

TOSHIBA TRANSISTOR SILICON PNP TRIPLE DIFFUSED TYPE

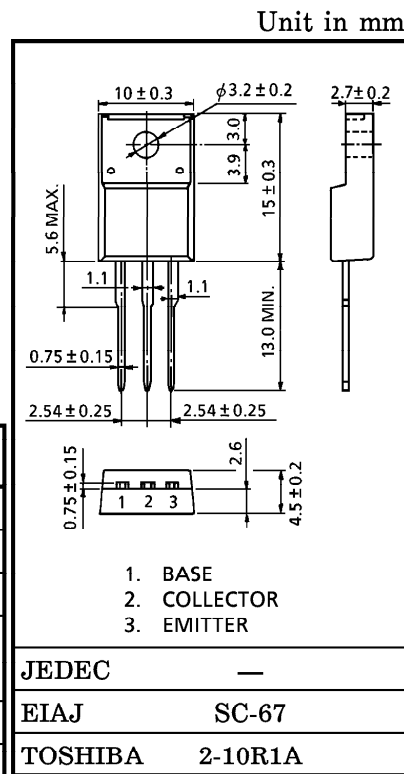
# 2SB1381

HIGH POWER SWITCHING APPLICATIONS  
HAMMER DRIVE, PULSE MOTOR DRIVE APPLICATIONS

- High DC Current Gain :  $h_{FE} = 1500$  (Min.)  
( $V_{CE} = -3V, I_C = -2.5A$ )
- Low Saturation Voltage:  $V_{CE(sat)} = -1.5V$  (Max.) ( $I_C = -2.5A$ )
- Complementary to 2SD2079.

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

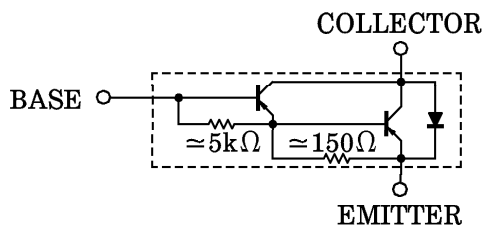
CHARACTERISTIC		SYMBOL	RATING	UNIT
Collector-Base Voltage		$V_{CBO}$	-100	V
Collector-Emitter Voltage		$V_{CEO}$	-100	V
Emitter-Base Voltage		$V_{EBO}$	-7	V
Collector Current	DC	$I_C$	-5	A
	Pulse		-8	
Base Current		$I_B$	-0.5	A
Collector Power Dissipation	$T_a = 25^\circ C$	$P_C$	2.0	W
	$T_c = 25^\circ C$		30	
Junction Temperature		$T_j$	150	$^\circ C$
Storage Temperature Range		$T_{stg}$	-55~150	$^\circ C$



JEDEC	—
EIAJ	SC-67
TOSHIBA	2-10R1A

Weight : 1.7g

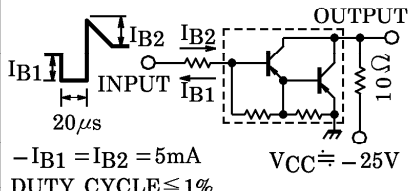
EQUIVALENT CIRCUIT



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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	$\mu A$
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		$h_{FE} (1)$	$V_{CE} = -3V, I_C = -2.5A$	1500	—	15000	
		$h_{FE} (2)$	$V_{CE} = -3V, I_C = -7A$	500	—	—	
Collector-Emitter Saturation Voltage		$V_{CE} (sat) (1)$	$I_C = -2.5A, I_B = -5mA$	—	-1.1	-1.5	V
		$V_{CE} (sat) (2)$	$I_C = -5A, I_B = -20mA$	—	-1.6	-3.0	
Base-Emitter Saturation Voltage		$V_{BE} (sat)$	$I_C = -2.5A, I_B = -5mA$	—	-1.8	-2.5	V
Switching Time	Turn-on Time	$t_{on}$	 <p> <math>-I_{B1} = I_{B2} = 5mA</math>  <math>V_{CC} = -25V</math>                      DUTY CYCLE <math>\leq 1\%</math> </p>	—	0.8	—	$\mu s$
	Storage Time	$t_{stg}$		—	2.5	—	
	Fall Time	$t_f$		—	2.0	—	

