<u>TOSHIBA</u>

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: 2002 Certificate no. 8877 BS EN60950-1: 2002 Certificate no. 8878

Isolation voltage: 4000 V_{rms} (min.)

• Option (D4) type

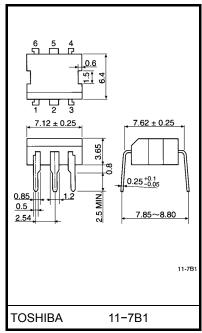
VDE approved: DIN EN 60747-5-2

Certificate no. 40009302

Maximum operating insulation voltage: 630 V_{PK} Highest permissible over voltage: 6000 V_{PK}

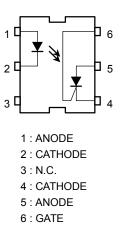
(Note) When a EN 60747-5-2 approved type is needed, please designate the "option (D4)"

		7.62 mm pich	10.16 mm pich
		standard type	(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.)



Weight: 0.35 g

Pin Configuration (top view)



Absolute Maximum Ratings (Ta = 25°C)

Characteristic		Symbol	Rating	Unit	
	Forward current	١ _F	60	mA	
	Forward current derating (Ta ≥ 39°C)	ΔI _F / °C	-0.7	mA / °C	
	Peak forward current (100 µs pulse, 100 pps)	I _{FP}	1	Α	
LED	Power dissipation	PD	100	mW	
	Power dissipation derating (Ta ≥ 25°C)	ΔP _D / °C	-1.0	mW / °C	
	Reverse voltage	V _R	5	V	
	Junction temperature	Tj	125	°C	
	Peak forward voltage (R_{GK} = 27 k Ω)	V _{DRM}	600	V	
	Peak reverse voltage (R_{GK} = 27 k Ω)	V _{RRM}	600	V	
	On-state current	I _{T(RMS)}	150	mA	
	On–state current derating (Ta ≥ 25°C)	ΔI _T / °C	-2.0	mA / °C	
Detector	Peak on-state current (100µs pulse, 120 pps)	I _{TP}	3	А	
Dete	Peak one cycle surge current	ITSM	2	A	
	Peak reverse gate voltage	V _{GM}	5	V	
	Power dissipation	PD	150	mW	
	Power dissipation derating (Ta ≥ 25°C)	ΔP _D / °C	-2.0	mW / °C	
	Junction temperature	Tj	100	°C	
Storag	e temperature range	T _{stg}	-55~125	°C	
Operat	ting temperature range	T _{opr}	-55~100	°C	
Lead s	oldering temperature (10 s)	T _{sol}	260	°C	
Total p	ackage power dissipation	Ρ _T	250	mW	
Total p	ackage power dissipation derating (Ta \ge 25°C)	ΔP _T / °C	-3.3	mW / °C	
Isolatio	on voltage (AC, 1 min., R.H.≤ 60%)	BVS	4000	V _{rms}	

Note: Using continuously under heavy loads (e.g. the application of high temperature/current/voltage and the significant change in temperature, etc.) may cause this product to decrease in the reliability significantly even if the operating conditions (i.e. operating temperature/current/voltage, etc.) are within the absolute maximum ratings.

Please design the appropriate reliability upon reviewing the Toshiba Semiconductor Reliability Handbook ("Handling Precautions"/"Derating Concept and Methods") and individual reliability data (i.e. reliability test report and estimated failure rate, etc).

Recommended Operating Conditions

Characteristic	Symbol	Min.	Тур.	Max.	Unit
Supply voltage	V _{AC}	_		240	Vac
Forward current	١ _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

Note: Recommended operating conditions are given as a design guideline to obtain expected performance of the device. Additionally, each item is an independent guideline respectively. In developing designs using this product, please confirm specified characteristics shown in this document.

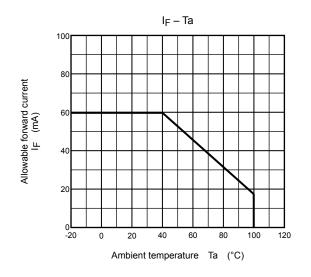
Individual Electrical Characteristics (Ta = 25°C)

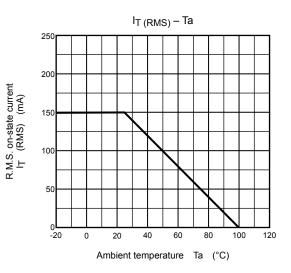
Characteristic		Symbol	Test Condition		Min.	Тур.	Max.	Unit
	Forward voltage	V _F	I _F = 10 mA		1.0	1.15	1.3	V
LED	Reverse current	I _R	V _R = 5 V		_	_	10	μA
	Capacitance	CT	V = 0, f = 1 MHz		_	30	_	pF
	Off-state current	IDRM	V _{AK} = 600 V R _{GK} = 27 kΩ	Ta = 25°C	_	10	5000	nA
				Ta = 85°C	_	1	150	μA
	Reverse current	I _{RRM}	V _{KA} = 600 V R _{GK} = 27 kΩ	Ta = 25°C	_	10	5000	nA
ы				Ta = 85°C	_	1	150	μA
Detector	On-state voltage	V _{TM}	I _{TM} = 100 mA		_	0.9	1.3	V
ð	Holding current	Ι _Η	R _{GK} = 27 kΩ		_	0.2	_	mA
	Off-state dv / dt	dv / dt	V _{AK} = 420 V, R _{GK} = 27 kΩ		_	10	_	V/µs
	Capacitance C _j			Anode to gate	_	20	_	
		V = 0, f = 1 MHz Gate	Gate to cathode		350	—	pF	

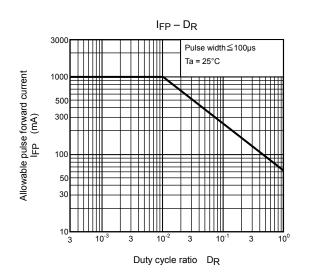
Coupled Characteristics (Ta = 25°C)

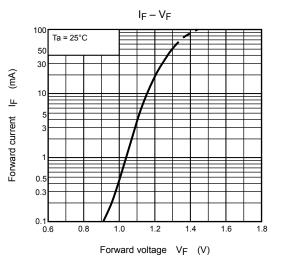
Characteristic	Symbol	Test Condition	Min.	Тур.	Max.	Unit	
Trigger LED current	I _{FT}	V _{AK} = 6 V, R _{GK} = 27 kΩ	_	5	10	mA	
Turn–on time	ton	I _F = 30 mA, V _{AA} = 50 V R _{GK} = 27 kΩ	—	10		μs	
Coupled dv / dt	dv / dt	$V_{\rm S}$ = 500 V, R _{GK} = 27 k Ω	500	_	-	V / µs	
Capacitance (input to output)	CS	V _S = 0, f = 1 MHz	_	0.8		pF	
Isolation resistance	R _S	V _S = 500 V	1×10 ¹²	10 ¹⁴	_	Ω	
	BVS	AC, 1 minute	4000	_	_	V _{rms}	
Isolation voltage		AC, 1 second, in oil	—	10000	_		
		DC, 1 minute, in oil	—	10000	_	V _{dc}	

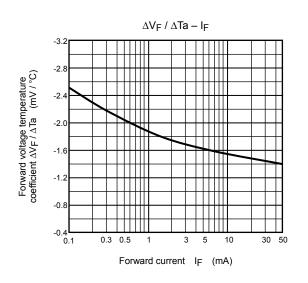
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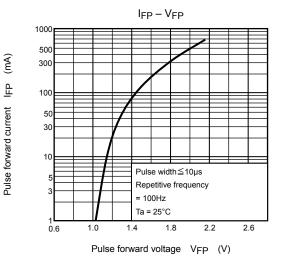




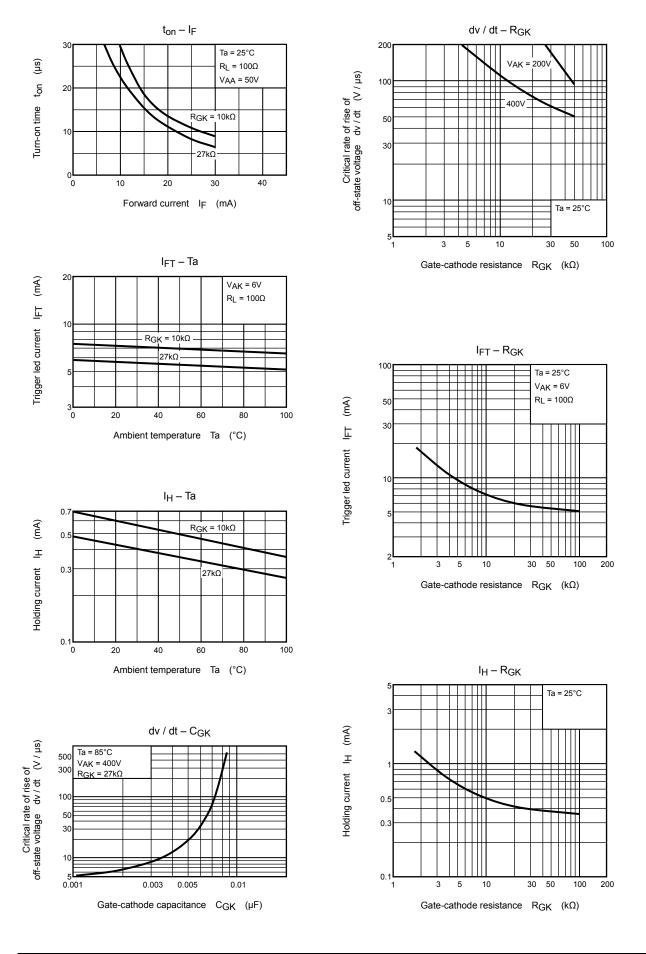








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