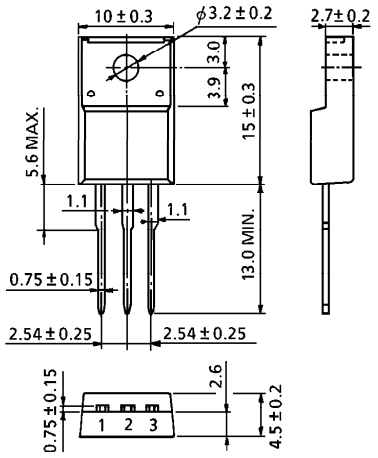
TOSHIBA TRANSISTOR SILICON PNP TRIPLE DIFFUSED TYPE

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.

Unit in mm



1. BASE
2. COLLECTOR
3. EMITTER

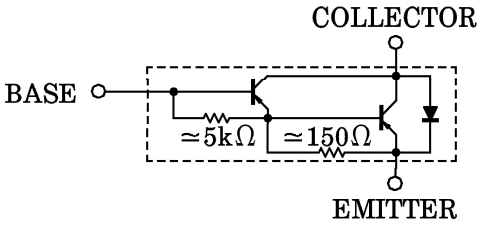
JEDEC	—
EIAJ	SC-67
TOSHIBA	2-10R1A

Weight : 1.7g

MAXIMUM RATINGS (Ta = 25°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	Ta = 25°C	P_C	2.0	W
	Tc = 25°C		30	
Junction Temperature		T_j	150	°C
Storage Temperature Range		T_{stg}	−55~150	°C

EQUIVALENT CIRCUIT



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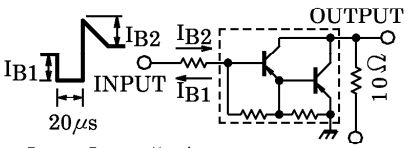
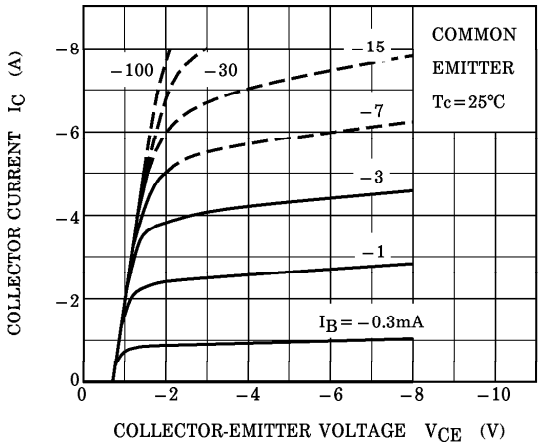
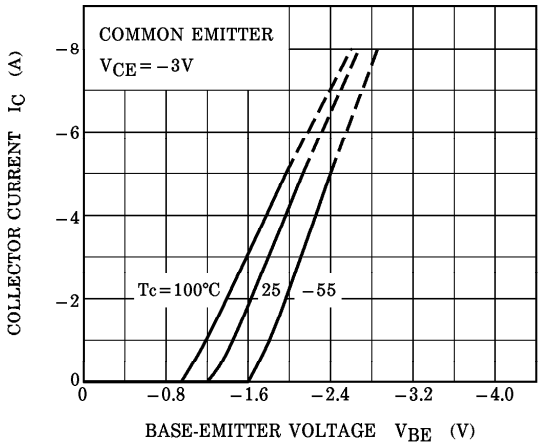
ELECTRICAL CHARACTERISTICS (Ta = 25°C)

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		$h_{FE(1)}$	$V_{CE} = -3V$, $I_C = -2.5A$	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}	 $-I_{B1} = I_{B2} = 5mA$ DUTY CYCLE ≦ 1%	—	0.8	—	μs
	Storage Time	t_{stg}		—	2.5	—	
	Fall Time	t_f		—	2.0	—	

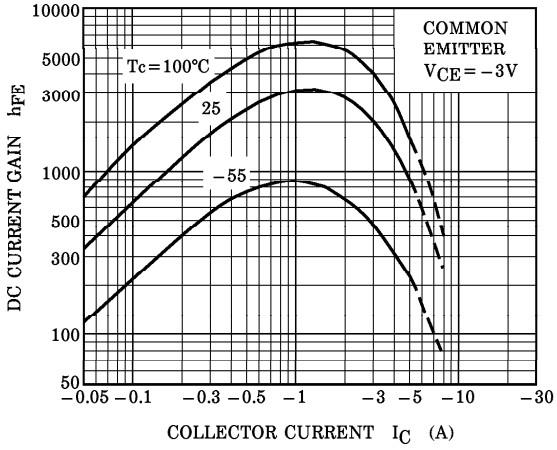
I_C – V_{CE}



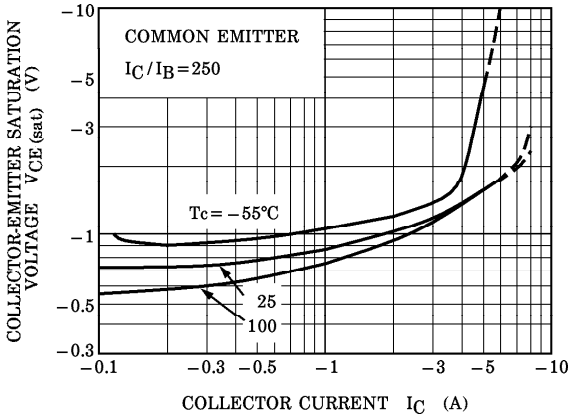
I_C – V_{BE}



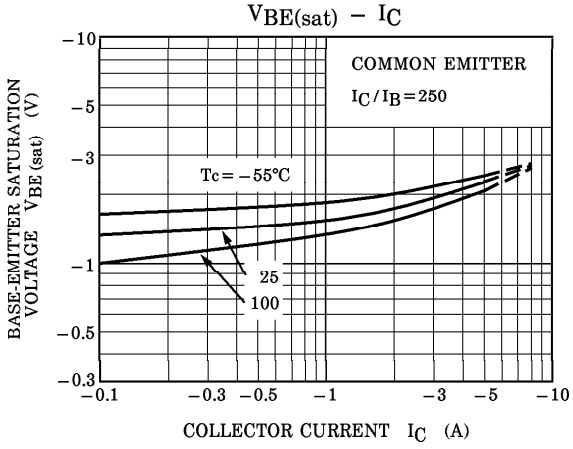
h_{FE} – I_C



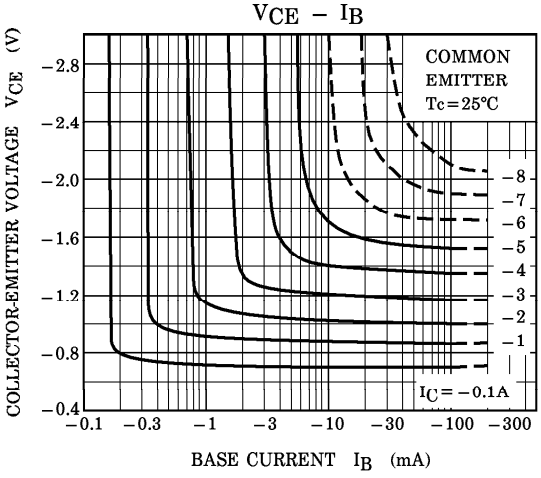
$V_{CE(sat)}$ – I_C



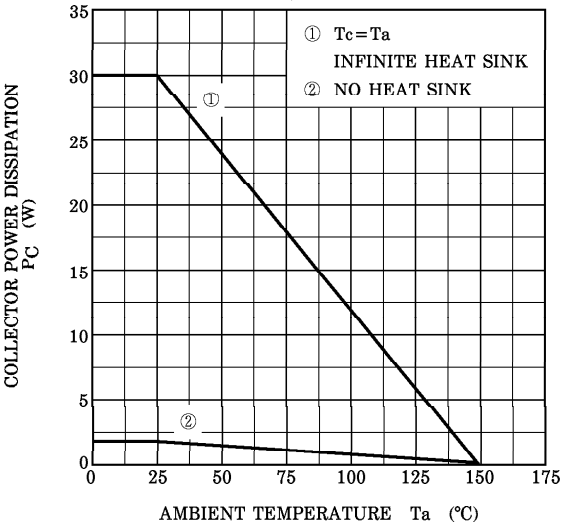
$V_{BE(sat)}$ – I_C



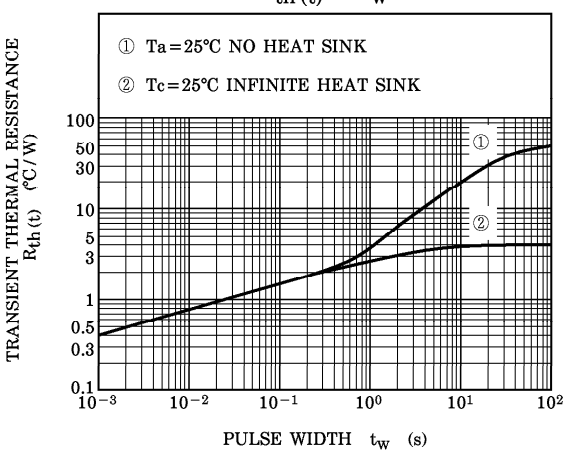
V_{CE} – I_B



P_C – Ta



$R_{th\,(t)}$ – t_w



SAFE OPERATING AREA