

TOSHIBA TRANSISTOR SILICON PNP TRIPLE DIFFUSED TYPE

2SB1411

SWITCHING APPLICATIONS

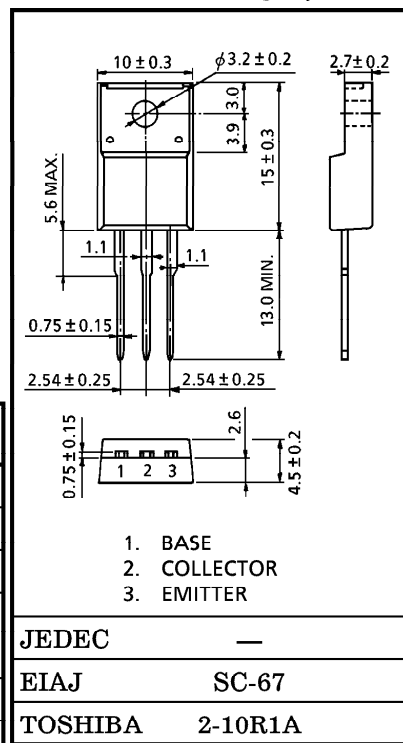
HAMMER DRIVE, PULSE MOTOR DRIVE APPLICATIONS

- 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 ($T_a = 25^\circ C$)

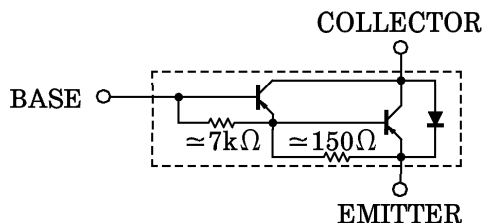
CHARACTERISTIC		SYMBOL	RATING	UNIT
Collector-Base Voltage		V_{CBO}	-100	V
Collector-Emitter Voltage		V_{CEO}	-100	V
Emitter-Base Voltage		V_{EBO}	-7	V
Collector Current	DC	I_C	-2	A
	Peak	I_{CP}	-3	
Base Current		I_B	-0.5	A
Collector Power Dissipation	$T_a = 25^\circ C$	P_C	2.0	W
	$T_c = 25^\circ C$	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

Unit in mm



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		I_{CBO}	$V_{CB} = -100V, I_E = 0$	—	—	-100	μA
Emitter Cut-off Current		I_{EBO}	$V_{EB} = -6V, I_C = 0$	—	—	-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}	<p> $-I_{B1} = I_{B2} = 2mA$ DUTY CYCLE $\leq 1\%$ $V_{CC} = -30V$ </p>	—	1.0	—	μs
	Storage Time	t_{stg}		—	3.0	—	
	Fall Time	t_f		—	2.0	—	

