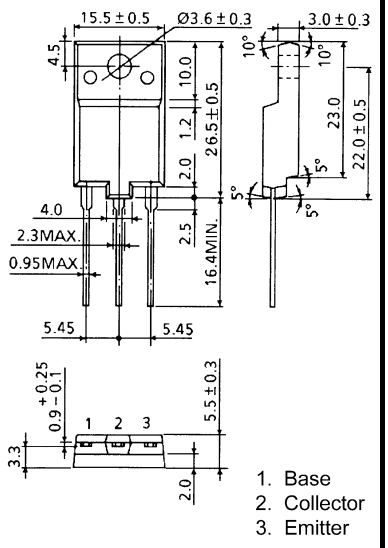
TOSHIBA TRANSISTOR SILICON NPN TRIPLE DIFFUSED MESA TYPE

2SD2500

HORIZONTAL DEFLECTION OUTPUT FOR COLOR TVs

- High Voltage : V_{CBO} = 1500 V
- Low Saturation Voltage : $V_{CE\ (sat)}$ = 3 V (Max.)
- High Speed : t_f = 0.35μs (Typ.)
- Collector Metal (Fin) is Fully Covered with Mold Resin.

Unit: mm



JEDEC	—
JEITA	—
TOSHIBA	2-16E3A

Weight: 5.5 g (typ.)

ABSOLUTE MAXIMUM RATINGS (Tc = 25°C)

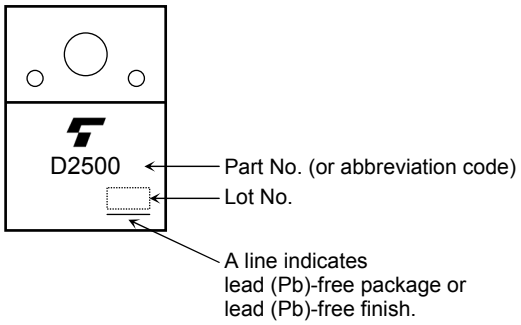
CHARACTERISTIC		SYMBOL	RATING	UNIT
Collector−Base Voltage		V_{CBO}	1500	V
Collector−Emitter Voltage		V_{CEO}	600	V
Emitter−Base Voltage		V_{EBO}	5	V
Collector Current	DC	I_C	10	A
	Pulse	I_{CP}	20	
Base−Current		I_B	5	A
Collector Power Dissipation		P_C	50	W
Junction Temperature		T_j	150	°C
Storage Temperature Range		T_{stg}	−55~150	°C

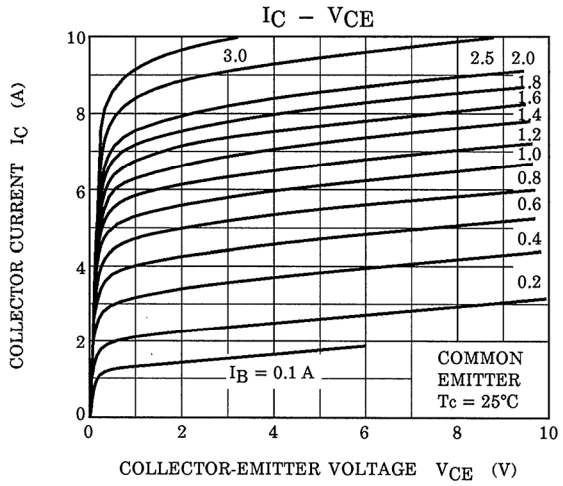
Note: Using continuously under heavy loads (e.g. the application of high temperature/current/voltage and the significant change in temperature, etc.) may cause this product to decrease in the reliability significantly even if the operating conditions (i.e. operating temperature/current/voltage, etc.) 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).

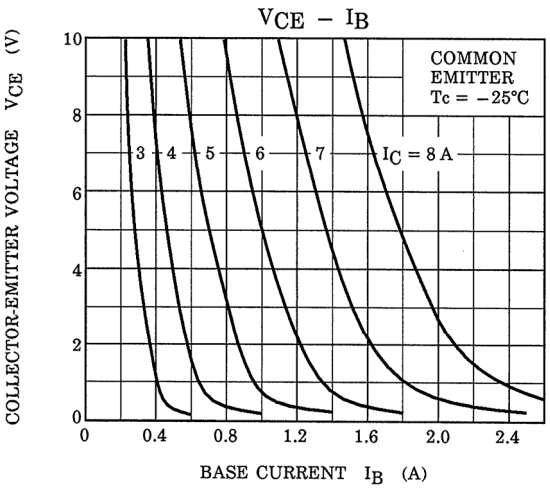
ELECTRICAL CHARACTERISTICS (Tc = 25°C)

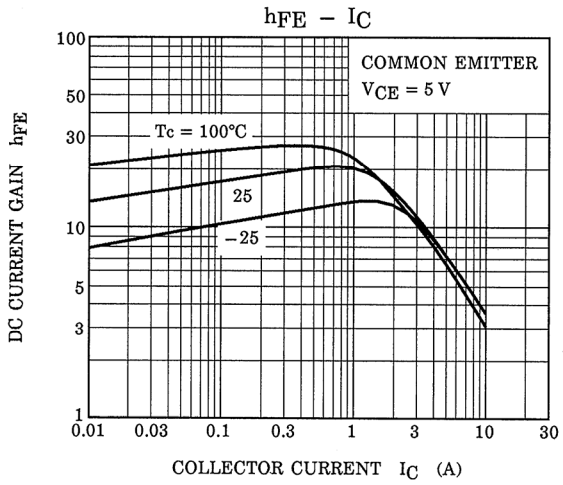
CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN	TYP.	MAX	UNIT
Collector Cut−off Current		I_{CBO}	V_{CB} = 1500 V, I_E = 0	—	—	1	mA
Emitter Cut−off Current		I_{EBO}	V_{EB} = 5 V, I_C = 0	—	—	10	μA
Collector−Emitter Breakdown Voltage		$V_{(BR)\ CEO}$	I_C = 10 mA, I_B = 0	600	—	—	V
DC Current Gain		$h_{FE\ (1)}$	V_{CE} = 5 V, I_C = 1 A	10	—	30	—
		$h_{FE\ (2)}$	V_{CE} = 5 V, I_C = 6	4	—	8	
Collector−Emitter Saturation Voltage		$V_{CE\ (sat)}$	I_C = 6A I_B = 1.5A	—	—	3	V
Base−Emitter Saturation Voltage		$V_{BE\ (sat)}$	I_C = 6A I_B = 1.5A	—	1.0	1.4	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	—	135	—	pF
Switching Time	Storage Time	t_{stg}	I_{CP} = 6A, I_{B1} (end) = 1.5A f_H = 15.75kHz	—	7	11	μs
	Fall Time	t_f		—	0.35	0.7	

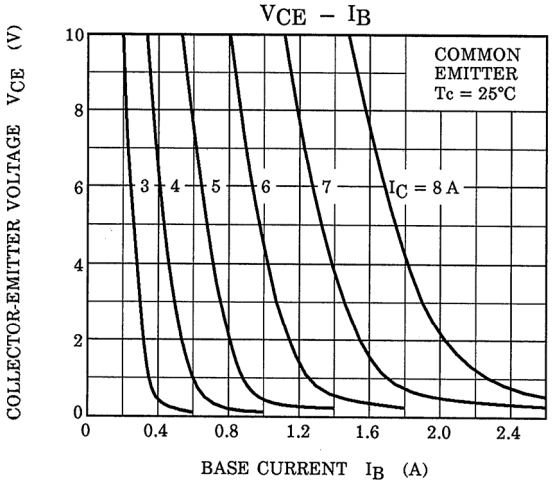
MARKING

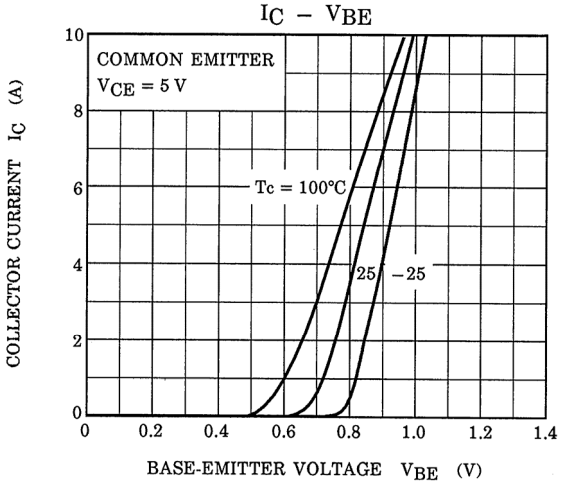


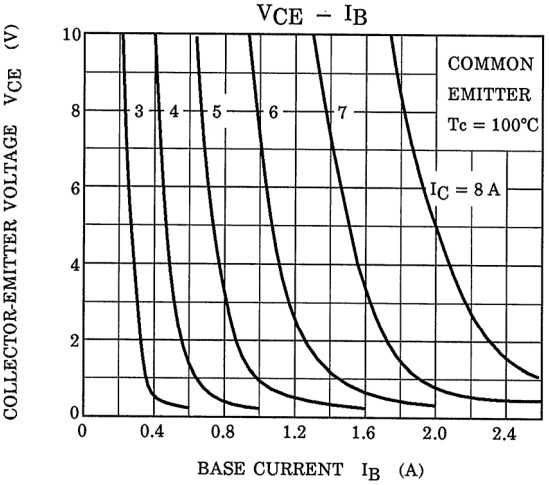

I_C – V_{CE}
COLLECTOR CURRENT I_C (A)
COLLECTOR-EMITTER VOLTAGE V_{CE} (V)
3.0
2.5
2.0
1.8
1.6
1.4
1.2
1.0
0.8
0.6
0.4
0.2
I_B = 0.1 A
COMMON EMITTER
Tc = 25°C


V_{CE} – I_B
COLLECTOR-EMITTER VOLTAGE V_{CE} (V)
BASE CURRENT I_B (A)
COMMON EMITTER
Tc = −25°C
3
4
5
6
7
I_C = 8 A


h_{FE} – I_C
DC CURRENT GAIN h_{FE}
COLLECTOR CURRENT I_C (A)
COMMON EMITTER
V_{CE} = 5 V
Tc = 100°C
25
−25

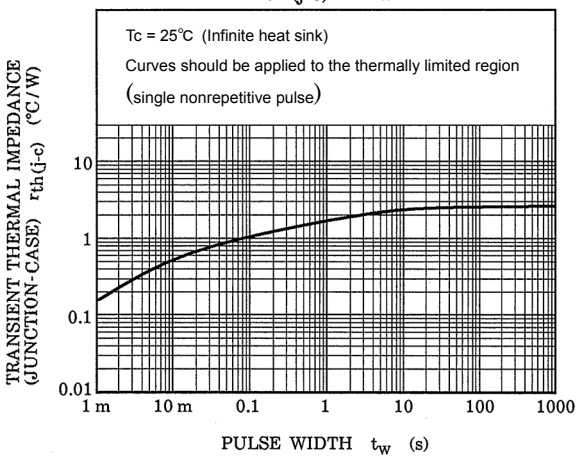

V_{CE} – I_B
COLLECTOR-EMITTER VOLTAGE V_{CE} (V)
BASE CURRENT I_B (A)
COMMON EMITTER
Tc = 25°C
3
4
5
6
7
I_C = 8 A


I_C – V_{BE}
COLLECTOR CURRENT I_C (A)
BASE-EMITTER VOLTAGE V_{BE} (V)
COMMON EMITTER
V_{CE} = 5 V
Tc = 100°C
25
−25

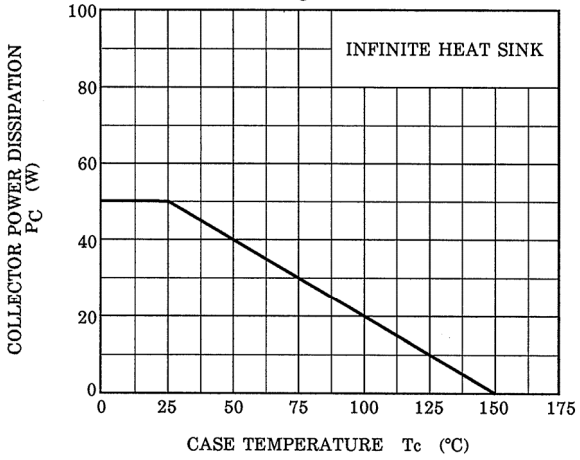

V_{CE} – I_B
COLLECTOR-EMITTER VOLTAGE V_{CE} (V)
BASE CURRENT I_B (A)
COMMON EMITTER
Tc = 100°C
3
4
5
6
7
I_C = 8 A

SHOLD → SHOULD
TO THE THERMALLY LIMITED REGION.

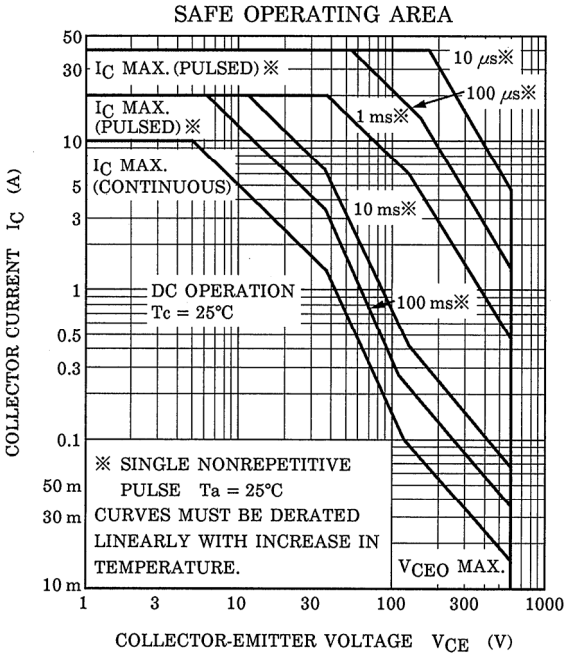
$r_{th\,(j\text{-}c)} - t_w$



$P_C - T_c$



SAFE OPERATING AREA



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