

TOSHIBA TRANSISTOR SILICON PNP TRIPLE DIFFUSED TYPE

2SB1411

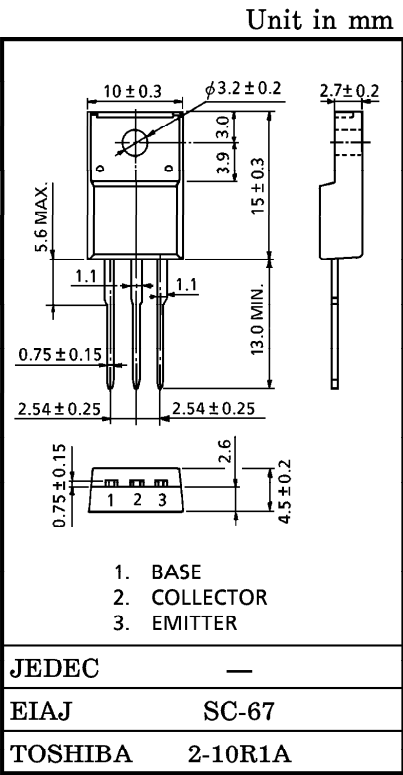
SWITCHING APPLICATIONS

HAMMER DRIVE, PULSE MOTOR DRIVE APPLICATIONS

- High DC Current Gain : $h_{FE}=1500$ (Min.)
($V_{CE} = -3V$, $I_C = -1A$)
- Low Saturation Voltage: $V_{CE(sat)} = -1.5V$ (Max.) ($I_C = -1A$)

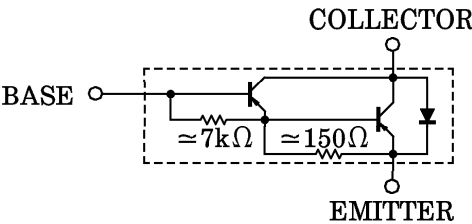
MAXIMUM RATINGS ($T_a = 25^{\circ}C$)

CHARACTERISTIC		SYMBOL	RATING	UNIT
Collector-Base Voltage		V_{CBO}	-100	V
Collector-Emitter Voltage		V_{CEO}	-100	V
Emitter-Base Voltage		V_{EBO}	-7	V
Collector Current	DC	I_C	-2	A
	Peak	I_{CP}	-3	
Base Current		I_B	-0.5	A
Collector Power Dissipation	$T_a = 25^{\circ}C$	P_C	2.0	W
	$T_c = 25^{\circ}C$		20	
Junction Temperature		T_j	150	$^{\circ}C$
Storage Temperature Range		T_{stg}	-55~150	$^{\circ}C$



Weight : 1.7g

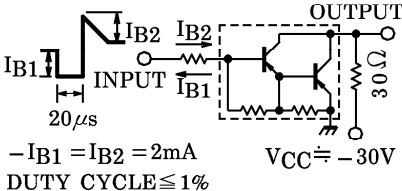
EQUIVALENT CIRCUIT



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ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Collector Cut-off Current		ICBO	V _{CB} = -100V, I _E = 0	—	—	-100	μA
Emitter Cut-off Current		IEBO	V _{EB} = -6V, I _C = 0	—	—	-2.5	mA
Collector-Emitter Breakdown Voltage		V (BR) CEO	I _C = -30mA, I _B = 0	-100	—	—	V
DC Current Gain	h _{FE} (1)		V _{CE} = -3V, I _C = -1A	1500	—	15000	
	h _{FE} (2)		V _{CE} = -3V, I _C = -2A	1000	—	—	
Collector-Emitter Saturation Voltage	V _{CE} (sat) (1)		I _C = -1A, I _B = -2mA	—	—	-1.5	V
	V _{CE} (sat) (2)		I _C = -2A, I _B = -8mA	—	—	-2.5	
Base-Emitter Saturation Voltage		V _{BE} (sat)	I _C = -1A, I _B = -2mA	—	—	-2.2	V
Switching Time	Turn-on Time	t _{on}	 -I _{B1} = I _{B2} = 2mA DUTY CYCLE ≤ 1% V _{CC} = -30V	—	1.0	—	μs
	Storage Time	t _{stg}		—	3.0	—	
	Fall Time	t _f		—	2.0	—	

