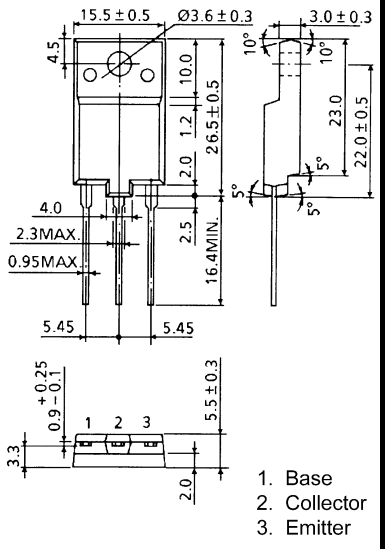
TOSHIBA Transistor Silicon NPN Triple Diffused Mesa Type

2SC5716

Horizontal Deflection Output for High Resolution Display, Color TV

- High voltage: V_{CBO} = 1700 V
- High speed: t_f (2) = 0.2 μs (typ.)
- Collector metal (fin) is fully covered with mold resin.

Unit: mm



JEDEC	—
JEITA	—
TOSHIBA	2-16E3A

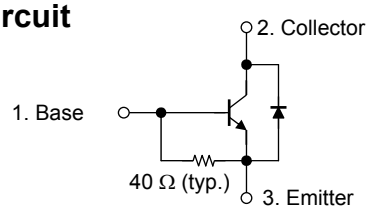
Weight: 5.5 g (typ.)

Absolute Maximum Ratings (Tc = 25°C)

Characteristics		Symbol	Rating	Unit
Collector-base voltage		V_{CBO}	1700	V
Collector-emitter voltage		V_{CEO}	700	V
Emitter-base voltage		V_{EBO}	5	V
Collector current	DC	I_C	8	A
	Pulse	I_{CP}	16	
Base current		I_B	4	A
Collector power dissipation		P_C	55	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).

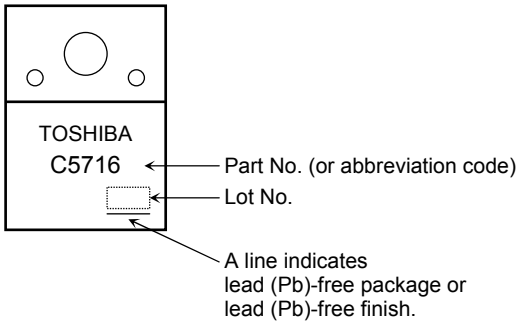
Equivalent Circuit



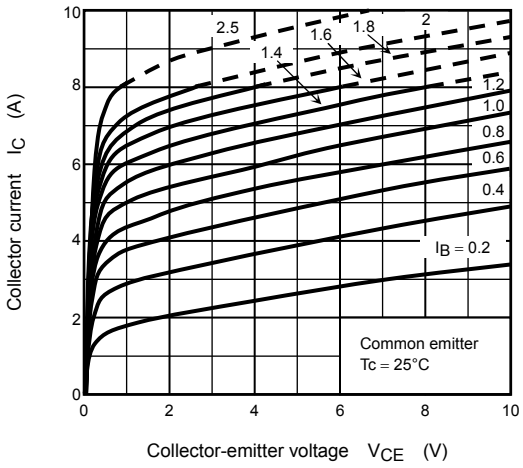
Electrical Characteristics (Tc = 25°C)

Characteristics		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	83	—	250	mA
Emitter-base breakdown voltage		$V_{(BR)\ EBO}$	I_E = 400 mA, I_B = 0	5	—	—	V
DC current gain		h_{FE} (1)	V_{CE} = 5 V, I_C = 1 A	6	—	20	—
		h_{FE} (2)	V_{CE} = 5 V, I_C = 6 A	3.8	—	9	
Collector-emitter saturation voltage		$V_{CE\ (sat)}$	I_C = 6 A, I_B = 1.5 A	—	—	5	V
Base-emitter saturation voltage		$V_{BE\ (sat)}$	I_C = 6 A, I_B = 1.5 A	—	0.9	1.2	V
Forward voltage (damper diode)		V_F	I_F = 6 A	—	1.3	1.8	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	—	180	—	pF
Switching time	Storage time	t_{stg} (1)	I_{CP} = 6 A, $I_{B1\ (end)}$ = 1.2 A, f_H = 15.75 kHz	—	6	8	μs
	Fall time	t_f (1)		—	0.3	0.6	
	Storage time	t_{stg} (2)	I_{CP} = 5.5 A, $I_{B1\ (end)}$ = 1.1 A, f_H = 31.5 kHz		3.5	5	
	Fall time	t_f (2)		—	0.2	0.35	

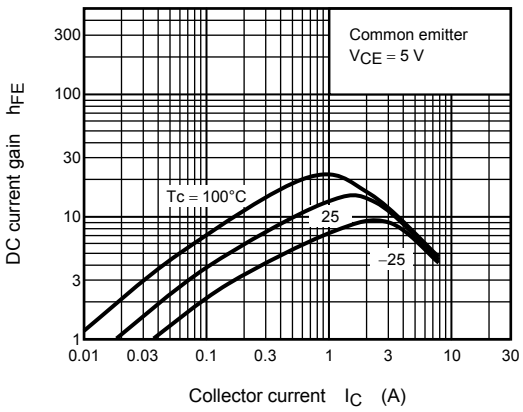
Marking



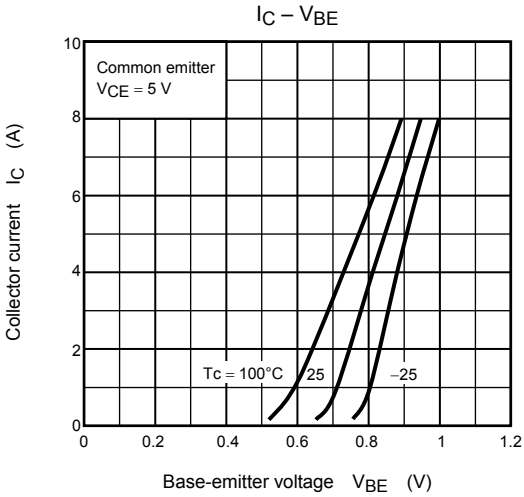
$I_C - V_{CE}$



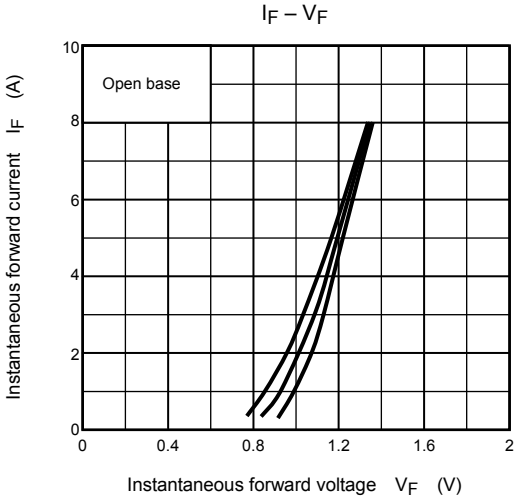
$h_{FE} - I_C$



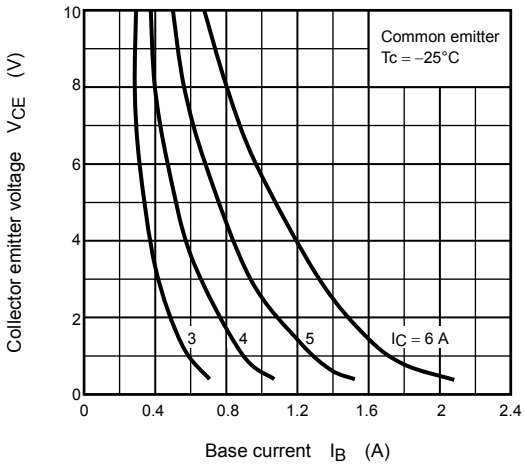
$I_C - V_{BE}$



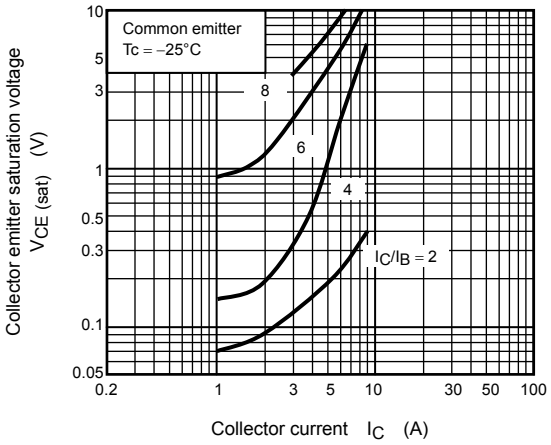
$I_F - V_F$



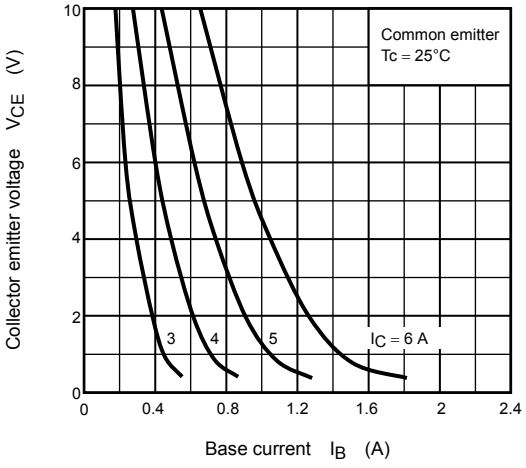
$V_{CE} - I_B$



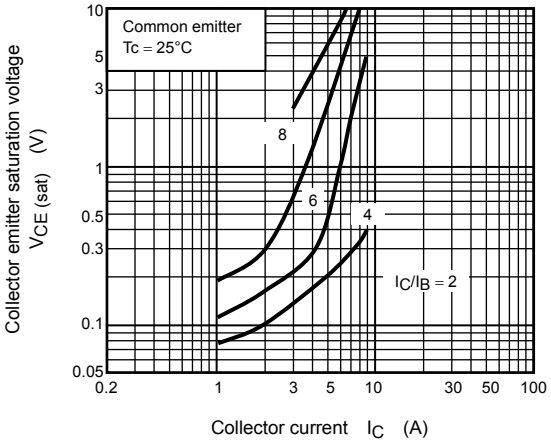
$V_{CE\,(sat)} - I_C$



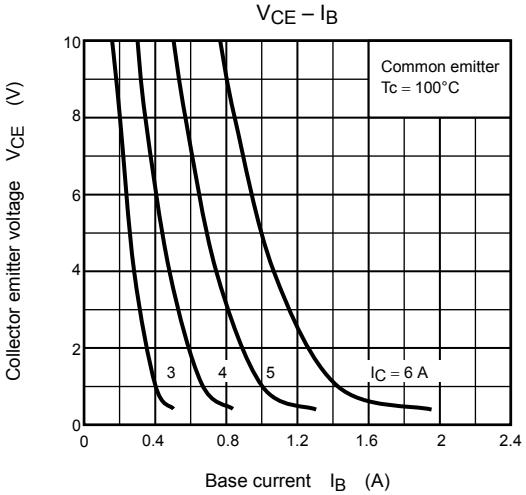
$V_{CE} - I_B$



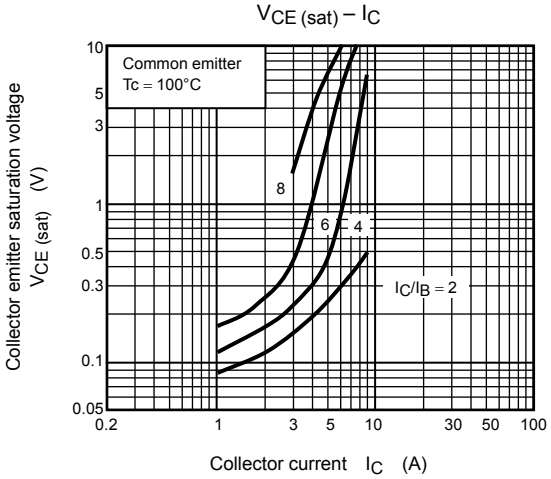
$V_{CE\,(sat)} - I_C$



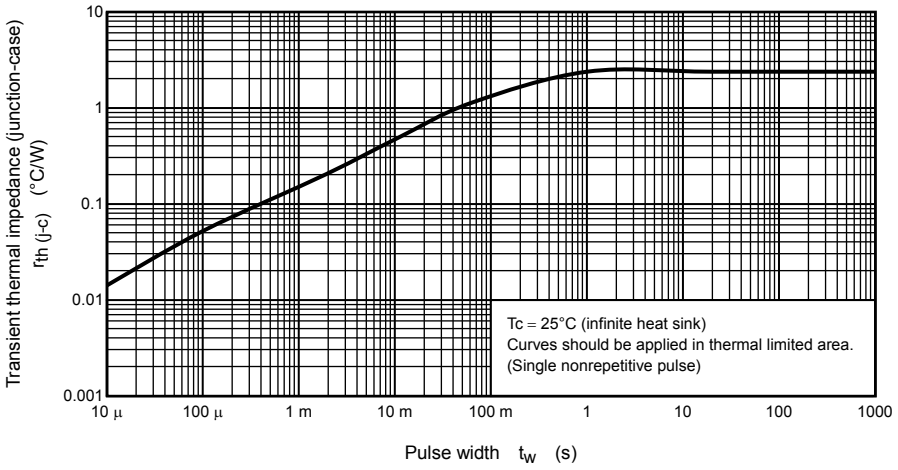
$V_{CE} - I_B$



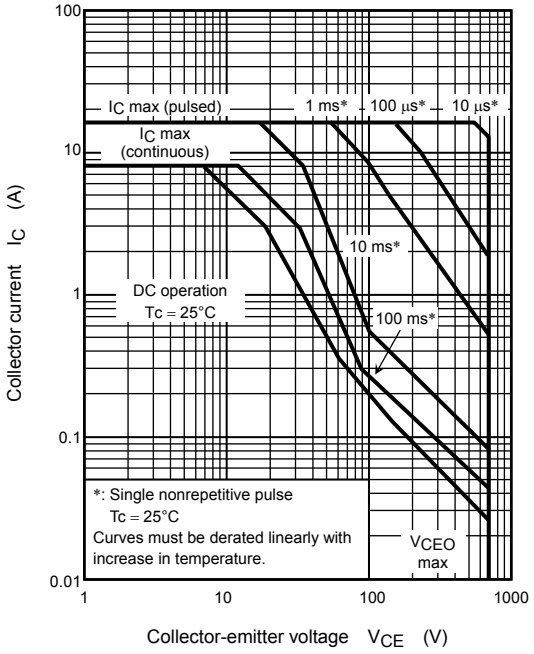
$V_{CE\,(sat)} - I_C$



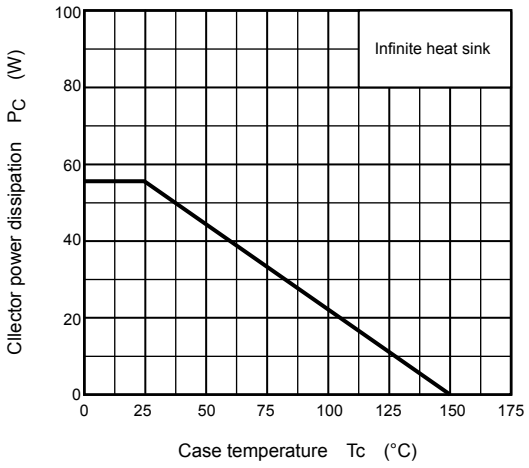
$r_{th\ (j\text{-}c)} - t_w$



Safe Operating Area



$P_C - Tc$



RESTRICTIONS ON PRODUCT USE

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