

# TLP741J

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

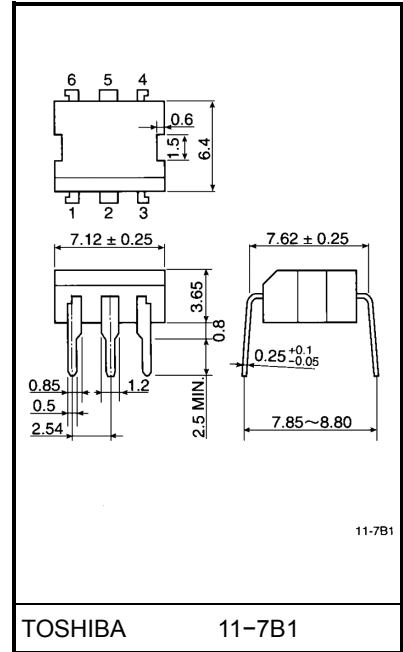
The TOSHIBA TLP741J consists of a photo-thyristor optically coupled to a gallium arsenide infrared emitting diode in a six lead plastic DIP package.

- 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<sub>rms</sub> (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)"

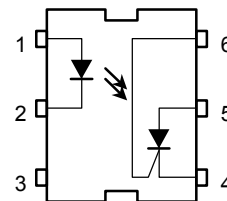
	7.62 mm pich standard type	10.16 mm pich (LF2) type
• Creepage distance:	7.0 mm (min.)	8.0 mm (min.)
Clearance:	7.0 mm (min.)	8.0 mm (min.)
Insulation thickness:	0.5 mm (min.)	0.5 mm (min.)

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

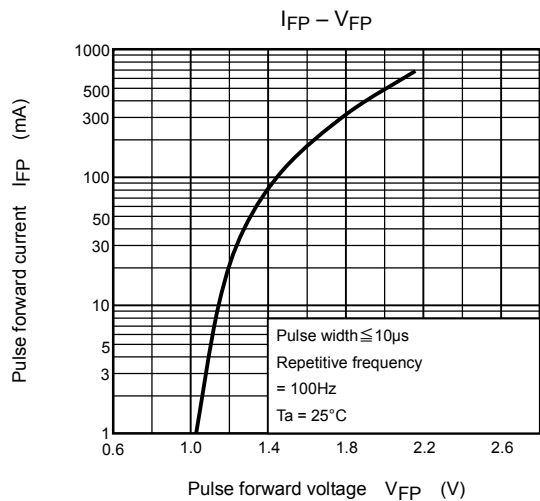
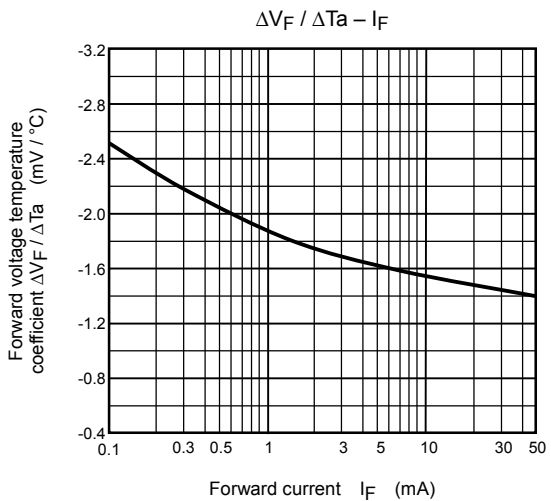
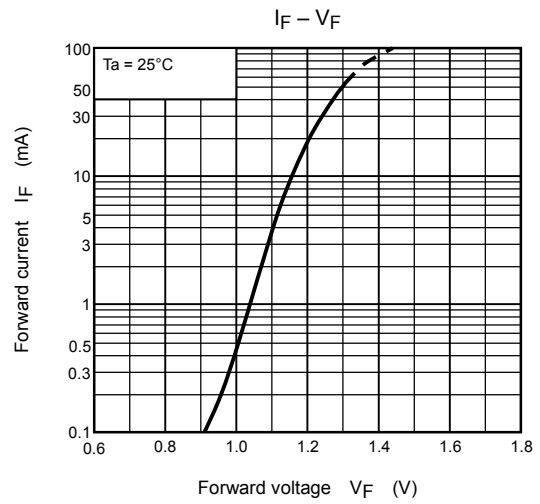
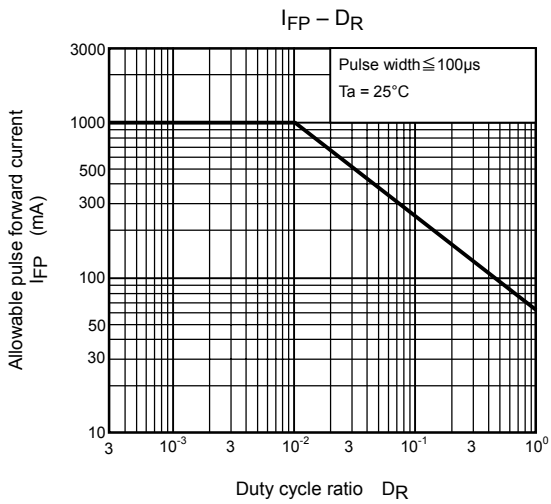
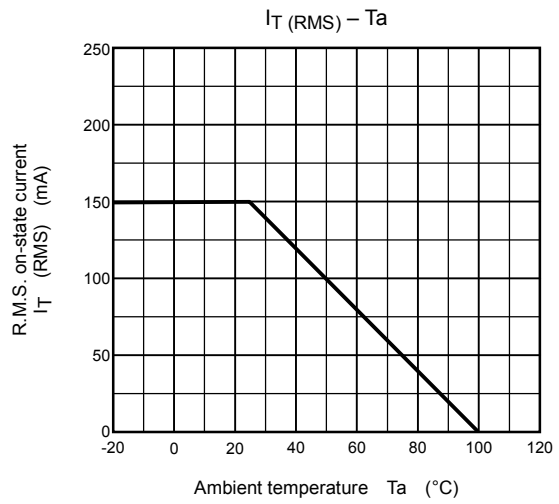
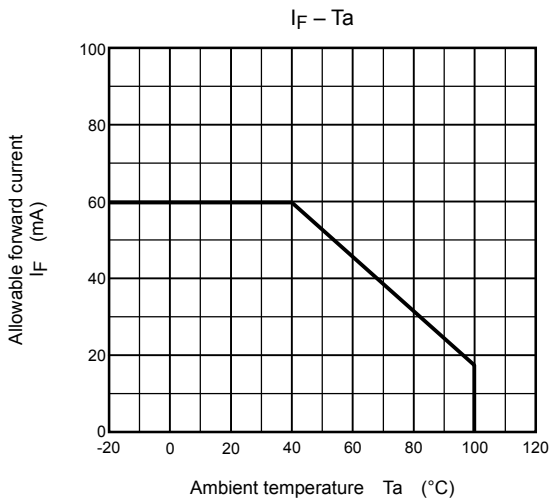
Characteristic	Symbol	Min.	Typ.	Max.	Unit
Supply voltage	$V_{AC}$	—	—	240	$V_{ac}$
Forward current	$I_F$	15	20	25	mA
Operating temperature	$T_{opr}$	-25	—	85	°C
Gate to cathode resistance	$R_{GK}$	—	10	27	kΩ
Gate to cathode capacity	$C_{GK}$	—	0.01	0.1	μF

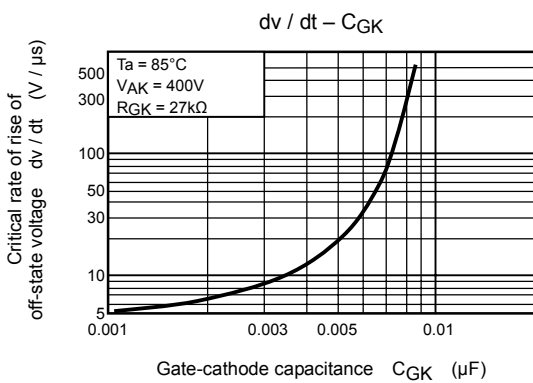
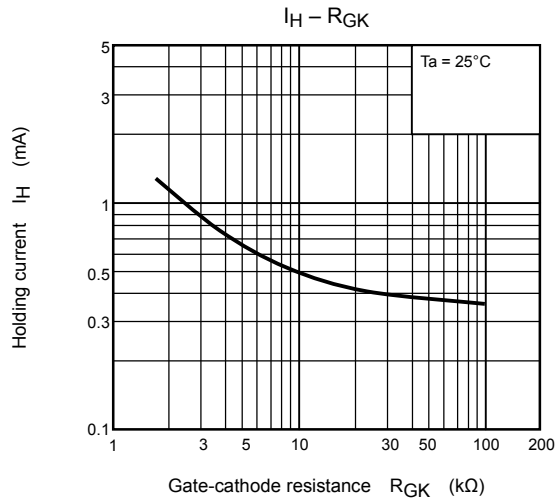
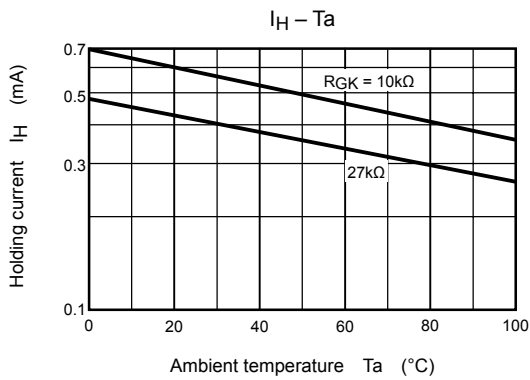
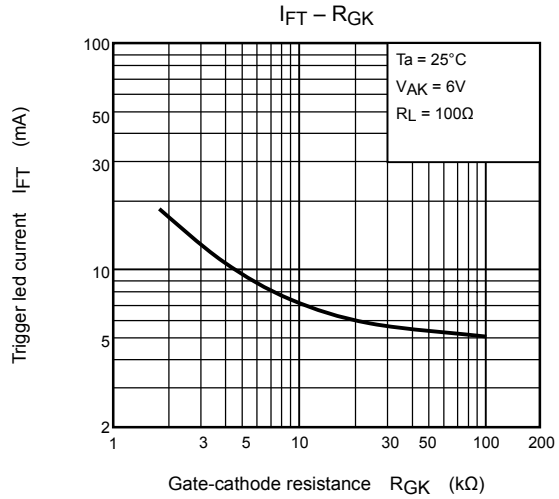
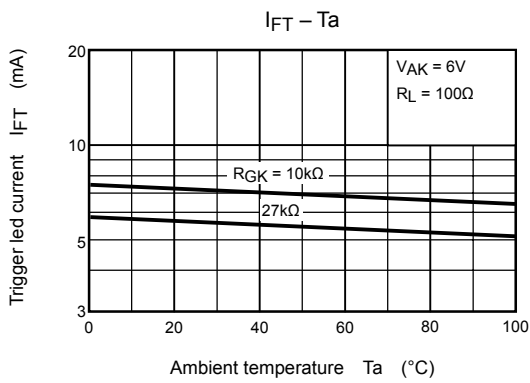
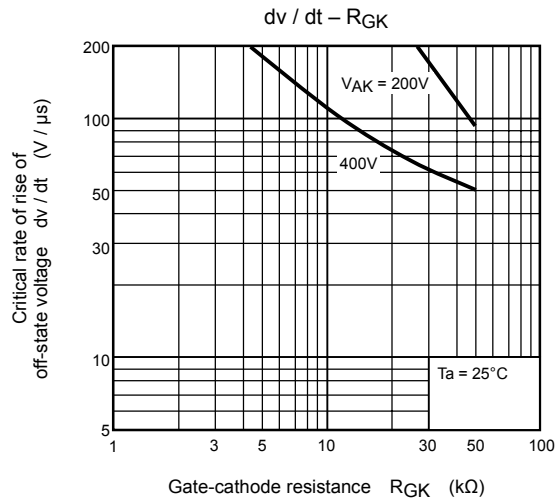
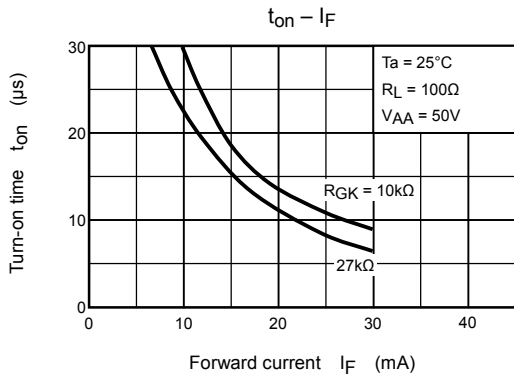
## Individual Electrical Characteristics (Ta = 25°C)

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	$\mu\text{A}$	
	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	$\mu\text{A}$
	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	$\mu\text{A}$
	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/ $\mu\text{s}$	
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	—	$\mu\text{s}$
Coupled dv / dt	dv / dt	$V_S = 500 \text{ V}, R_{GK} = 27 \text{ k}\Omega$	500	—	—	V / $\mu\text{s}$
Capacitance (input to output)	$C_S$	$V_S = 0, f = 1 \text{ MHz}$	—	0.8	—	pF
Isolation resistance	$R_S$	$V_S = 500 \text{ V}$	$1 \times 10^{12}$	$10^{14}$	—	$\Omega$
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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