

TLP572

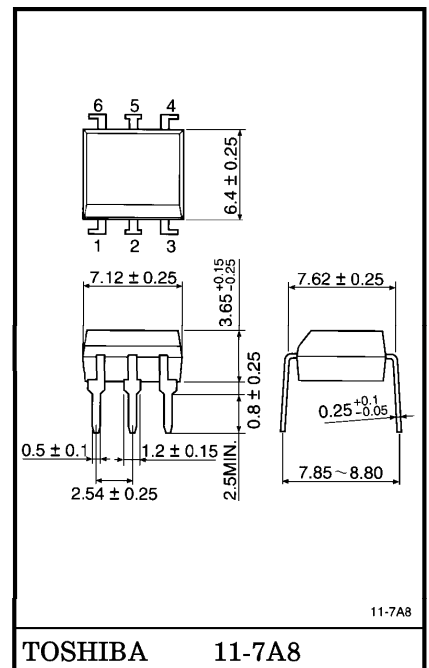
PROGRAMMABLE CONTROLLERS
 AC/DC-INPUT MODULE
 SOLID STATE RELAY

The TOSHIBA TLP572 consists of a darlington connected photo-transistor optically coupled to a gallium arsenide infrared emitting diode in a six lead plastic DIP package.

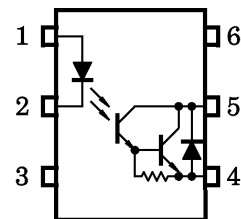
TLP572 is no-base internal connection for high-EMI environments.

- Collector-Emitter Voltage : 55V (Min.)
- Current Transfer Ratio : 1000% (Min.)
- Isolation Voltage : 2500Vrms (Min.)
- UL Recognized : UL1577, File No. E67349

Unit in mm



PIN CONFIGURATIONS (TOP VIEW)



- 1 : ANODE
- 2 : CATHODE
- 3 : NC
- 4 : EMITTER
- 5 : COLLECTOR
- 6 : NC

MAXIMUM RATINGS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	RATING	UNIT
LED	Forward Current	I _F	50	mA
	Forward Current Derating (Ta ≥ 53°C)	I _F /°C	-0.7	mA/°C
	Peak Forward Current (100μs pulse, 100pps)	I _{FP}	1	A
	Reverse Voltage	V _R	5	V
	Junction Temperature	T _j	125	°C
DETECTOR	Collector-Emitter Voltage	V _{CEO}	55	V
	Emitter-Collector Voltage	V _{ECO}	0.3	V
	Collector Current	I _C	150 / -10	mA
	Power Dissipation	P _C	150	mW
	Power Dissipation Derating (Ta ≥ 25°C)	P _C /°C	-1.5	mW/°C
	Junction Temperature	T _j	125	°C
Storage Temperature Range		T _{stg}	-55~125	°C
Operating Temperature Range		T _{opr}	-30~85	°C
Lead Soldering Temperature (10s)		T _{sol}	260	°C
Total Package Power Dissipation		P _T	200	mW
Total Package Power Dissipation Derating (Ta ≥ 25°C)		P _D /°C	-2.6	mW/°C
Isolation Voltage (AC, 1min., R.H. ≤ 60%) (Note 1)		BV _S	2500	V _{rms}

(Note 1) Device considered a two terminal device : Pins 1, 2 and 3 shorted together and pins 4, 5 and 6 shorted together.

RECOMMEND OPERATING CONDITIONS

CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT
Supply Voltage	V _{CC}	—	12	24	V
Forward Current	I _F	—	—	25	mA
Collector Current	I _C	—	—	40	mA
Operating Temperature	T _{opr}	-30	—	85	°C

INDIVIDUAL ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
LED	Forward Voltage	V_F	$I_F = 10\text{mA}$	1.0	1.15	1.3	V
	Reverse Current	I_R	$V_R = 5\text{V}$	—	—	10	μA
	Capacitance	C_T	$V = 0, f = 1\text{MHz}$	—	30	—	pF
DETECTOR	Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C = 1\text{mA}$	55	—	—	V
	Emitter-Collector Breakdown Voltage	$V_{(BR)ECO}$	$I_E = 0.1\text{mA}$	0.3	—	—	V
	Collector Dark Current	I_{CEO}	$V_{CE} = 24\text{V}$	—	10	200	nA
			$V_{CE} = 24\text{V}, T_a = 85^\circ\text{C}$	—	0.5	10	μA
Capacitance (Collector to Emitter)	C_{CE}	$V = 0, f = 1\text{MHz}$	—	10	—	pF	

COUPLED ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Current Transfer Ratio	I_C / I_F	$I_F = 1\text{mA}, V_{CE} = 1.2\text{V}$	1000	2000	—	%
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 100\text{mA}, I_F = 10\text{mA}$	0.3	—	1.2	V

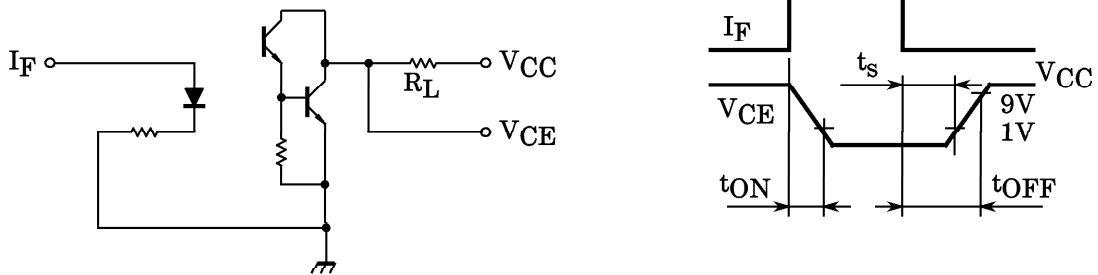
ISOLATION CHARACTERISTICS (Ta = 25°C)

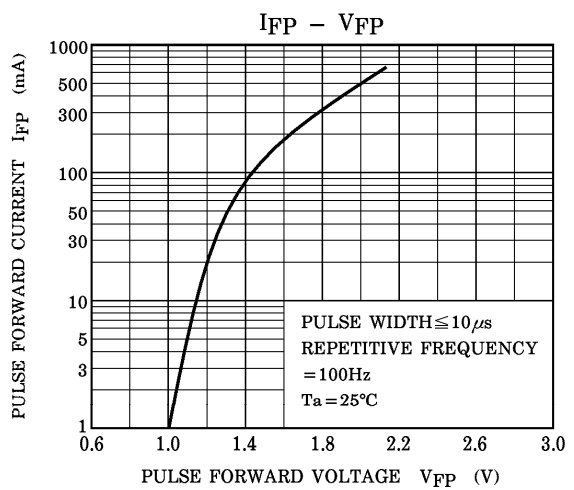
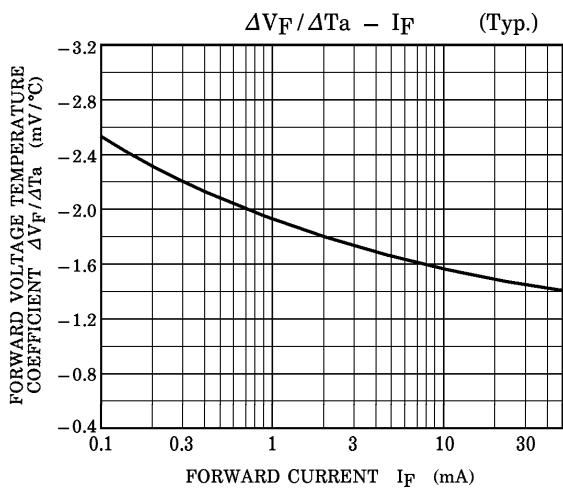
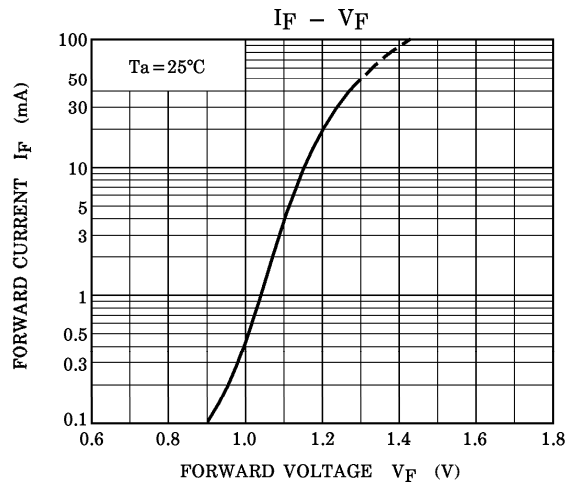
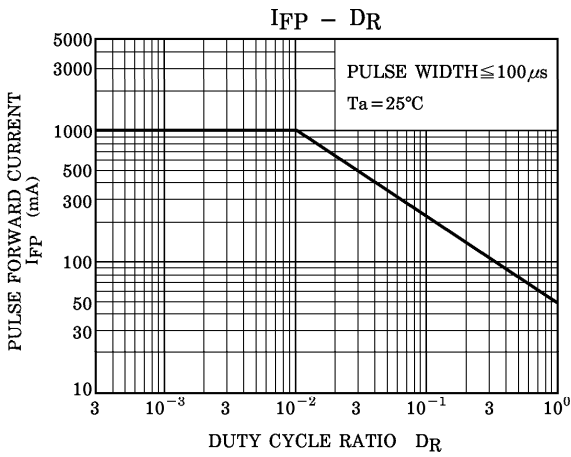
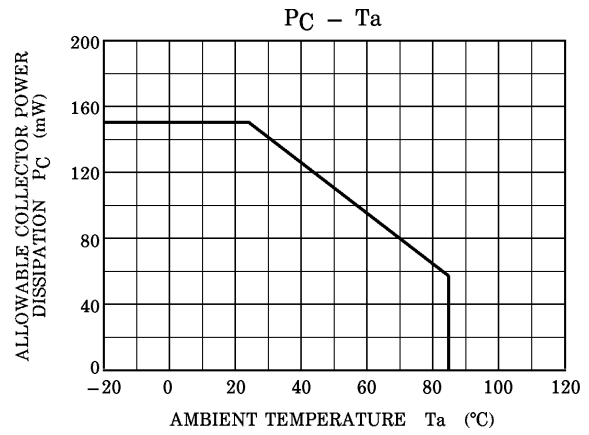
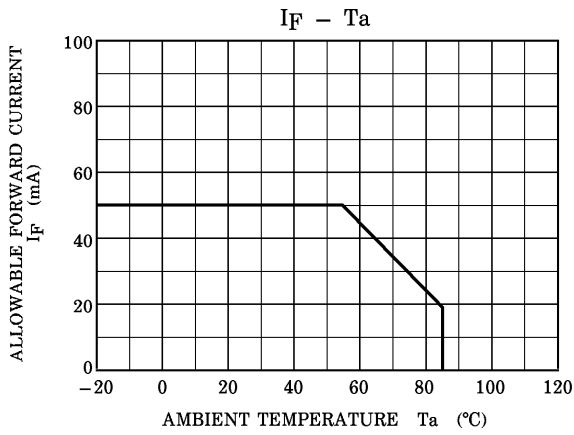
CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Capacitance (Input to Output)	C_S	$V_S = 0, f = 1\text{MHz}$	—	0.8	—	pF
Isolation Resistance	R_S	$V_S = 500\text{V}, R.H. \leq 60\%$	5×10^{10}	10^{14}	—	Ω
AC Isolation Voltage	BV_S	AC, 1 minute	2500	—	—	V_{rms}

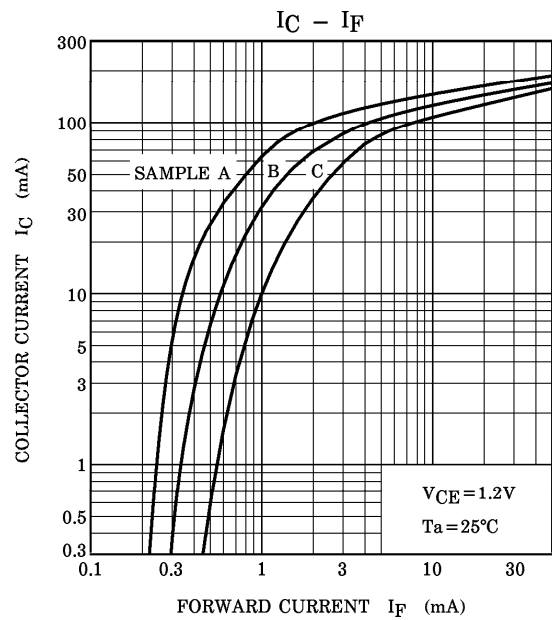
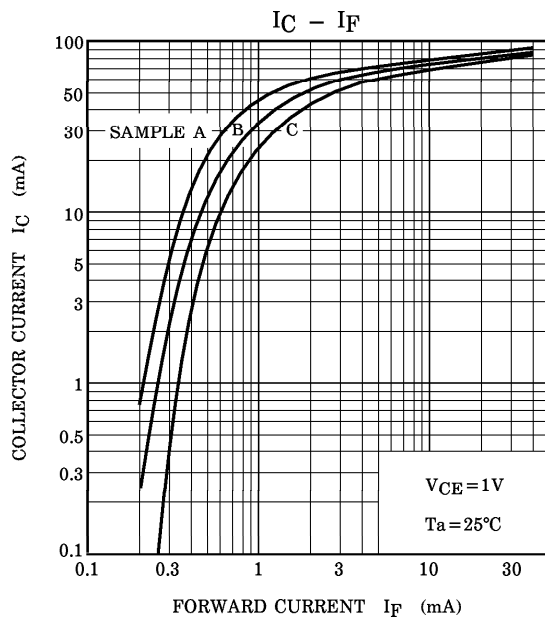
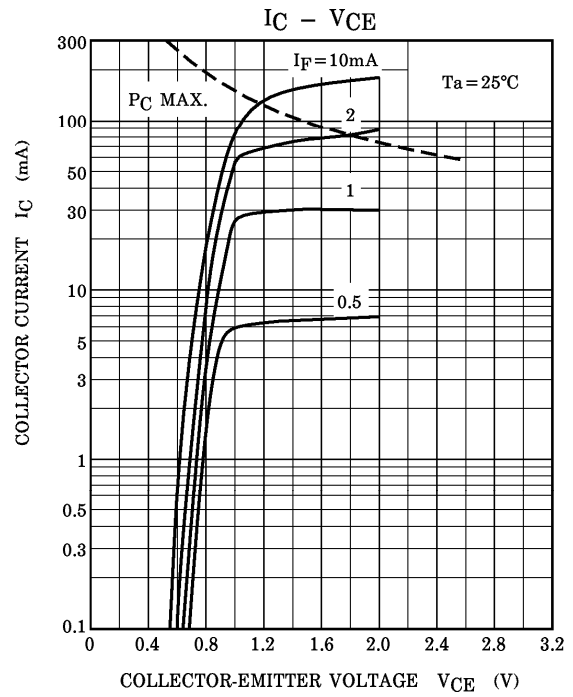
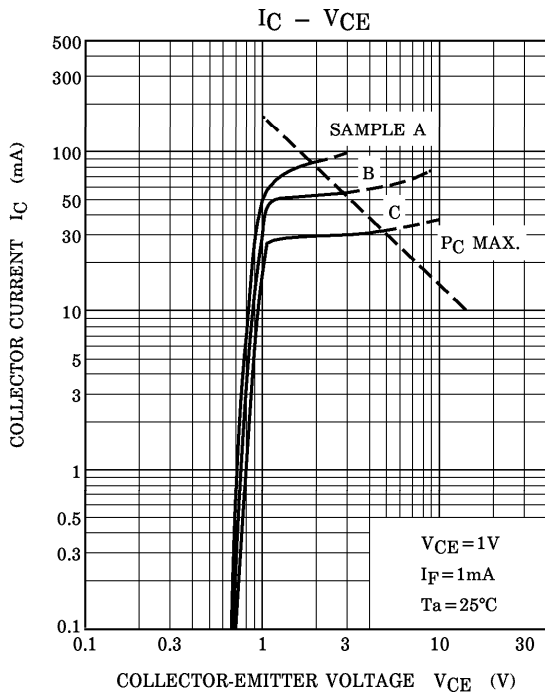
SWITCHING CHARACTERISTICS (Ta = 25°C)

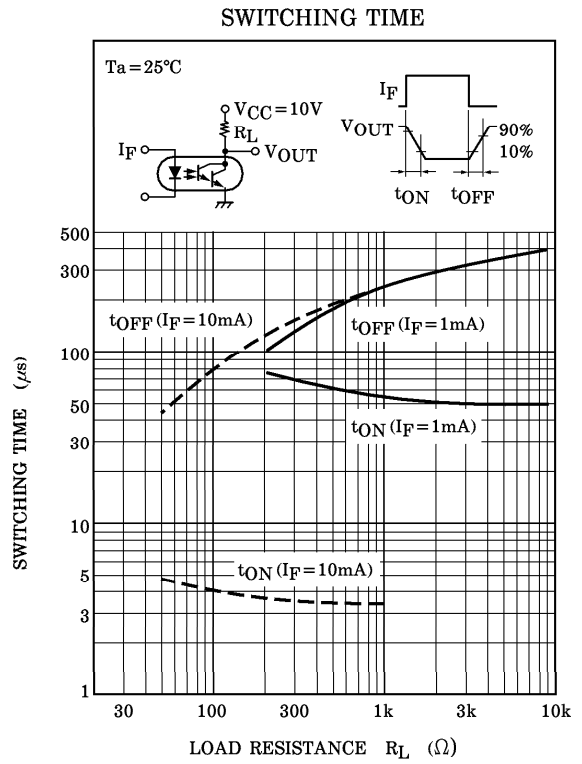
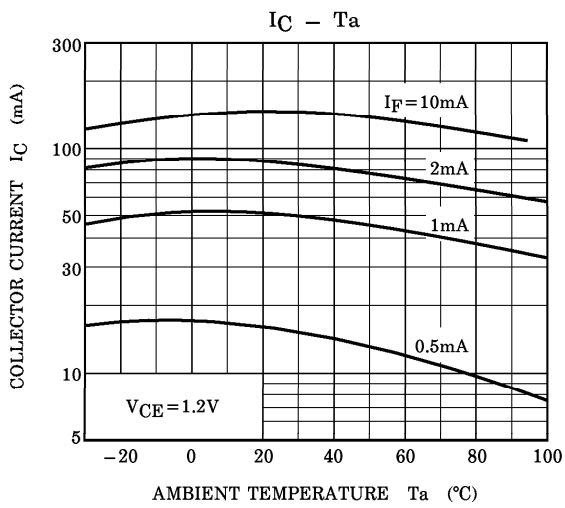
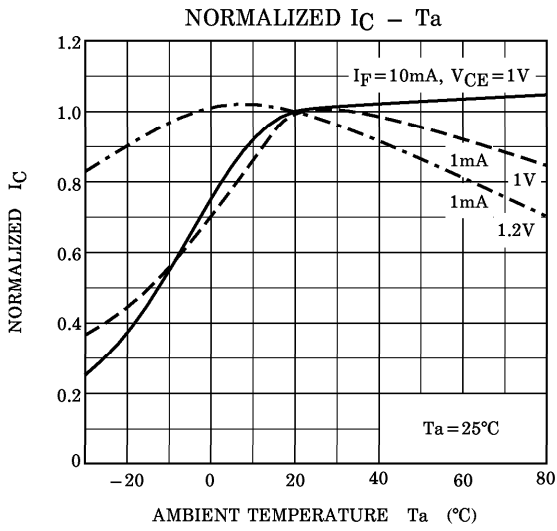
CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Rise Time	t_r	$V_{CC} = 10V, I_C = 10mA$ $R_L = 100\Omega$	—	—	—	μS
Fall Time	t_f		—	—	—	
Turn-on Time	t_{on}		—	—	—	
Turn-off Time	t_{off}		—	—	—	
Turn-on Time	t_{ON}	$R_L = 180\Omega$ (Fig.1) $V_{CC} = 10V, I_F = 10mA$	—	3	—	μS
Storage Time	t_s		—	—	—	
Turn-off Time	t_{OFF}		—	30	—	

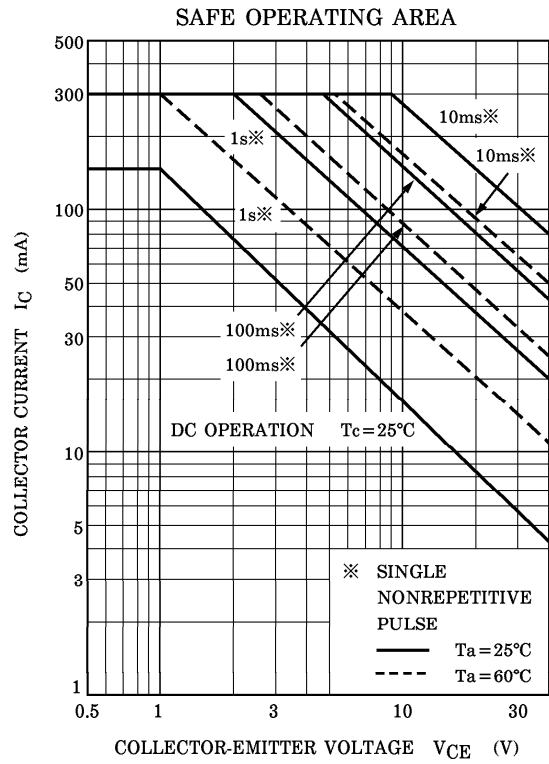
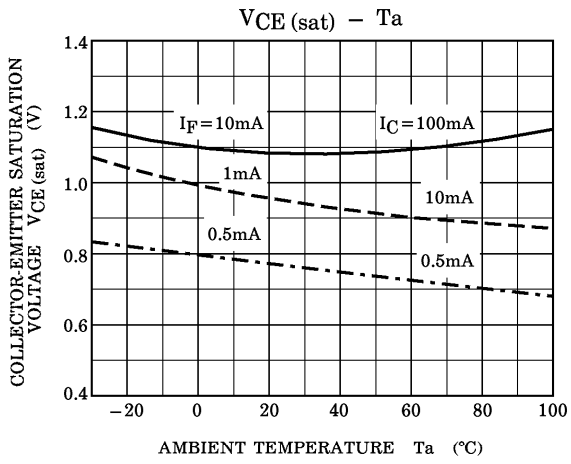
Fig.1 SWITCHING TIME TEST CIRCUIT











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