

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.

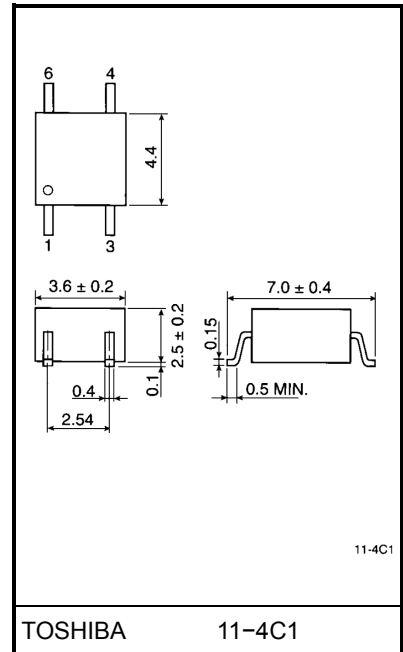
- Open voltage: 7.0V(min.)
- Short current: 24.0 μ A (min.)
- Isolation voltage: 2500 Vrms (min.)
- UL recognized: UL1577,file no.E67349

Maximum Ratings (Ta = 25°C)

Characteristic		Symbol	Rating	Unit
LED	Forward current	I_F	50	mA
	Forward current derating (Ta \geq 25°C)	$\Delta I_F / ^\circ\text{C}$	-0.5	mA / °C
	Pulse forward current (100 μ s pulse, 100 pps)	I_{FP}	1	A
	Reverse voltage	V_R	3	V
	Junction temperature	T_j	125	°C
Detector	Forward current	I_{FD}	50	μ A
	Reverse voltage	V_{RD}	10	V
	Junction temperature	T_j	125	°C
Storage temperature range		T_{stg}	-55~125	°C
Operating temperature range		T_{opr}	-40~80	°C
Lead soldering temperature (10s)		T_{sol}	260	°C
Isolation voltage (AC, 1 min., R.H. \leq 60%) (Note)		BV_S	2500	Vrms

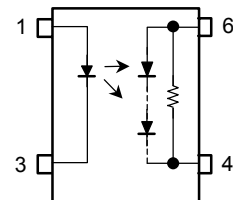
(Note) Device considered a two terminal device: Pins 1 and 3 shorted together and pins 4 and 6 shorted together.

Unit in mm



Weight: 0.09 g

Pin Configuration(top view)



- 1 . Anode
- 3 . Cathode
- 4 . Cathode
- 6 . Anode

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 (Ta = 25°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	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	—	μA
	Capacitance (anode to cathode)	C_{TD}	$V = 0, f = 1 \text{ MHz}$	—	—	—	pF

Coupled Electrical Characteristics (Ta = 25°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	—	μA

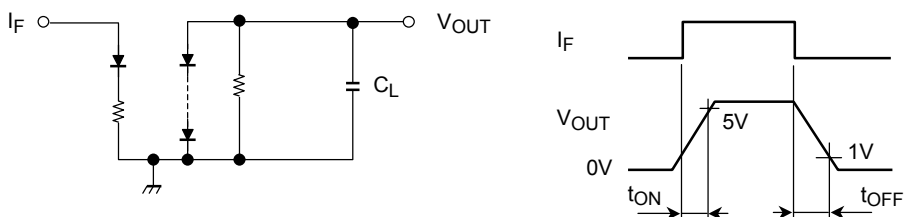
Isolation Characteristics (Ta = 25°C)

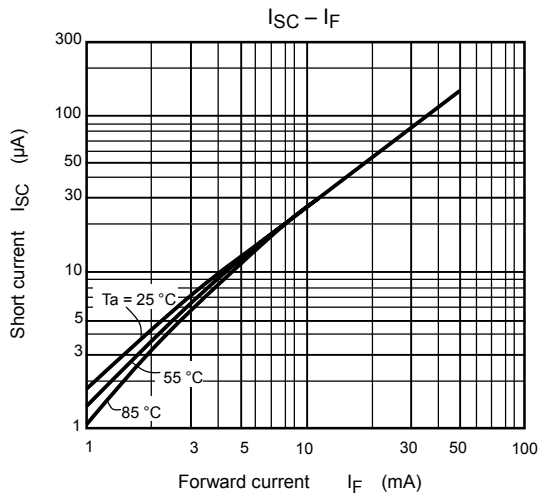
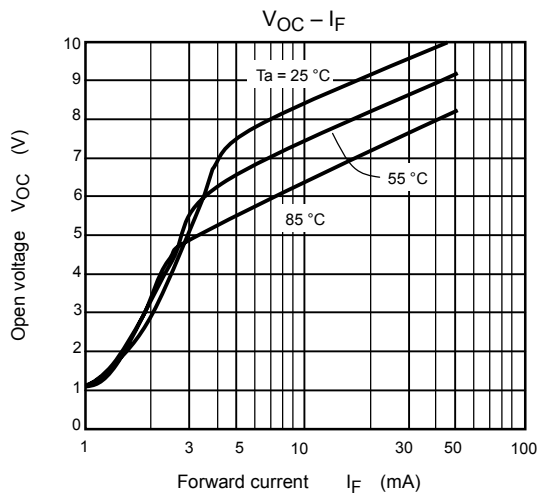
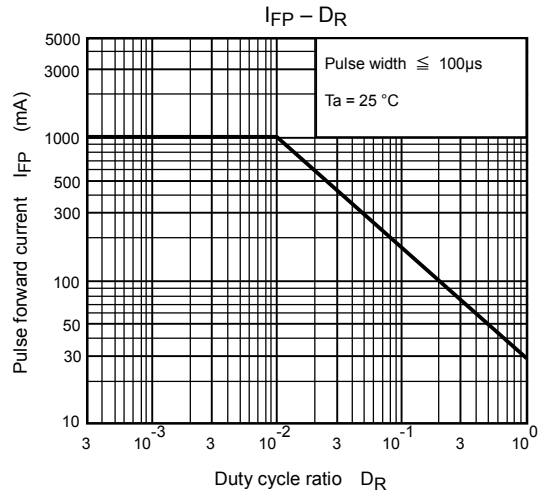
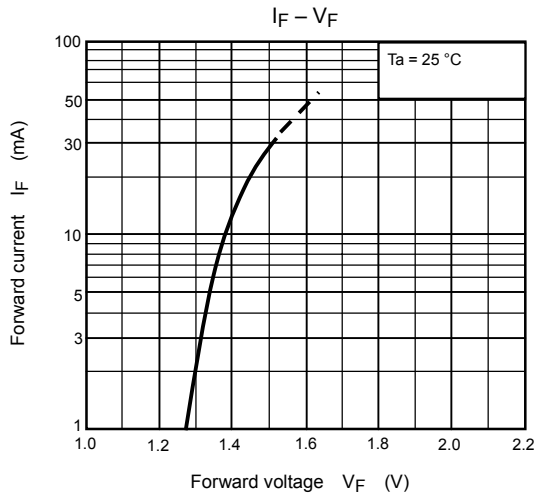
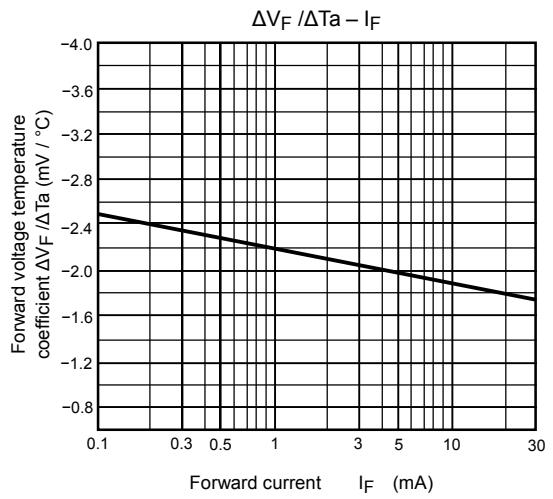
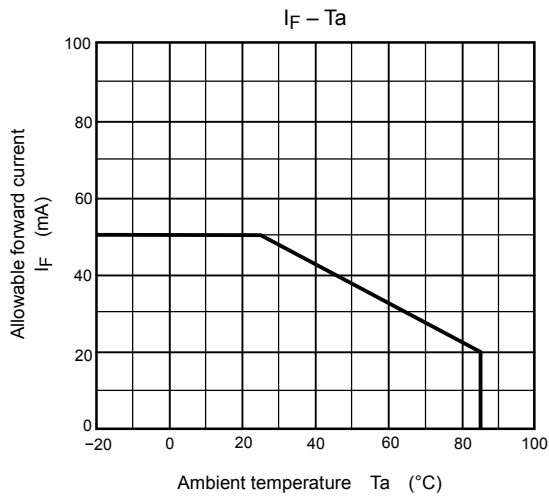
Characteristic	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Capacitance input to output	C_S	$V_S = 0, f = 1 \text{ MHz}$	—	0.8	—	pF
Isolation resistance	R_S	$V_S = 500 \text{ V}, \text{R.H.} \leq 60\%$	5×10^{10}	10^{14}	—	Ω
Isolation voltage	BV_S	AC, 1 minute	2500	—	—	Vrms
		AC, 1 second in oil	—	5000	—	
		DC, 1 minute in oil	—	5000	—	Vdc

Switching Characteristics (Ta = 25°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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