

# TLP741J

GaAs IRED & PHOTO-THYRISTOR

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 : 600V Min.
- . Trigger LED Current : 10mA Max.
- . On-State Current : 150mA Max.
- . UL Recognized : UL1577, File No. E67349
- . BSI Approved : BS415:1990, BS7002:1989 (EN60950)

Certificate No. 6617

Isolation Voltage : 4000V<sub>rms</sub> (Min)

. Option (D4) type

VDE Approved : DIN VDE0884/08.87,  
Certificate No. 65640

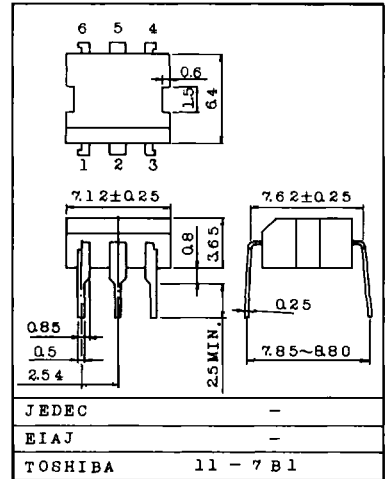
Maximum Operating Insulation Voltage : 630V<sub>PK</sub>

Highest Permissible Over Voltage : 6000V<sub>PK</sub>

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

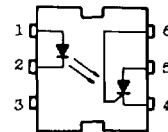
	7.62mm pich standard type	10.16mm pich (LF2) type
. Creepage Distance :	7.0mm (Min)	8.0mm (Min)
Clearance :	7.0mm (Min)	8.0mm (Min)
Insulation Thickness :	0.5mm (Min)	0.5mm (Min)

Unit in mm



Weight: 0.35g

PIN CONFIGURATIONS (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 <sub>F</sub>	60	mA
	Forward Current Derating (Ta ≥ 39°C)	ΔI <sub>F</sub> /°C	-0.7	mA/°C
	Peak Forward Current (100μs pulse, 100pps)	I <sub>FP</sub>	1	A
	Power Dissipation	P <sub>D</sub>	100	mW
	Power Dissipation Derating (Ta ≥ 25°C)	ΔP <sub>D</sub> /°C	-1.0	mW/°C
	Reverse Voltage	V <sub>R</sub>	5	V
	Junction Temperature	T <sub>j</sub>	125	°C
DETECTOR	Peak Forward Voltage (R <sub>GK</sub> =27kΩ)	V <sub>DRM</sub>	600	V
	Peak Reverse Voltage (R <sub>GK</sub> =27kΩ)	V <sub>RRM</sub>	600	V
	On-State Current	I <sub>T(RMS)</sub>	150	mA
	On-State Current Derating (Ta ≥ 25°C)	ΔI <sub>T</sub> /°C	-2.0	mA/°C
	Peak On-State Current (100μs pulse, 120pps)	I <sub>TP</sub>	3	A
	Peak One Cycle Surge Current	I <sub>TSM</sub>	2	A
	Peak Reverse Gate Voltage	V <sub>GGM</sub>	5	V
	Power Dissipation	P <sub>D</sub>	150	mW
	Power Dissipation Derating (Ta ≥ 25°C)	ΔP <sub>D</sub> /°C	-2.0	mW/°C
	Junction Temperature	T <sub>j</sub>	100	°C
Storage Temperature Range	T <sub>stg</sub>	-55 ~ 150	°C	
Operating Temperature Range	T <sub>opr</sub>	-55 ~ 100	°C	
Lead Soldering Temperature (10 sec.)	T <sub>sold</sub>	260	°C	
Total Package Power Dissipation	P <sub>T</sub>	250	mW	
Total Package Power Dissipation Derating (Ta ≥ 25°C)	ΔP <sub>T</sub> /°C	-3.3	mW/°C	
Isolation Voltage (AC, 1 min. RH ≤ 60%)	B <sub>Vs</sub>	4000	V <sub>rms</sub>	

## INDIVIDUAL ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT	
LED	Forward Voltage	V <sub>F</sub>	I <sub>F</sub> =10mA	1.0	1.15	1.3	V	
	Reverse Current	I <sub>R</sub>	V <sub>R</sub> =5V	-	-	10	μA	
	Capacitance	C <sub>T</sub>	V=0, f=1MHz	-	30	-	pF	
DETECTOR	Off-State Current	I <sub>DRM</sub>	V <sub>AK</sub> =600V R <sub>GK</sub> =27kΩ	Ta=25°C	-	10	5000	nA
				Ta=85°C	-	1	150	μA
	Reverse Current	I <sub>RRM</sub>	V <sub>KA</sub> =600V R <sub>GK</sub> =27kΩ	Ta=25°C	-	10	5000	nA
				Ta=85°C	-	1	150	μA
	On-State Voltage	V <sub>TM</sub>	I <sub>TM</sub> =100mA	-	0.9	1.3	V	
	Holding Current	I <sub>H</sub>	R <sub>GK</sub> =27kΩ	-	0.2	-	mA	
	Off-State dv/dt	dv/dt	V <sub>D</sub> =420V, R <sub>GK</sub> =27kΩ	-	10	-	V/μs	
Capacitance	C <sub>j</sub>	V=0, f=1MHz Anode to Gate Gate to Cathode	-	20	-	pF		
			-	350	-	pF		

## COUPLED CHARACTERISTICS (Ta=25°C)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Trigger LED Current	I <sub>FT</sub>	V <sub>AK</sub> =6V, R <sub>GK</sub> =27kΩ	-	5	10	mA
Turn-on Time	t <sub>on</sub>	I <sub>F</sub> =30mA, V <sub>AA</sub> =50V R <sub>GK</sub> =27kΩ	-	10	-	μs
Coupled dv/dt	dv/dt	V <sub>S</sub> =500V, R <sub>GK</sub> =27kΩ	500	-	-	V/μs
Capacitance Input to Output	C <sub>S</sub>	V <sub>S</sub> =0, f=1MHz	-	0.8	-	pF
Isolation Resistance	R <sub>S</sub>	V <sub>S</sub> =500V	5×10 <sup>10</sup>	10 <sup>14</sup>	-	Ω
Isolation Voltage	BV <sub>S</sub>	AC, 1 minute	4000	-	-	V <sub>rms</sub>
		AC, 1 second	-	10000	-	
		DC, 1 minute	-	10000	-	V <sub>dc</sub>

## RECOMMENDED OPERATING CONDITIONS

CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT
Supply Voltage	V <sub>AC</sub>	-	-	240	V <sub>ac</sub>
Forward Current	I <sub>F</sub>	15	20	25	mA
Operating Temperature	T <sub>opr</sub>	-25	-	85	°C
Gate to Cathode Resistance	R <sub>GK</sub>	-	10	27	kΩ
Gate to Cathode Capacity	C <sub>GK</sub>	-	0.01	0.1	μF

