

TOSHIBA TRANSISTOR SILICON NPN TRIPLE DIFFUSED TYPE

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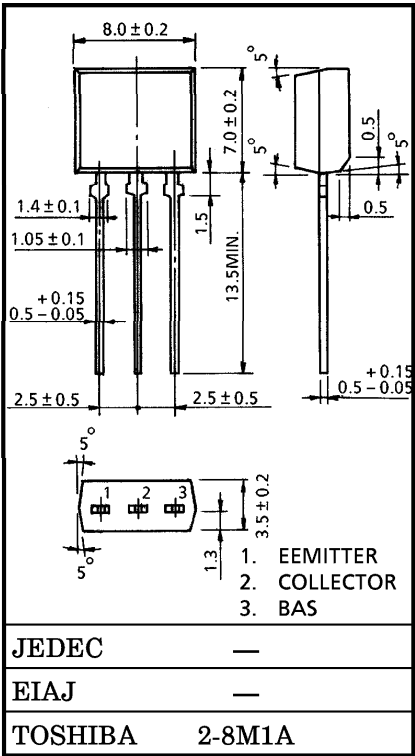
Unit in mm

SWITCHING REGULATOR AND HIGH VOLTAGE SWITCHING APPLICATIONS

- Excellent Switching Times ( $I_C = 0.3\text{ A}$ )  
:  $t_r = 0.7\text{ }\mu\text{s}$  (Max.),  $t_f = 0.5\text{ }\mu\text{s}$  (Max.)
- High Collector Breakdown Voltage :  $V_{CEO} = 800\text{ V}$
- High Speed DC-DC Converter Applications

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

CHARACTERISTIC		SYMBOL	RATING	UNIT
Collector-Base Voltage		$V_{CBO}$	900	V
Collector-Emitter Voltage		$V_{CEO}$	800	V
Emitter-Base Voltage		$V_{EBO}$	7	V
Collector Current	DC	$I_C$	0.8	A
	Pulse	$I_{CP}$	1.5	
Base Current		$I_B$	0.4	A
Collector Power Dissipation		$P_C$	1.3	W
Junction Temperature		$T_j$	150	$^\circ\text{C}$
Storage Temperature Range		$T_{stg}$	$-55\sim 150$	$^\circ\text{C}$

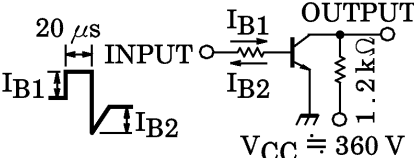


Weight : 0.55 g (Typ.)

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## ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Collector Cut-off Current		$I_{CBO}$	$V_{CB} = 720 \text{ V}, I_E = 0$	—	—	100	$\mu\text{A}$
Emitter Cut-off Current		$I_{EBO}$	$V_{EB} = 7 \text{ V}, I_C = 0$	—	—	1	mA
Collector-Base Breakdown Voltage		$V_{(BR) CBO}$	$I_C = 1 \text{ mA}, I_E = 0$	900	—	—	V
Collector-Emitter Breakdown Voltage		$V_{(BR) CEO}$	$I_C = 10 \text{ mA}, I_B = 0$	800	—	—	V
DC Current Gain		$h_{FE} (1)$	$V_{CE} = 5 \text{ V}, I_C = 1 \text{ mA}$	10	—	—	
		$h_{FE} (2)$	$V_{CE} = 5 \text{ V}, I_C = 0.08 \text{ A}$	15	—	60	
Collector-Emitter Saturation Voltage		$V_{CE(sat)}$	$I_C = 0.3 \text{ A}, I_B = 0.06 \text{ A}$	—	—	1.0	V
Base-Emitter Saturation Voltage		$V_{BE(sat)}$	$I_C = 0.3 \text{ A}, I_B = 0.06 \text{ A}$	—	—	1.2	V
Switching Time	Rise Time	$t_r$	 <p><math>I_{B1} = 0.06 \text{ A}, I_{B2} = -0.12 \text{ A}</math> DUTY CYCLE <math>\leq 1\%</math></p>	—	—	0.7	$\mu\text{s}$
	Storage Time	$t_{stg}$		—	—	4.5	
	Fall Time	$t_f$		—	—	0.5	