

TOSHIBA PHOTOCOUPLER GaAs IRED & PHOTO-THYRISTOR

TLP741J

- OFFICE MACHINE
- HOUSEHOLD USE EQUIPMENT
- SOLID STATE RELAY
- SWITCHING POWER SUPPLY

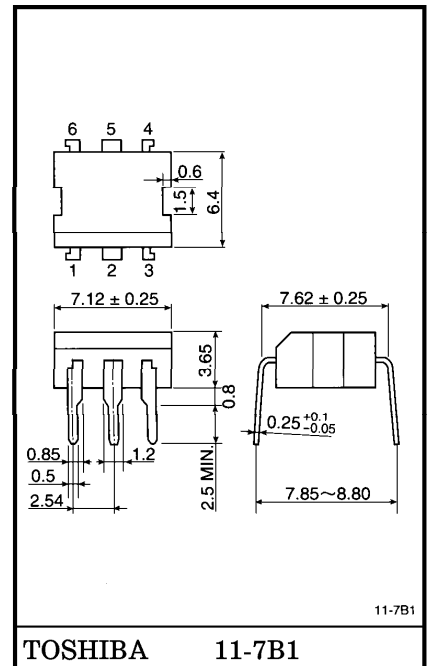
The TOSHIBA TLP741J consists of a photo-thyristor optically coupled to a gallium arsenide infrared emitting diode in a six lead plastic DIP package.

- Peak Off-State Voltage : 600V (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)"

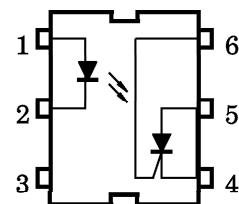
	7.62mm pitch standard type	10.16mm pitch (LF2) type
● Creepage Distance :	7.0mm (Min.)	8.0mm (Min.)
Clearance :	7.0mm (Min.)	8.0mm (Min.)
Insulation Thickness :	0.5mm (Min.)	0.5mm (Min.)

Unit in mm



Weight : 0.35g

PIN 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 (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}	600	V
	Peak Reverse Voltage (R _{GK} = 27kΩ)	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, 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, 1min., R.H. ≤ 60%)	BV_S	4000	V_{rms}	

RECOMMENDED OPERATING CONDITIONS

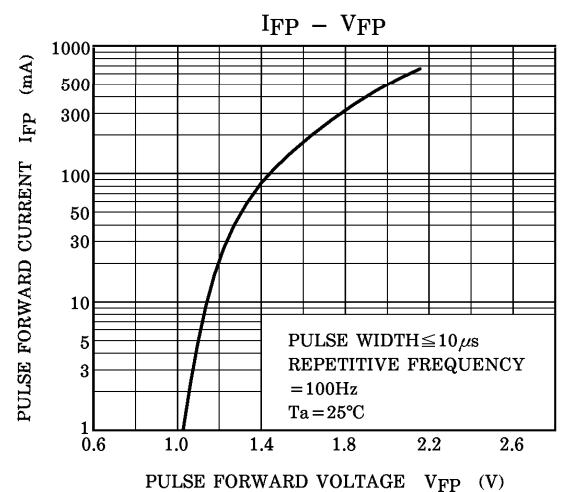
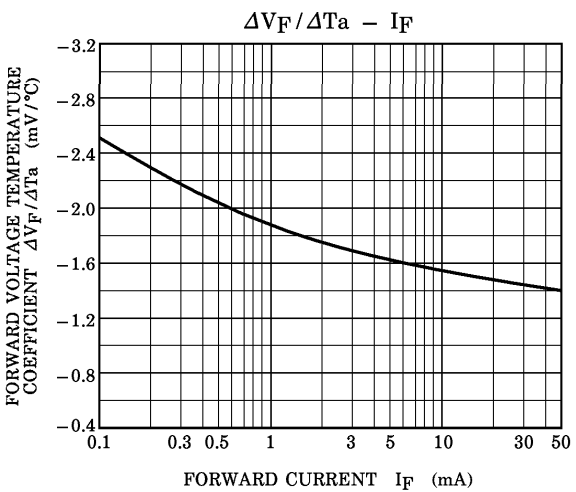
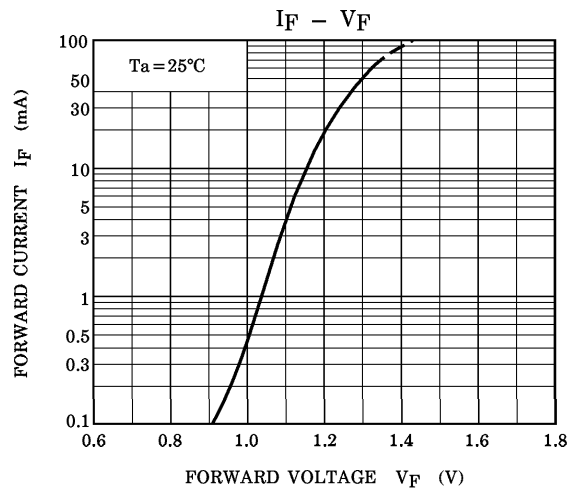
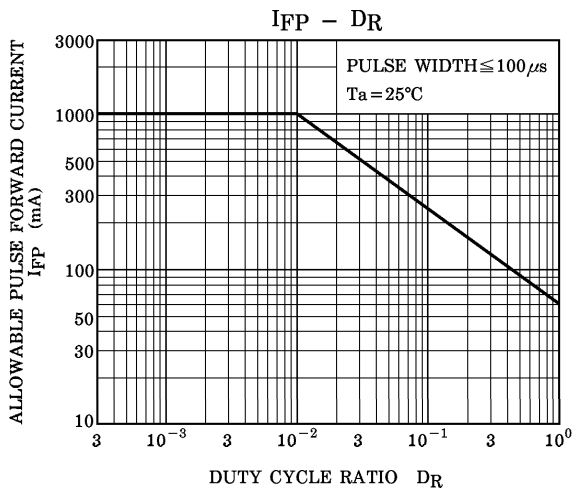
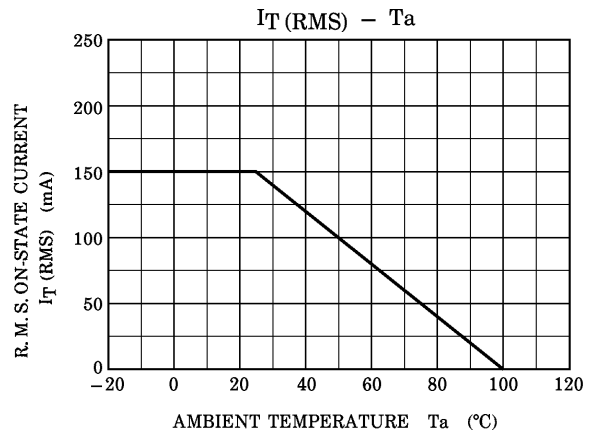
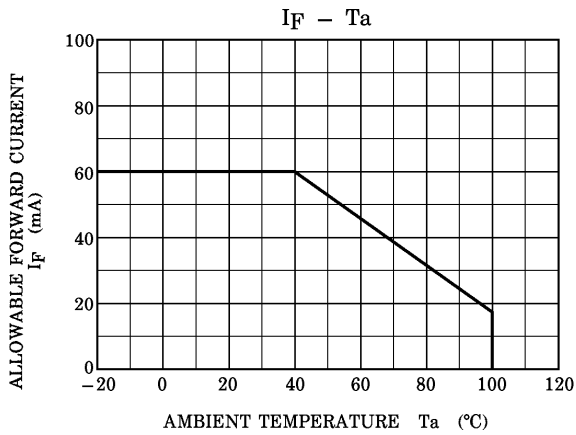
CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT
Supply Voltage	V_{AC}	—	—	240	V_{ac}
Forward Current	I_F	15	20	25	mA
Operating Temperature	T_{opr}	-25	—	85	°C
Gate to Cathode Resistance	R_{GK}	—	10	27	kΩ
Gate to Cathode Capacity	C_{GK}	—	0.01	0.1	μF

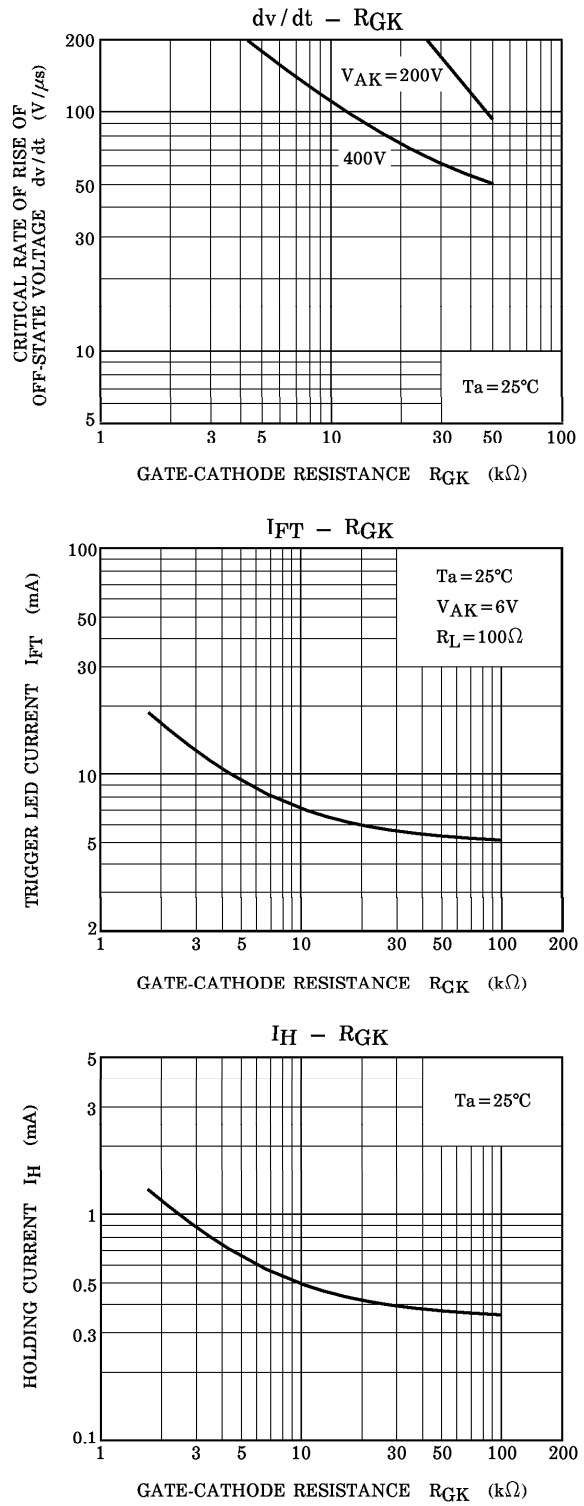
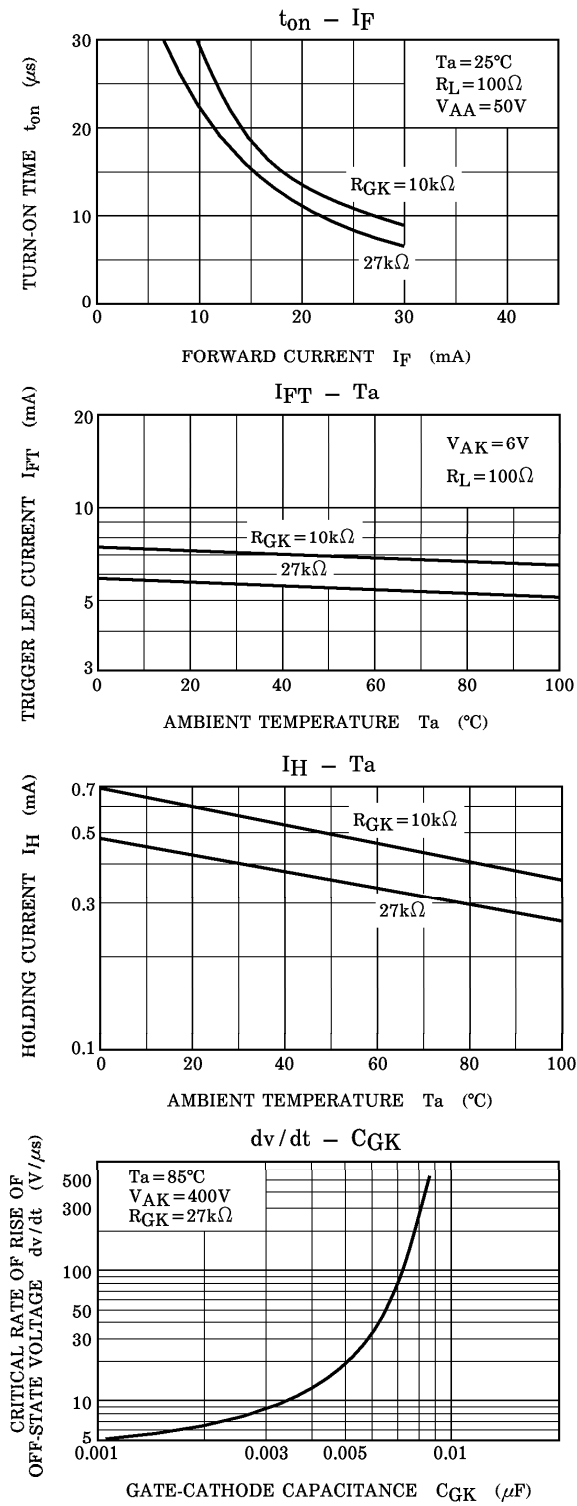
INDIVIDUAL ELECTRICAL CHARACTERISTICS (Ta = 25°C)

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	$V_D = 420\text{V}, R_{GK} = 27\text{k}\Omega$		—	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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