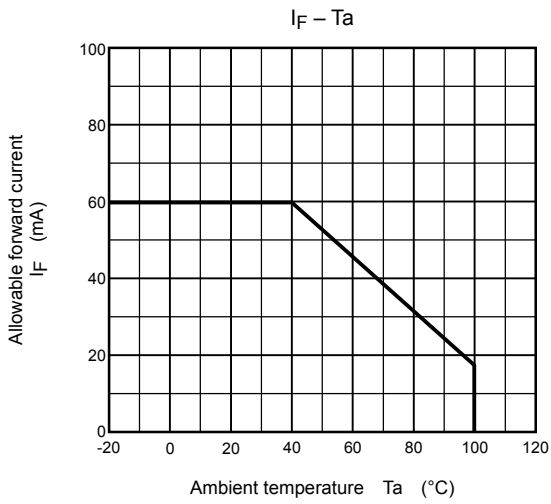
Characteristic	Symbol	Min.	Typ.	Max.	Unit
Supply voltage	V_{AC}	—	—	240	V_{ac}
Forward current	I_F	15	20	25	mA
Operating temperature	T_{opr}	-25	—	85	°C
Gate to cathode resistance	R_{GK}	—	10	27	kΩ
Gate to cathode capacity	C_{GK}	—	0.01	0.1	μF

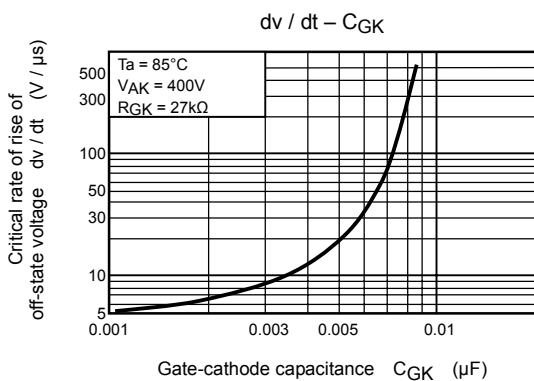
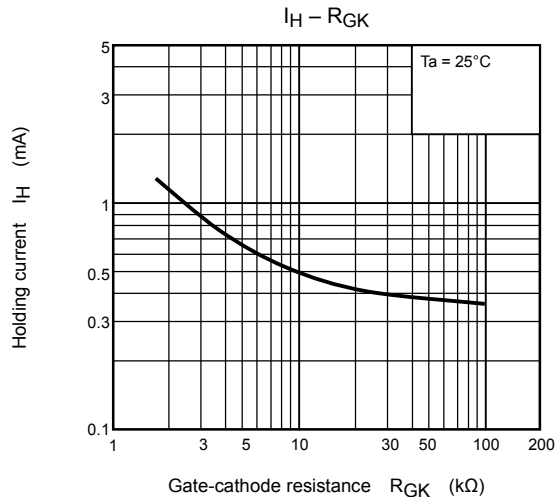
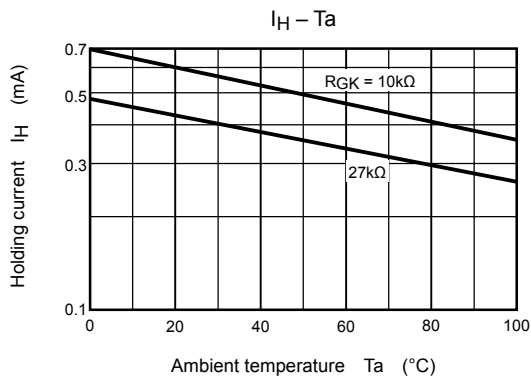
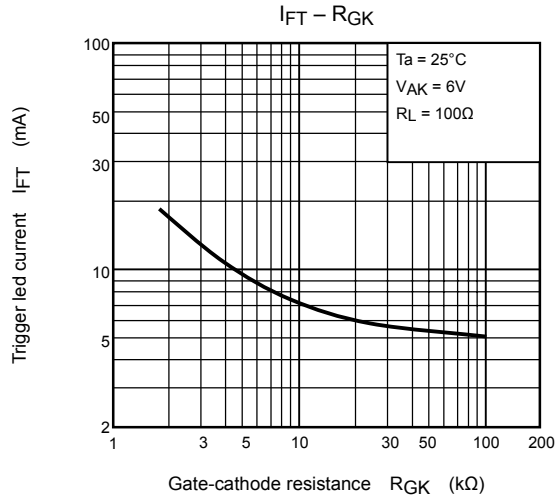
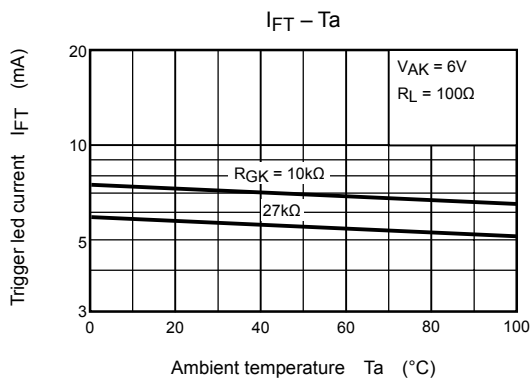
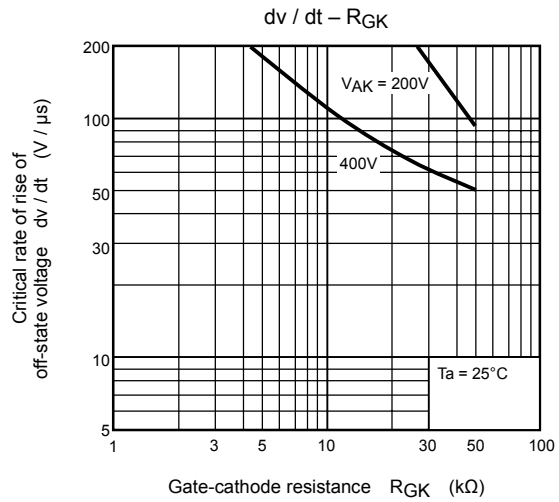
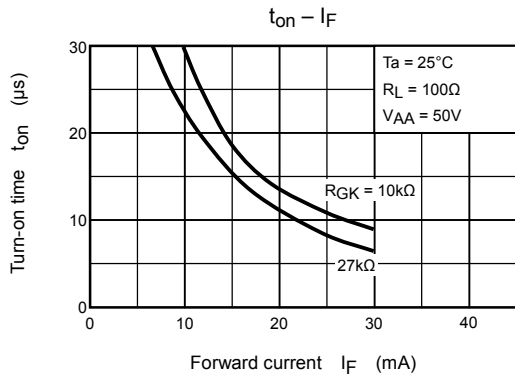
Individual Electrical Characteristics (Ta = 25°C)

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}	$V_{AK} = 600 \text{ V}$ $R_{GK} = 27 \text{ k}\Omega$	Ta = 25°C	—	10	5000	nA
				Ta = 85°C	—	1	150	μA
	Reverse current	I_{RRM}	$V_{KA} = 600 \text{ V}$ $R_{GK} = 27 \text{ k}\Omega$	Ta = 25°C	—	10	5000	nA
				Ta = 85°C	—	1	150	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	$V_{AK} = 420 \text{ V}, R_{GK} = 27 \text{ k}\Omega$	—	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}	$V_{AK} = 6 \text{ V}, R_{GK} = 27 \text{ k}\Omega$	—	5	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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