

(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.

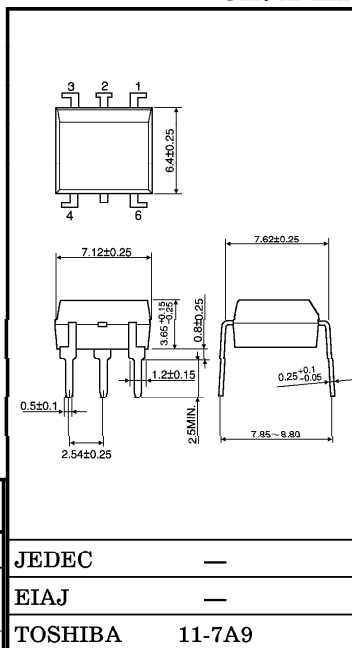
- UL Recognized : UL1577, File No. E67439

MAXIMUM RATINGS (Ta = 25°C)

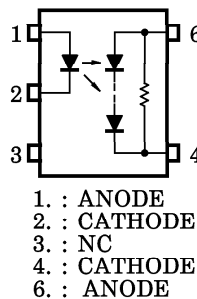
CHARACTERISTIC		SYMBOL	RATING	UNIT
LED	Forward Current	I_F	50	mA
	Forward Current Derating (Ta ≥ 25°C)	$\Delta I_F / ^\circ\text{C}$	-0.5	mA / °C
	Pulse Forward Current (100μs pulse, 100pps)	I_{FP}	1	A
	Reverse Voltage	V_R	3	V
	Junction Temperature	T_j	125	°C
DETECTOR	Forward Current	I_{FD}	50	μA
	Reverse 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)



© The information contained herein is presented only as a guide for the applications of our products. No responsibility is assumed by TOSHIBA CORPORATION for any infringements of intellectual property or other rights of the third parties which may result from its use. No license is granted by implication or otherwise under any intellectual property or other rights of TOSHIBA CORPORATION or others.

© These TOSHIBA products are intended for use in general commercial applications (office equipment, communication equipment, measuring equipment, domestic appliances, etc.), please make sure that you consult with us before you use these TOSHIBA products in equipment which requires extraordinarily high quality and/or reliability, and in equipment which may involve life threatening or critical application, including but not limited to such uses as atomic energy control, airplane or spaceship instrumentation, traffic signals, medical instrumentation, combustion control, all types of safety devices, etc. TOSHIBA cannot accept and hereby disclaims liability for any damage which may occur in case the TOSHIBA products are used in such equipment or applications without prior consultation with TOSHIBA.

(TLP591B)

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 =10mA	1.2	1.4	1.7	V
	Reverse Current	I _R	V _R =3V	—	—	10	μA
	Capacitance	C _T	V=0, f=1MHz	—	30	60	pF
DETECTOR	Forward Voltage	V _{FD}	I _{FD} =10μA	—	7	—	V
	Reverse Current	I _{RD}	V _{RD} =10V	—	7	—	μA
	Capacitance (Anode to Cathode)	C _{TD}	V=0, f=1MHz	—	—	—	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

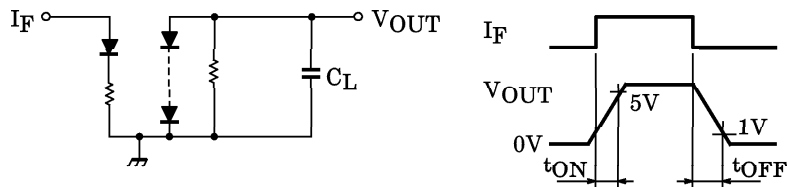
ISOLATION CHARACTERISTICS ($T_a = 25^\circ\text{C}$)

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	—	—	Vrms
		AC, 1 second	—	5000	—	
		DC, 1 minute	—	5000	—	Vdc

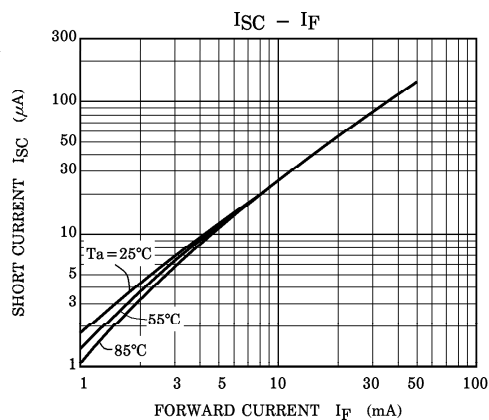
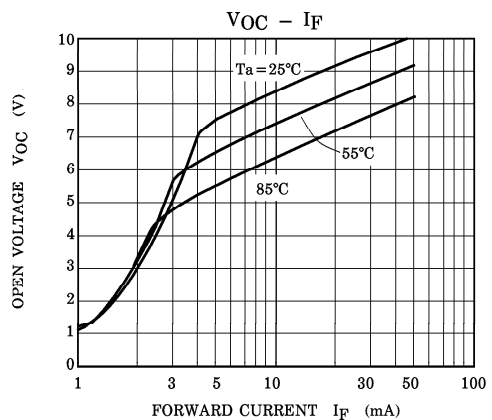
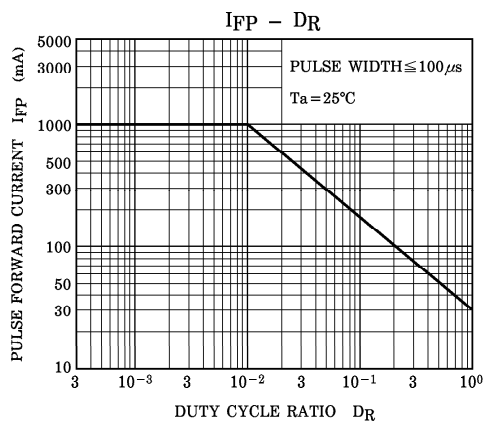
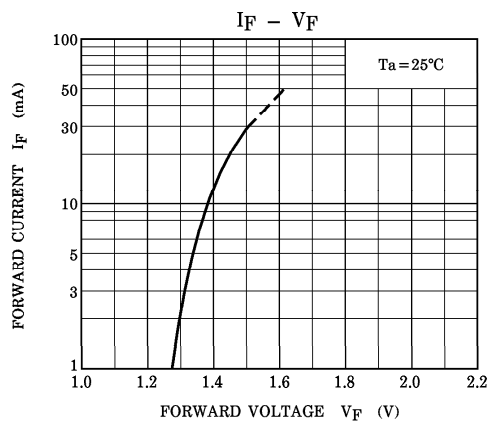
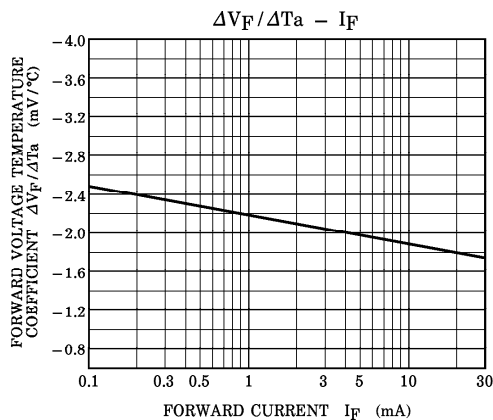
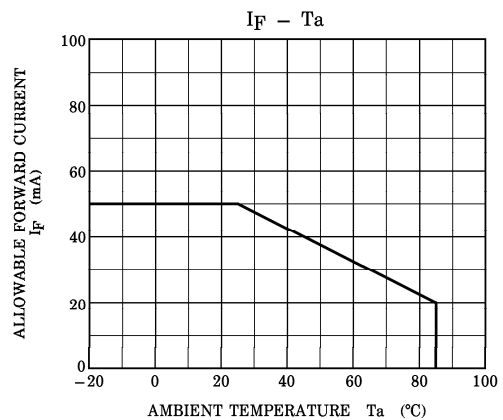
SWITCHING CHARACTERISTICS ($T_a = 25^\circ\text{C}$)

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



(TLP591B)



TLP591B - 3*

1996 - 4 - 8

TOSHIBA CORPORATION