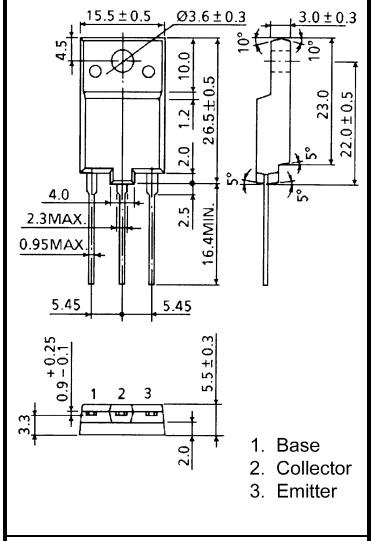
TOSHIBA TRANSISTOR SILICON NPN TRIPLE DIFFUSED MESA TYPE

S2055N

COLOR TV HORIZONTAL OUTPUT APPLICATIONS

- High Voltage : V_{CES} = 1500 V
- Low Saturation Voltage : $V_{CE\ (sat)}$ = 5 V (Max.)
- High Speed : t_f = 0.3μs (Typ.)
- Built−in Damper Type
- Collector Metal (Fin) is Fully Covered with Mold Resin.

Unit: mm



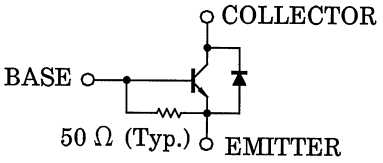
JEDEC	—
JEITA	—
TOSHIBA	2-16E3A

Weight: 5.5 g (typ.)

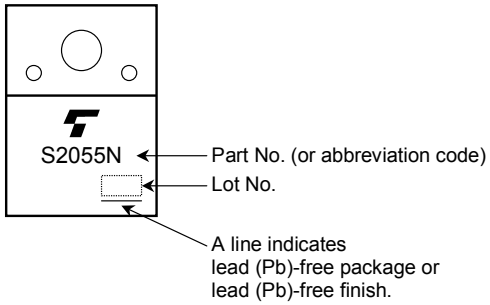
MAXIMUM RATINGS (Tc = 25°C)

CHARACTERISTICS		SYMBOL	RATING	UNIT
Collector−Emitter Voltage		V_{CES}	1500	V
Emitter−Base Voltage		V_{EBO}	5	V
Collector Current	DC	I_C	8	A
	Pulse	I_{CP}	15	A
Base Current		I_B	4	A
Collector Power Dissipation		P_C	50	W
Junction Temperature		T_j	150	°C
Storage Temperature Range		T_{stg}	−55~150	°C
Thermal Resistance		$R_{th\ (j-c)}$	2.5	°C / W

EQUIVALENT CIRCUIT

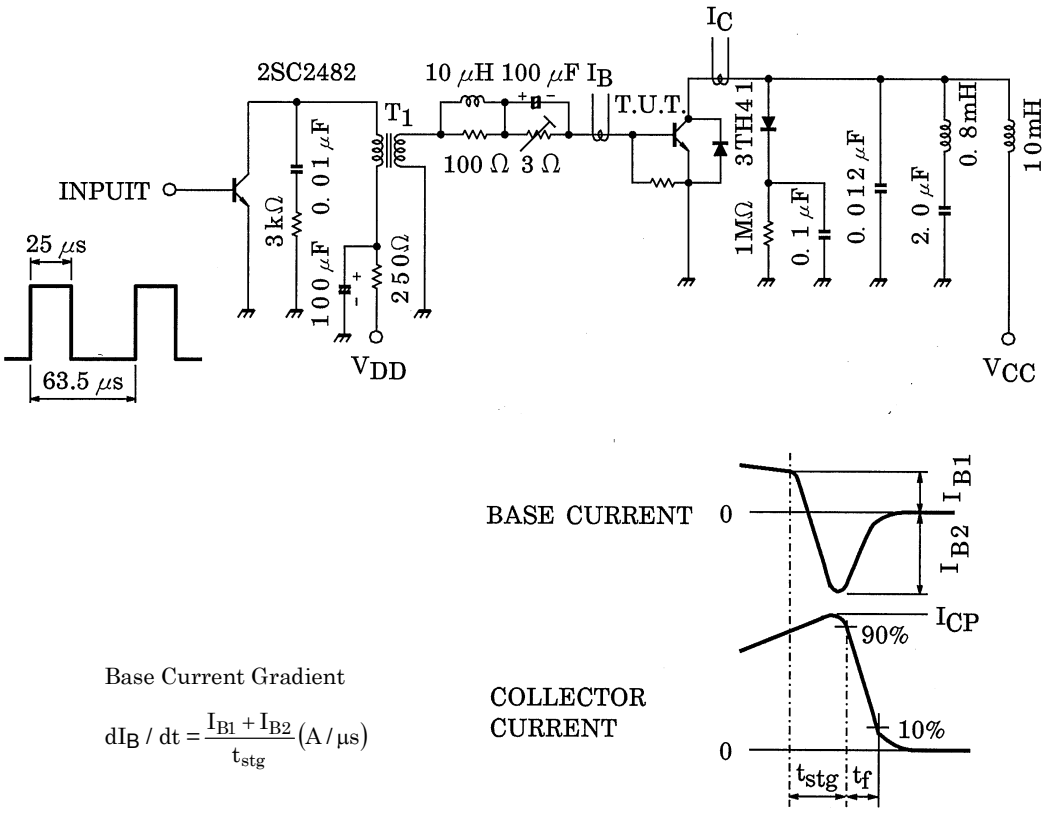


MARKING



ELECTRICAL CHARACTERISTICS (Tc = 25°C)

CHARACTERISTICS		SYMBOL	TEST CONDITION	MIN	TYP.	MAX	UNIT
Collector Cut−off Current		I_{CBO}	V_{CB} = 1500 V, V_{BE} = 0	—	—	1	mA
Emitter−Base Breakdown Voltage		$V_{(BR)\ EBO}$	I_E = 0.4 A, I_C = 0	5	—	—	V
DC Current Gain		$h_{FE\ (1)}$	V_{CE} = 5 V, I_C = 1 A	8	—	25	—
		$h_{FE\ (2)}$	V_{CE} = 5 V, I_C = 4.5 A	4.5	—	9	
Collector−Emitter Saturation Voltage		$V_{CE\ (sat)}$	I_C = 4.5 A, I_B = 2 A	—	—	1	V
			I_C = 4.5 A, I_B = 1 A	—	—	5	
Base−Emitter Saturation Voltage		$V_{BE\ (sat)}$	I_C = 4.5 A, I_B = 1 A	—	0.9	1.2	V
Forwardn Voltage(Damper Diode)		V_F	I_F = 6 A	—	1.6	2.0	V
Collector−Emitter Sustain Voltage		$V_{CEX\ (sus)}$	L = 40 mH, I_C = 0.5A V_{BE} = −1.7 V	700	—	—	V
Transition Frequency		f_T	V_{CE} = 10 V, I_C = 0.1 A	—	2	—	MHz
Collector Output Capacitance		C_{ob}	V_{CB} = 10 V, I_E = 0, f = 1 MHz	—	95	—	pF
Switching Time (Fig. 1)	Storage Time	t_{stg}	I_{CP} = 4.5 A, $I_{B1\ (end)}$ = 1 A f_H = 15.75 kHz	—	7.5	11	μs
	Fall Time	t_f		—	0.3	0.6	

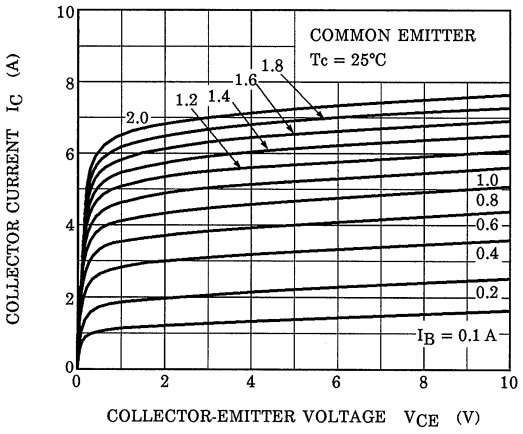


Base Current Gradient

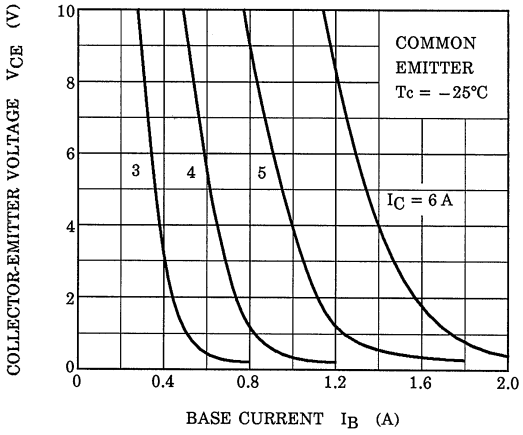
$$dI_B / dt = \frac{I_{B1} + I_{B2}}{t_{stg}} (A/\mu s)$$

Fig. 1 SWITCHING TIME TEST CIRCUIT

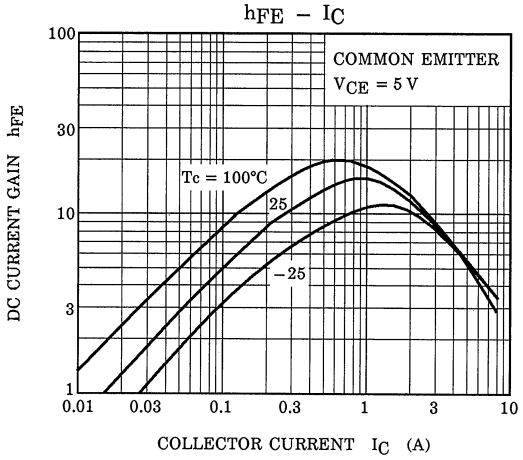
$I_C - V_{CE}$



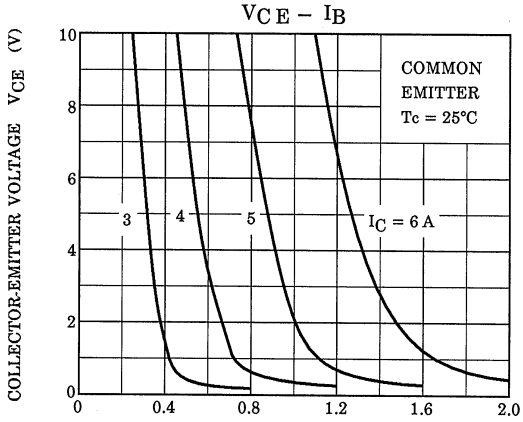
$V_{CE} - I_B$



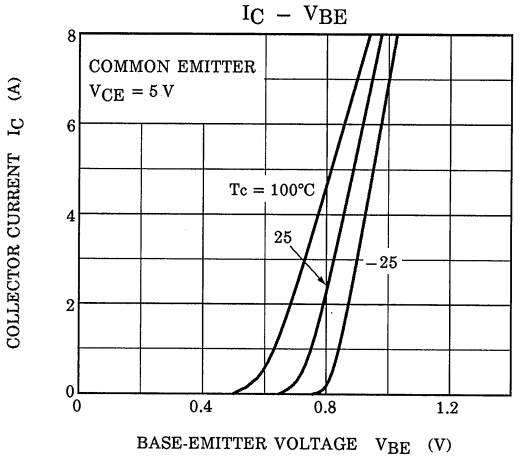
$h_{FE} - I_C$



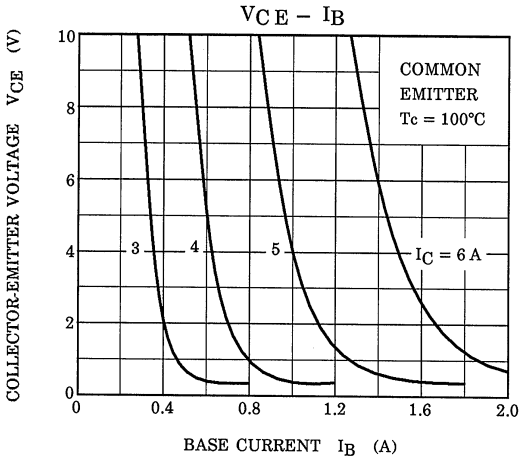
$V_{CE} - I_B$



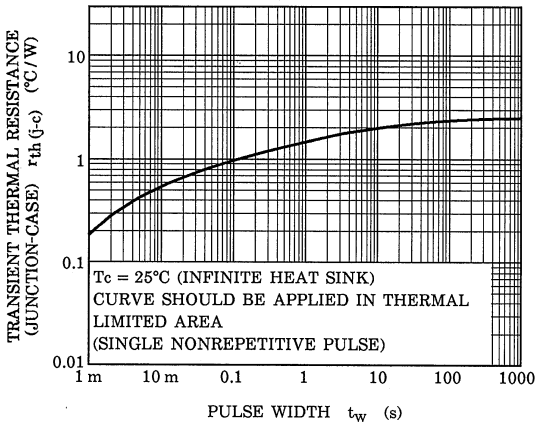
$I_C - V_{BE}$



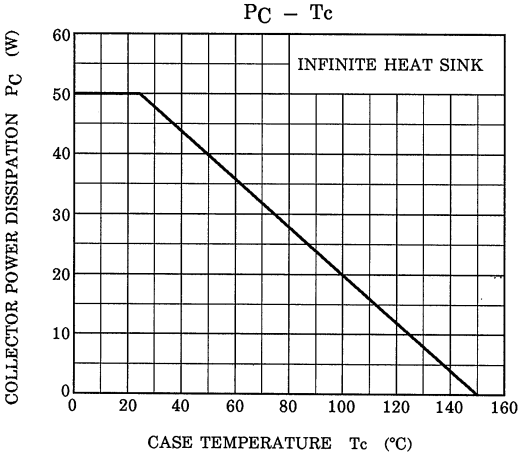
$V_{CE} - I_B$



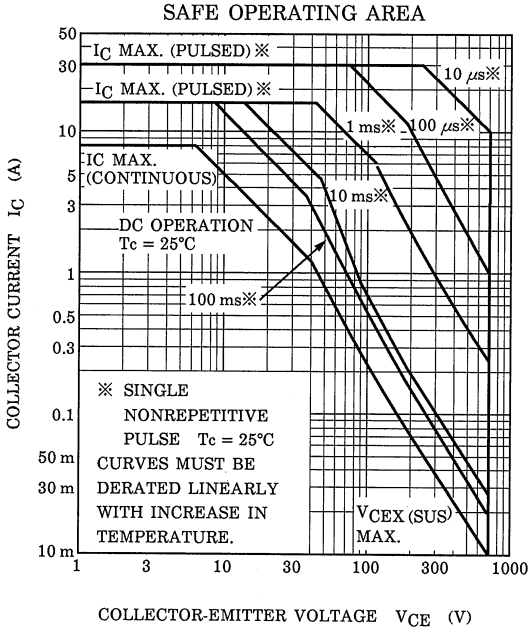
r_{th} (j-c) – t_w



P_C – Tc



SAFE OPERATING AREA



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