

TLP591B

TELECOMMUNICATION
 PROGRAMMABLE CONTROLLERS
 MOS GATE DRIVER
 MOS FET GATE DRIVER

The TOSHIBA TLP591B consists of an aluminum gallium arsenide infrared emitting diode optically coupled to a series connected photo-diode array in a six lead plastic DIP package.

TLP591B is suitable for MOS FET Gate Driver.

TLP591B has an internal shunt resistor to optimize switching speed.

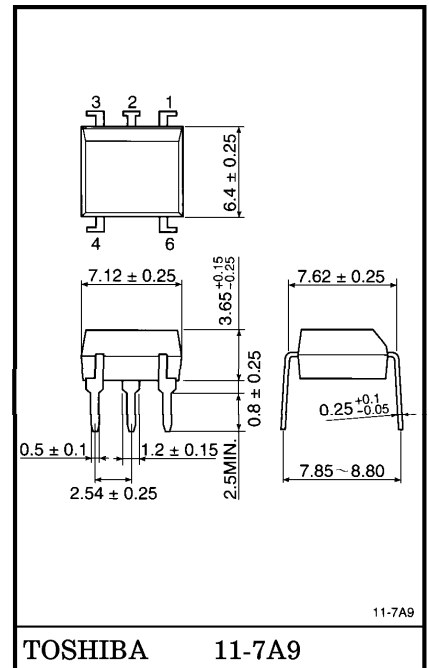
- UL Recognized : UL1577, File No. E67349

MAXIMUM RATINGS (Ta = 25°C)

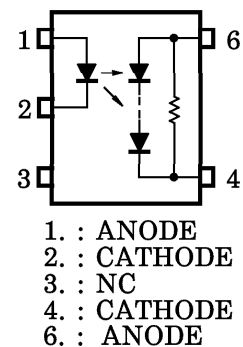
CHARACTERISTIC		SYMBOL	RATING	UNIT
LED	Forward Current	I_F	50	mA
	Forward Current Derating (Ta ≥ 25°C)	$\Delta I_F / ^\circ C$	-0.5	mA / °C
	Pulse Forward Current (100µs pulse, 100pps)	I_{FP}	1	A
	Reverse Voltage	V_R	3	V
	Junction Temperature	T_j	125	°C
DETECTOR	Forward Current	I_{FD}	50	µA
	Reverse Voltage	V_{RD}	10	V
	Junction Temperature	T_j	125	°C
Storage Temperature Range		T_{stg}	-55~125	°C
Operating Temperature Range		T_{opr}	-40~85	°C
Lead Soldering Temperature (10sec.)		T_{sol}	260	°C
Isolation Voltage (AC, 1 min., R.H. ≤ 60%) (Note 1)		BV_S	2500	Vrms

(Note 1) Device considered a two terminal device : Pins 1, 2 and 3 shorted together, and pins 4 and 6 shorted together.

Unit in mm



PIN CONFIGURATION (TOP VIEW)



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

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	—	μA

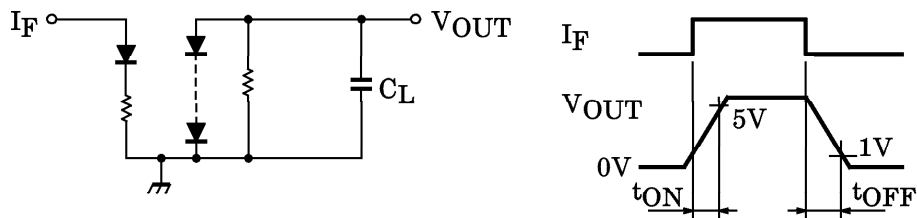
ISOLATION CHARACTERISTICS ($T_a = 25^\circ\text{C}$)

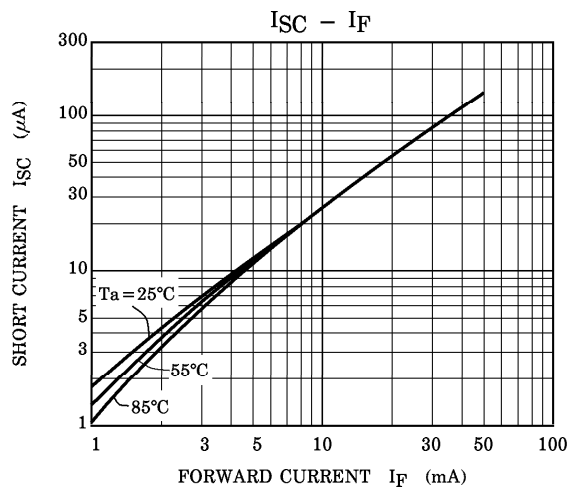
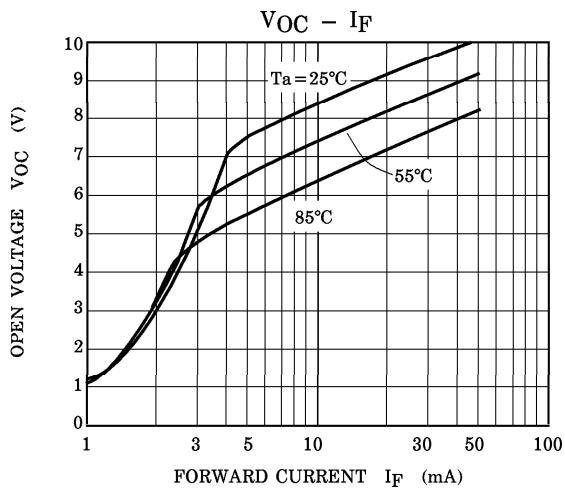
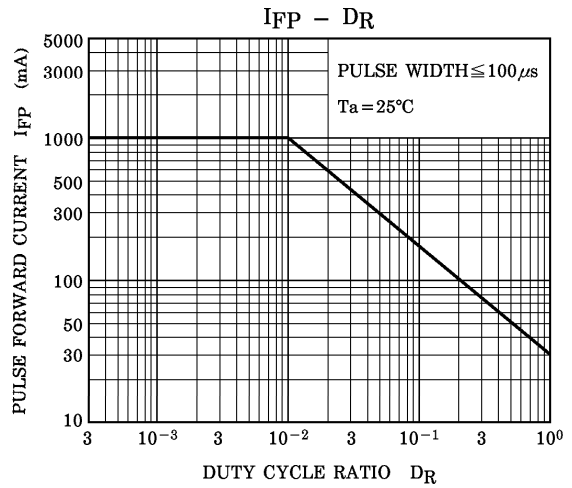
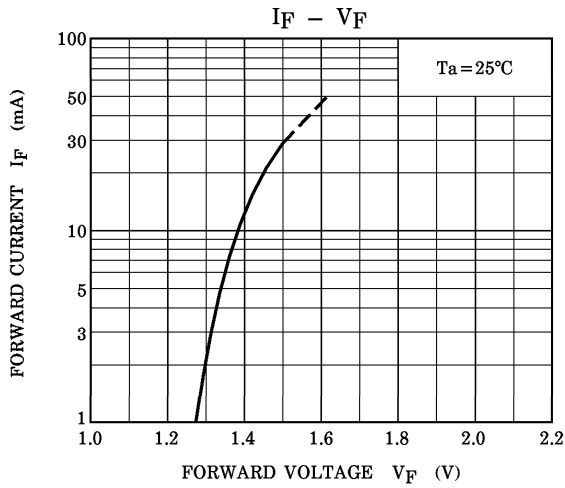
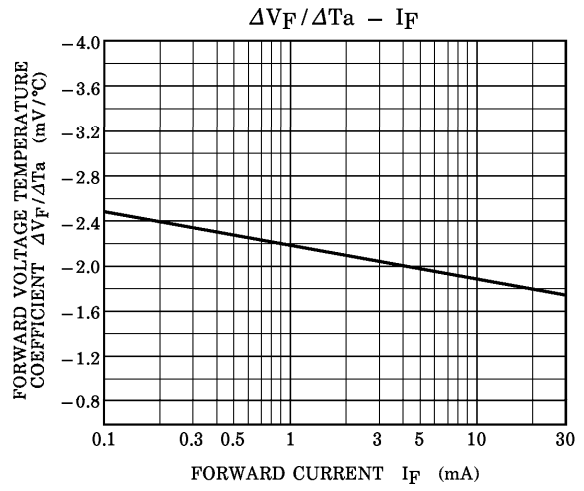
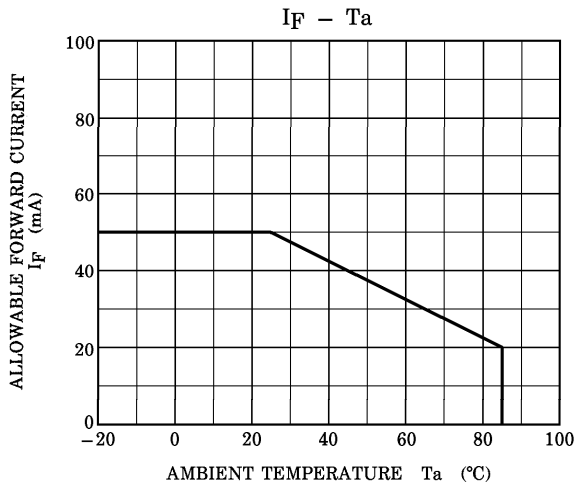
CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Capacitance (Input to Output)	C_S	$V_S = 0, f = 1\text{MHz}$	—	0.8	—	pF
Isolation Resistance	R_S	$V_S = 500\text{V}$	5×10^{10}	10^{14}	—	
Isolation Voltage	BV_S	AC, 1 minute	2500	—	—	V_{rms}
		AC, 1 second, in oil	—	5000	—	
		DC, 1 minute, in oil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

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





RESTRICTIONS ON PRODUCT USE

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