

TENTATIVE TOSHIBA PHOTOCOUPLER GaAlAs IRED & PHOTO-TRIAC

TLP168J

TRIAC DRIVE
PROGRAMMABLE CONTROLLERS
AC-OUTPUT MODULE
SOLID STATE RELAY

The TOSHIBA MINI FLAT COUPLER TLP168J is a small outline coupler, suitable for surface mount assembly.
The TLP168J consists of a photo triac, optically coupled to a GaAlAs infrared emitting diode.

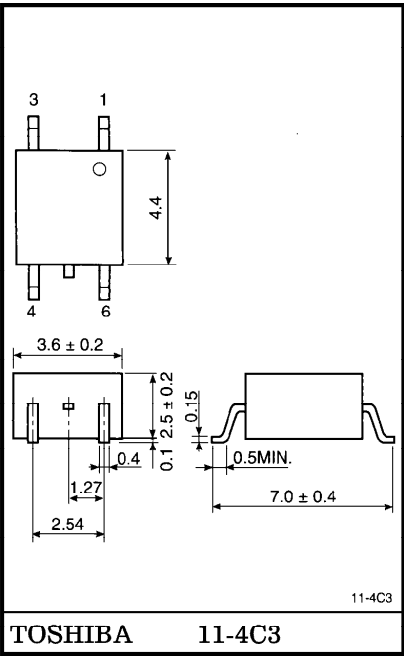
- Zero-Voltage Crossing Turn-on
- Peak Off-State Voltage : 600V (MIN.)
- Trigger LED Current : 3mA (MAX.)
- On-State Current : 70mA (MAX.)
- Isolation Voltage : 2500Vrms (MIN.)

MAXIMUM RATINGS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	RATING	UNIT
LED	Forward Current	IF	20	mA
	Forward Current Derating (Ta ≥ 25°C)	ΔIF / °C	-0.2	mA / °C
	Peak Forward Current (100μs pulse, 100pps)	IFP	1	A
	Reverse Voltage	VR	5	V
	Junction Temperature	Tj	125	°C
DETECTOR	Off-State Output Terminal Voltage	VDRM	600	V
	On-State RMS Current	IT (RMS)	70	mA
	Ta = 25°C		40	
	Ta = 70°C			
	On-State Current Derating (Ta ≥ 25°C)	ΔIT / °C	-0.67	mA / °C
	Peak On-State Current (100μs Pulse, 120pps)	ITP	2	A
	Peak Nonrepetitive Surge Current (PW = 10ms, DC = 10%)	ITSM	1.2	A
	Junction Temperature	Tj	115	°C
	Storage Temperature Range	Tstg	-55~125	°C
	Operating Temperature Range	Topr	-40~100	°C
	Lead Soldering Temperature (10s)	Tsol	260	°C
	Isolation Voltage (AC, 1min., R.H. ≤ 60%) (Note)	BVS	2500	Vrms

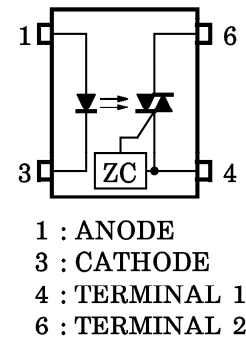
(Note) Device considered a two terminal device : Pins 1 and 3 shorted together and pins 4 and 6 shorted together.

Unit in mm



Weight : 0.09g

PIN CONFIGURATIONS



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RECOMMENDED OPERATING CONDITIONS

CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT
Supply Voltage	V_{AC}	—	—	240	V_{ac}
Forward Current	I_F	4.5	6	7.5	mA
Peak On-State Current	I_{TP}	—	—	1	A
Operating Temperature	T_{opr}	-10	—	85	°C

INDIVIDUAL ELECTRICAL CHARACTERISTICS ($T_a = 25^\circ\text{C}$)

CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
LED	Forward Voltage	V_F	$I_F = 10\text{mA}$	1.2	1.4	1.7	V
	Reverse Current	I_R	$V_R = 3\text{V}$	—	—	10	μA
	Capacitance	C_T	$V = 0, f = 1\text{MHz}$	—	30	—	pF
DETECTOR	Peak Off-State Current	I_{DRM}	$V_{DRM} = 600\text{V}$	—	10	1000	nA
	Peak On-State Voltage	V_{TM}	$I_{TM} = 70\text{mA}$	—	1.7	2.8	V
	Holding Current	I_H	—	—	0.6	—	mA
	Critical Rate of Rise of Off-State Voltage	dv/dt	$V_{in} = 240\text{Vrms}, T_a = 85^\circ\text{C}$	200	500	—	$\text{V} / \mu\text{s}$
	Critical Rate of Rise of Commutating Voltage	$dv/dt(c)$	$V_{in} = 60\text{Vrms}, I_T = 15\text{mA}_{rms}$	—	0.2	—	$\text{V} / \mu\text{s}$

COUPLED ELECTRICAL CHARACTERISTICS ($T_a = 25^\circ\text{C}$)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Trigger LED Current	I_{FT}	$V_T = 6\text{V}$	—	—	3	mA
Inhibit Voltage	V_{IH}	$I_F = \text{Rated } I_{FT}$	—	—	50	V
Leakage in Inhibited State	I_{IH}	$I_F = \text{Rated } I_{FT}$ $V_T = \text{Rated } V_{DRM}$	—	200	600	μA
Capacitance (Input to Output)	C_S	$V_S = 0, f = 1\text{MHz}$	—	0.8	—	pF
Isolation Resistance	R_S	$V_S = 500\text{V}, \text{R.H.} \leq 60\%$	5×10^{10}	10^{14}	—	Ω
Isolation Voltage	BV_S	AC, 1 minute	2500	—	—	V_{rms}
		AC, 1 second, in oil	—	5000	—	
		DC, 1 minute, in oil	—	5000	—	Vdc

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- Gallium arsenide (GaAs) is a substance used in the products described in this document. GaAs dust and fumes are toxic. Do not break, cut or pulverize the product, or use chemicals to dissolve them. When disposing of the products, follow the appropriate regulations. Do not dispose of the products with other industrial waste or with domestic garbage.
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