TOSHIBA TRANSISTOR SILICON NPN TRIPLE DIFFUSED MESA TYPE

2SC5446

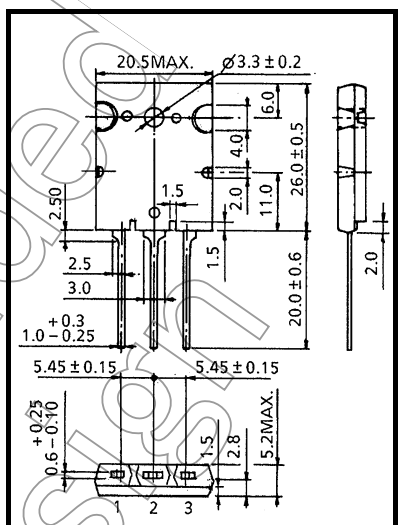
HORIZONTAL DEFLECTION OUTPUT FOR HIGH RESOLUTION

DISPLAY, COLOR TV

HIGH SPEED SWITCHING APPLICATIONS

- High Voltage : V_{CBO} = 1700 V
- Low Saturation Voltage : $V_{CE\ (sat)}$ = 3 V (Max.)
- High Speed : t_f (2) = 0.1 μs (Typ.)

Unit: mm



1. BASE
2. COLLECTOR (HEAT SINK)
3. EMITTER

JEDEC	—
JEITA	—
TOSHIBA	2-21F2A

Weight: 9.75 g (typ.)

ABSOLUTE MAXIMUM RATINGS (Tc = 25°C)

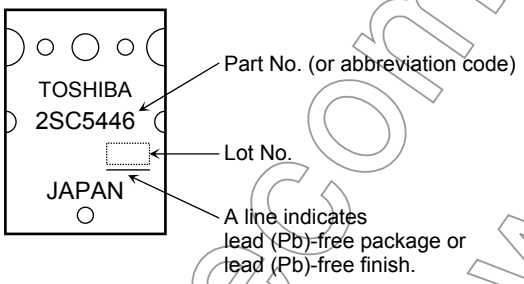
CHARACTERISTIC		SYMBOL	RATING	UNIT
Collector−Base Voltage		V_{CBO}	1700	V
Collector−Emitter Voltage		V_{CEO}	600	V
Emitter−Base Voltage		V_{EBO}	5	V
Collector Current	DC	I_C	18	A
	Pulse	I_{CP}	36	
Base Current		I_B	9	A
Collector Power Dissipation		P_C	200	W
Junction Temperature		T_j	150	°C
Storage Temperature Range		T_{stg}	−55~150	°C

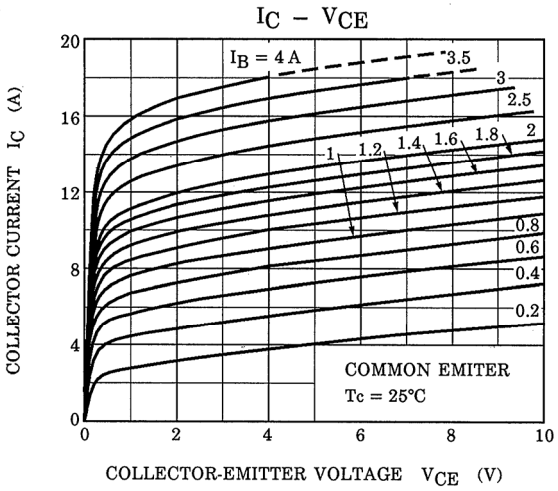
Note: Using continuously under heavy loads (e.g. the application of high temperature/current/voltage and the significant change in temperature, etc.) may cause this product to decrease in the reliability significantly even if the operating conditions (i.e. operating temperature/current/voltage, etc.) are within the absolute maximum ratings.
Please design the appropriate reliability upon reviewing the Toshiba Semiconductor Reliability Handbook (“Handling Precautions”/Derating Concept and Methods) and individual reliability data (i.e. reliability test report and estimated failure rate, etc).

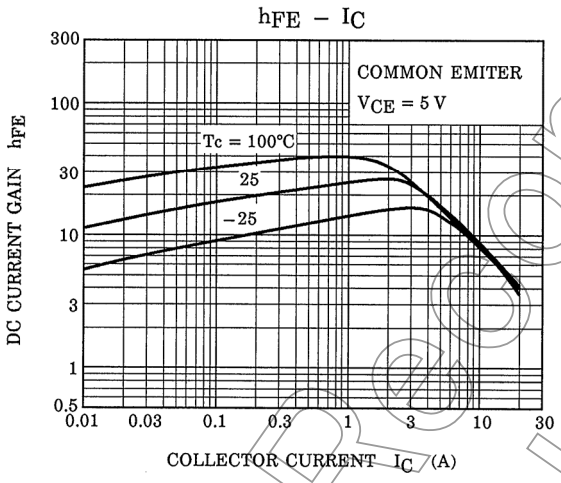
ELECTRICAL CHARACTERISTICS (Tc = 25°C)

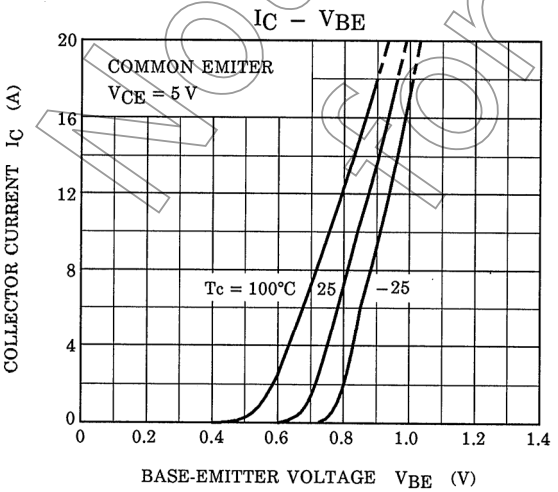
CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN	TYP.	MAX	UNIT
Collector Cut−off Current		I_{CBO}	V_{CB} = 1700 V, I_E = 0	—	—	1	mA
Emitter Cut−off Current		I_{EBO}	V_{EB} = 5 V, I_C = 0	—	—	10	μA
Emitter−Base Breakdown Voltage		$V_{(BR)\ CEO}$	I_C = 10 mA, I_B = 0	600	—	—	V
DC Current Gain		$h_{FE\ (1)}$	V_{CE} = 5 V, I_C = 2 A	10	—	40	—
		$h_{FE\ (2)}$	V_{CE} = 5 V, I_C = 9 A	6	—	13	
		$h_{FE\ (3)}$	V_{CE} = 5 V, I_C = 14 A	4	—	8	
Collector−Emitter Saturation Voltage		$V_{CE\ (sat)}$	I_C = 14 A, I_B = 3.5 A	—	—	3	V
Base−Emitter Saturation Voltage		$V_{BE\ (sat)}$	I_C = 14 A, I_B = 3.5 A	—	1.0	1.5	V
Transition Frequency		f_T	V_{CE} = 10 V, I_C = 0.1 A	—	1.7	—	MHz
Collector Output Capacitance		C_{ob}	V_{CB} = 10 V, I_E = 0, f = 1 MHz	—	290	—	pF
Switching Time	Storage Time	$t_{stg\ (1)}$	I_{CP} = 9 A, I_{B1} (end) = 1.5 A f_H = 64 kHz	—	2.5	3.5	μs
	Fall Time	$t_{f\ (1)}$		—	0.12	0.3	
	Storage Time	$t_{stg\ (2)}$	I_{CP} = 7 A, I_{B1} (end) = 1.25 A f_H = 100 kHz	—	2.1	2.3	μs
	Fall Time	$t_{f\ (2)}$		—	0.10	0.15	

Marking

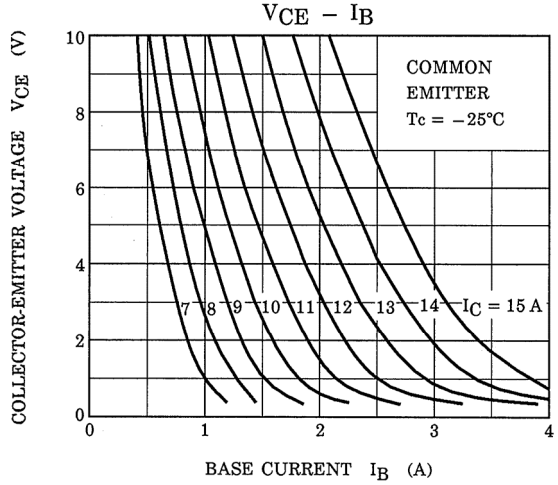




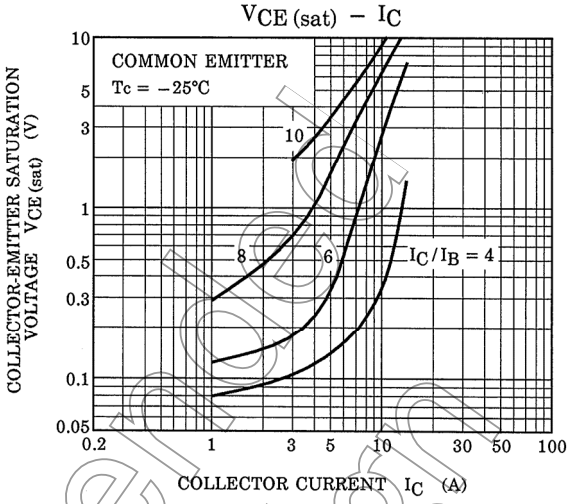




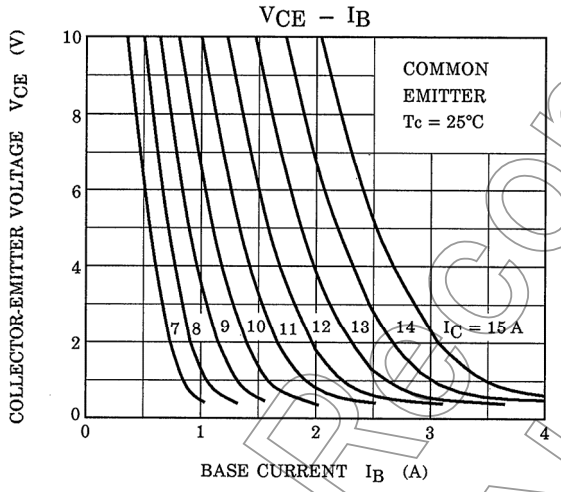
V_{CE} – I_B



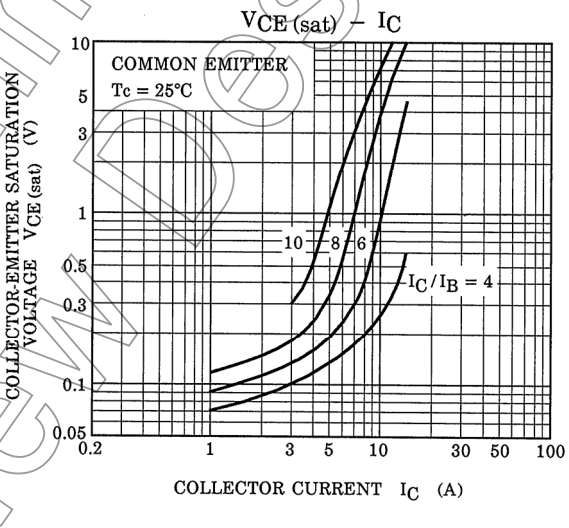
$V_{CE\,(sat)}$ – I_C



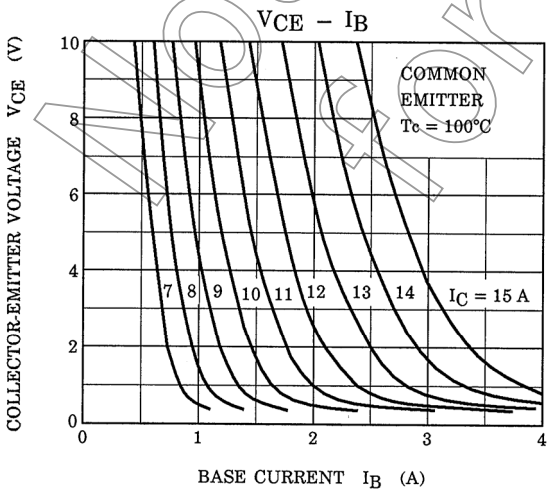
V_{CE} – I_B



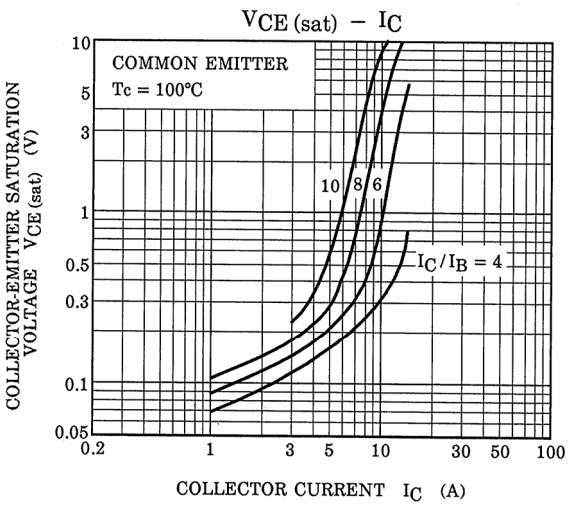
$V_{CE\,(sat)}$ – I_C



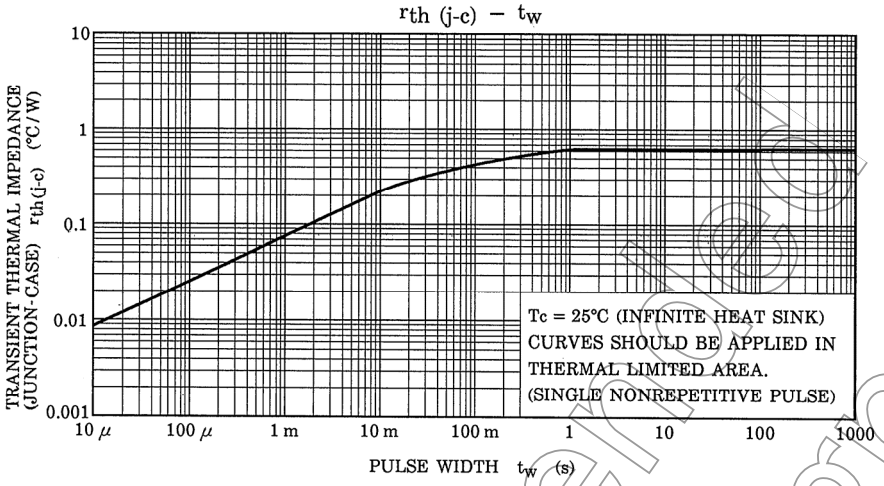
V_{CE} – I_B



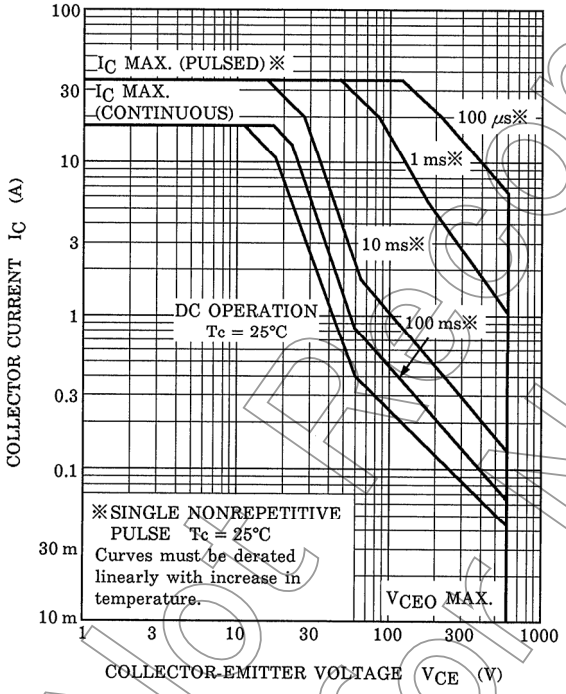
$V_{CE\,(sat)}$ – I_C



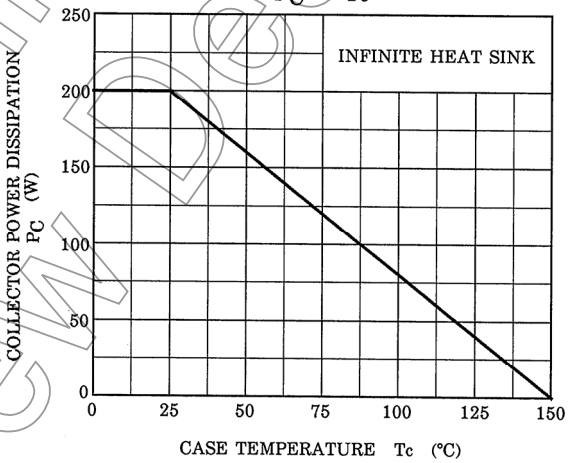
r_{th} (j-c) – t_w



SAFE OPERATING AREA



P_C – Tc



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