

TENTATIVE                    TOSHIBA PHOTOCOUPLER   GaAlAs IRED & PHOTO-DIODE ARRAY

TLP191B

TELECOMMUNICATION  
PROGRAMMABLE CONTROLLERS  
MOS GATE DRIVER  
MOS FET GATE DRIVER

The TOSHIBA MINI FLAT COUPLER TLP191B is a small outline coupler, suitable for surface mount assembly.  
The TLP191B consists of a GaAlAs light emitting diode, optically coupled to a series connected photo diode array with shunt resistor which is suitable for MOS FET gate drive.

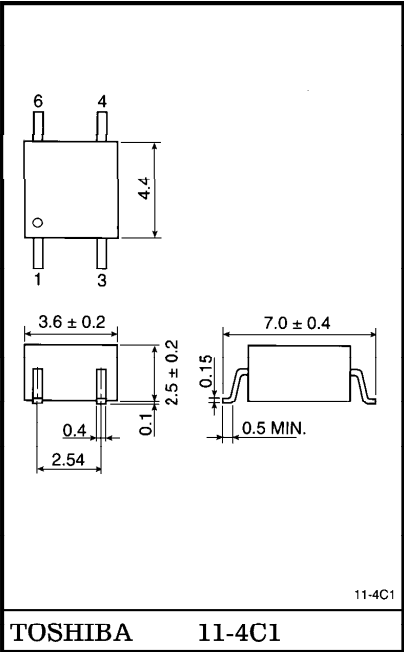
- Open Voltage        : 7.0V (MIN.)
- Short Current        : 24.0μA (MIN.)
- Isolation Voltage : 2500Vrms (MIN.)
- UL Recognized     : UL1577, File No. E67349

MAXIMUM RATINGS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	RATING	UNIT
LED	Forward Current	IF	50	mA
	Forward Current Derating (Ta ≥ 25°C)	ΔIF / °C	-0.5	mA / °C
	Pulse Forward Current (100μs pulse 100pps)	IFP	1	A
	Reverse Voltage	VR	3	V
	Junction Temperature	Tj	125	°C
DETECTOR	Forward Current	IFD	50	μA
	Reverse Voltage	VRD	10	V
	Junction Temperature	Tj	125	°C
Storage Temperature Range		Tstg	-55~125	°C
Operating Temperature Range		Topr	-40~85	°C
Lead Soldering Temperature (10s)		Tsol	260	°C
Isolation Voltage (AC, 1 min., R.H. ≤ 60%) (Note)		BVS	2500	Vrms

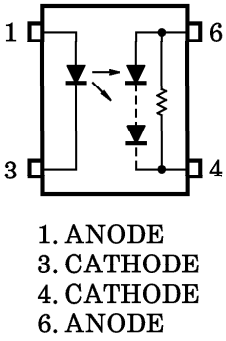
(Note) Device considered a two terminal device : Pins 1 and 3 shorted together and Pins 4 and 6 shorted together.

Unit in mm



Weight : 0.09g

PIN CONFIGURATION (TOP VIEW)



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## RECOMMENDED OPERATING CONDITIONS

CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT
Forward Current	$I_F$	—	20	25	mA
Operating Temperature	$T_{opr}$	-25	—	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	$\mu\text{A}$
	Capacitance	$C_T$	$V = 0, f = 1\text{MHz}$	—	30	60	pF
DETECTOR	Forward Voltage	$V_{FD}$	$I_{FD} = 10\mu\text{A}$	—	7	—	V
	Reverse Current	$I_{RD}$	$V_{RD} = 10\text{V}$	—	7	—	$\mu\text{A}$
	Capacitance (Anode to Cathode)	$C_{TD}$	$V = 0, f = 1\text{MHz}$	—	—	—	pF

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

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Open Voltage	$V_{OC}$	$I_F = 20\text{mA}$	7	8	—	V
Short Current	$I_{SC}$	$I_F = 20\text{mA}$	24	40	—	$\mu\text{A}$

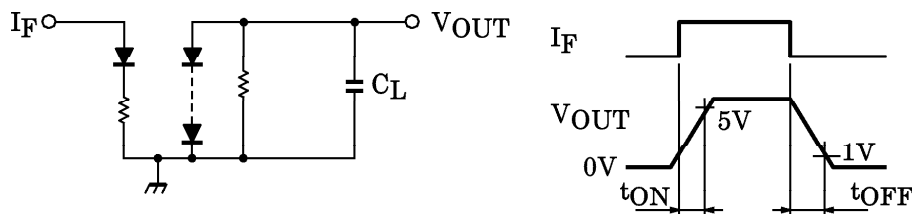
ISOLATION CHARACTERISTICS ( $T_a = 25^\circ\text{C}$ )

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Capacitance Input to Output	$C_S$	$V_S = 0, f = 1\text{MHz}$	—	0.8	—	pF
Isolation Resistance	$R_S$	$V_S = 500\text{V}, \text{R.H.} \leq 60\%$	$5 \times 10^{10}$	$10^{14}$	—	$\Omega$
Isolation Voltage	$BV_S$	AC, 1 minute	2500	—	—	$V_{rms}$
		AC, 1 second in oil	—	5000	—	
		DC, 1 minute in oil	—	5000	—	Vdc

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

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Turn-on Time	$t_{ON}$	$I_F = 20\text{mA}, C_L = 1000\text{pF}$ (Fig.1)	—	0.2	—	ms
Turn-off Time	$t_{OFF}$		—	3	—	ms

Fig.1 SWITCHING TIME TEST CIRCUIT



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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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