

TOSHIBA TRANSISTOR SILICON NPN TRIPLE DIFFUSED MESA TYPE

# 2SC5856

HORIZONTAL DEFLECTION OUTPUT FOR  
SUPER HIGH RESOLUTION

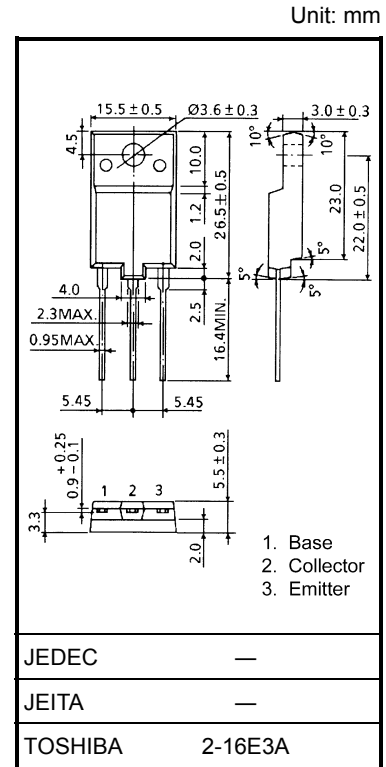
DISPLAY, COLOR TV, DIGITAL TV

HIGH SPEED SWITCHING APPLICATIONS

- High Voltage :  $V_{CBO} = 1500\text{ V}$
- Low Saturation Voltage :  $V_{CE(sat)} = 3\text{ V (max)}$
- High Speed :  $t_{f(2)} = 0.1\text{ }\mu\text{s (typ.)}$

### ABSOLUTE MAXIMUM RATINGS ( $T_c = 25^\circ\text{C}$ )

CHARACTERISTIC	SYMBOL	RATING	UNIT
Collector-Base Voltage	$V_{CBO}$	1500	V
Collector-Emitter Voltage	$V_{CEO}$	700	V
Emitter-Base Voltage	$V_{EBO}$	5	V
Collector Current	DC	$I_C$	14
	Pulse	$I_{CP}$	28
Base Current	$I_B$	7	A
Collector Power Dissipation	$P_C$	55	W
Junction Temperature	$T_j$	150	$^\circ\text{C}$
Storage Temperature Range	$T_{stg}$	-55~150	$^\circ\text{C}$



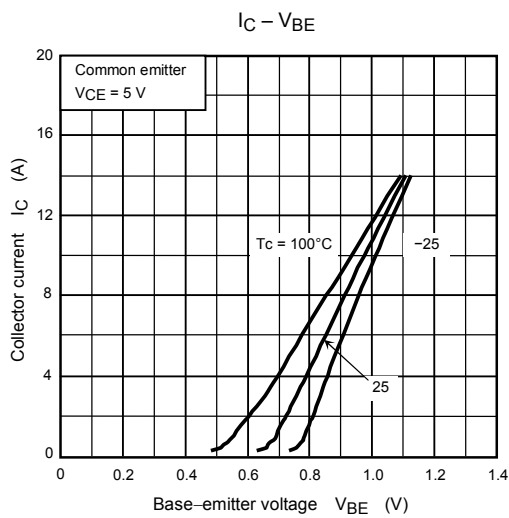
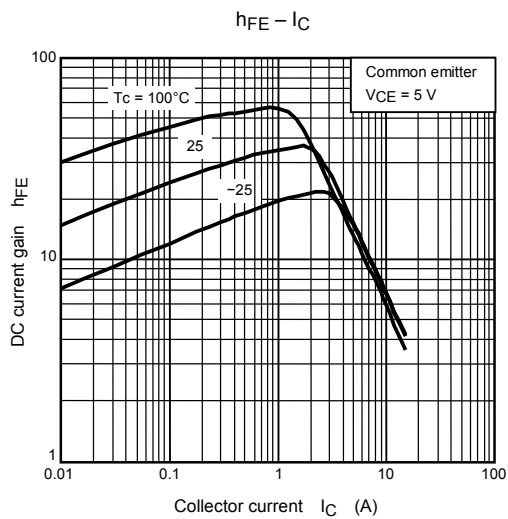
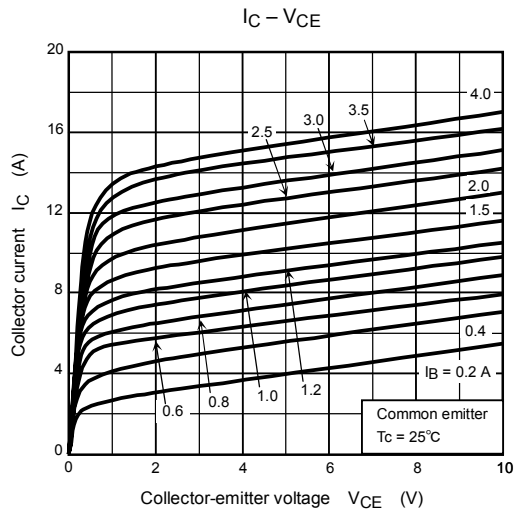
Weight: 5.5 g (typ.)

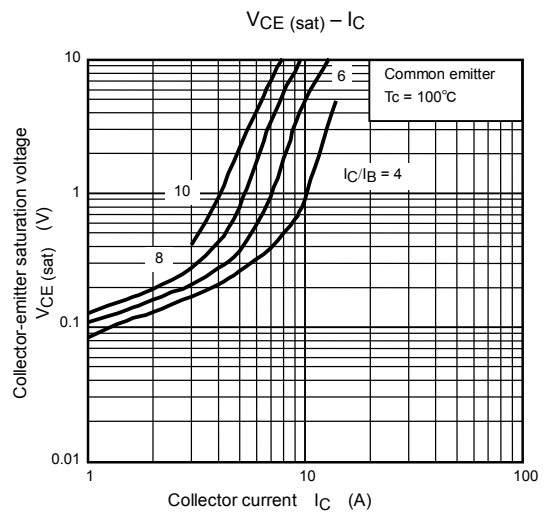
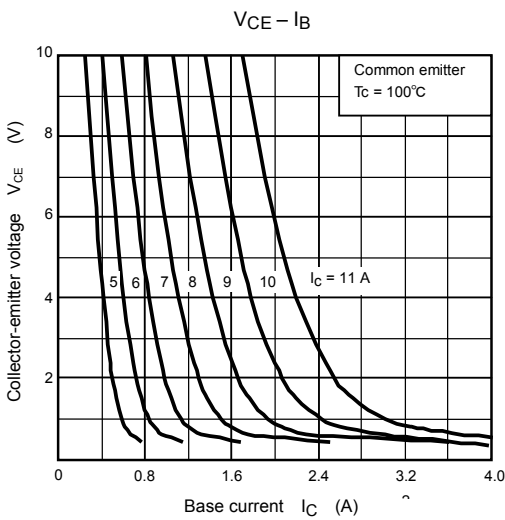
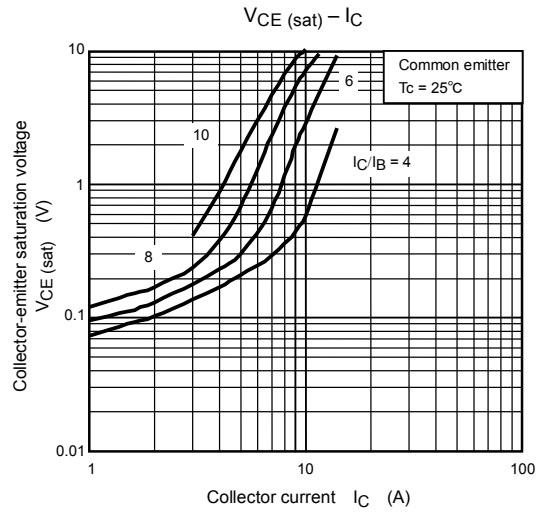
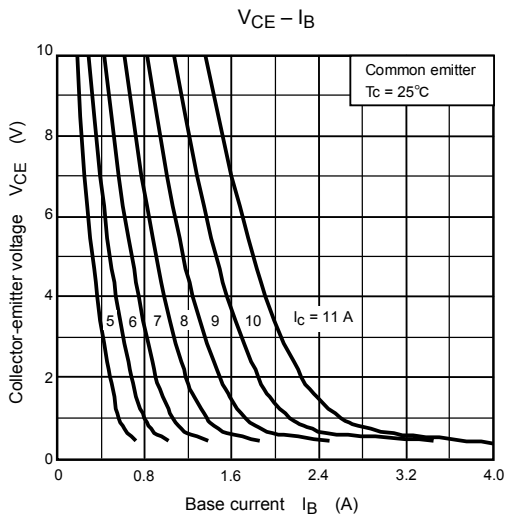
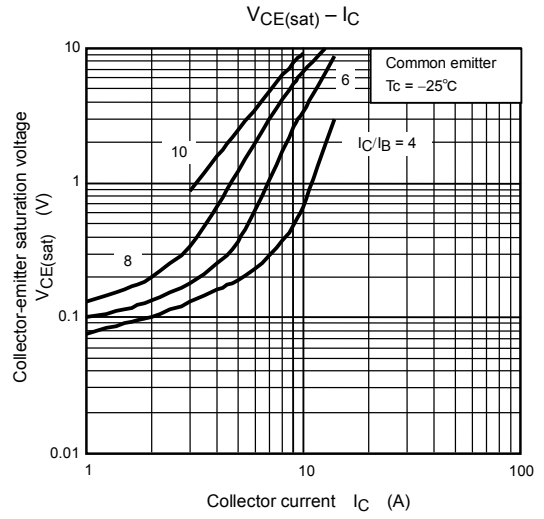
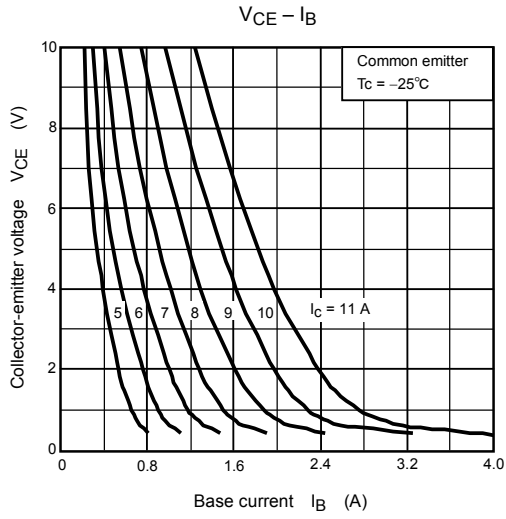
Note: Using continuously under heavy loads (e.g. the application of high temperature/current/voltage and the significant change in temperature, etc.) may cause this product to decrease in the reliability significantly even if the operating conditions (i.e. operating temperature/current/voltage, etc.)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

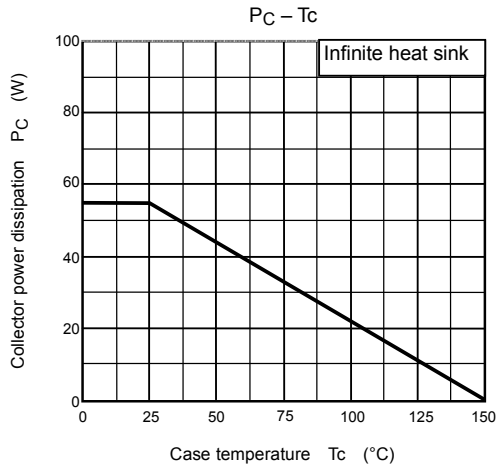
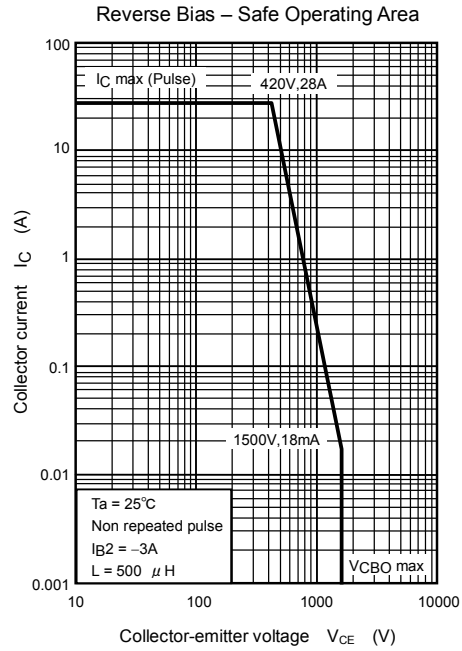
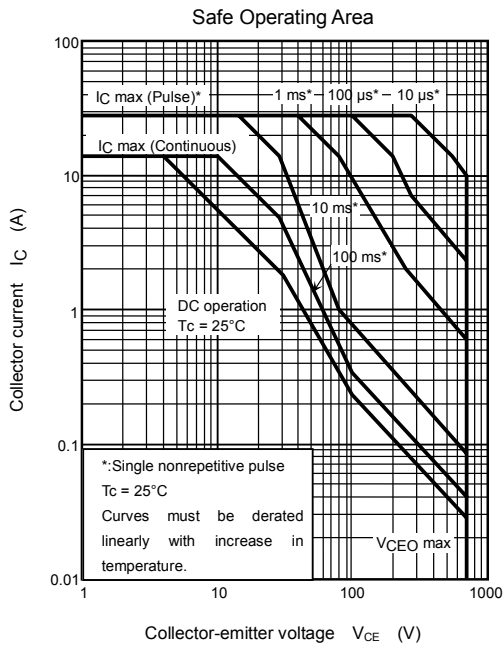
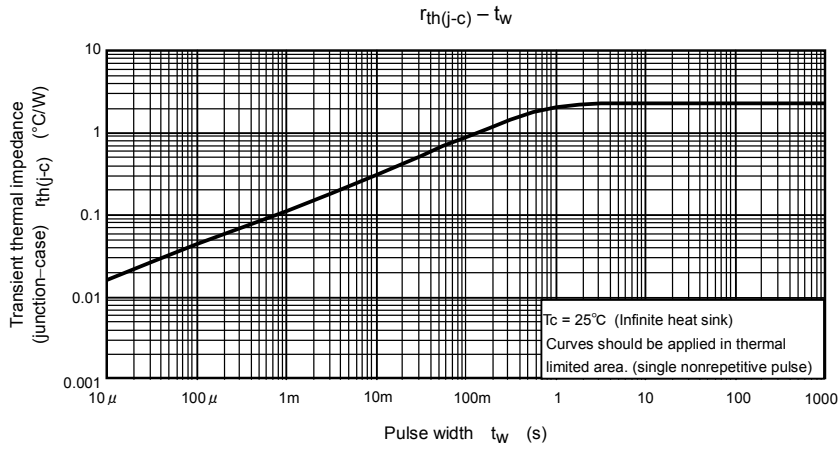
Please design the appropriate reliability upon reviewing the Toshiba Semiconductor Reliability Handbook ("Handling Precautions"/Derating Concept and Methods) and individual reliability data (i.e. reliability test report and estimated failure rate, etc).

**ELECTRICAL CHARACTERISTICS (T<sub>c</sub> = 25°C)**

CHARACTERISTIC	SYMBOL	TEST CONDITION	Min	Typ.	Max	UNIT	
Collector Cut-off Current	I <sub>CBO</sub>	V <sub>CB</sub> = 1500 V, I <sub>E</sub> = 0	—	—	1	mA	
Emitter Cut-off Current	I <sub>EBO</sub>	V <sub>EB</sub> = 5 V, I <sub>C</sub> = 0	—	—	100	μA	
Collector - Emitter Breakdown Voltage	V <sub>(BR) CEO</sub>	I <sub>C</sub> = 10 mA, I <sub>B</sub> = 0	700	—	—	V	
DC Current Gain	h <sub>FE</sub> (1)	V <sub>CE</sub> = 5 V, I <sub>C</sub> = 2 A	20	—	50	—	
	h <sub>FE</sub> (2)	V <sub>CE</sub> = 5 V, I <sub>C</sub> = 7.5 A	6.5	—	12.5		
	h <sub>FE</sub> (3)	V <sub>CE</sub> = 5 V, I <sub>C</sub> = 11 A	4.5	—	7.8		
Collector-Emitter Saturation Voltage	V <sub>CE (sat)</sub>	I <sub>C</sub> = 11 A, I <sub>B</sub> = 2.75 A	—	—	3	V	
Base-Emitter Saturation Voltage	V <sub>BE (sat)</sub>	I <sub>C</sub> = 11 A, I <sub>B</sub> = 2.75 A	—	1.0	1.4	V	
Transition Frequency	f <sub>T</sub>	V <sub>CE</sub> = 10 V, I <sub>C</sub> = 0.1 A	—	2	—	MHz	
Collector Output Capacitance	C <sub>ob</sub>	V <sub>CB</sub> = 10 V, I <sub>E</sub> = 0, f = 1 MHz	—	180	—	pF	
Switching Time	Storage Time	t <sub>stg(1)</sub>	I <sub>CP</sub> = 7.5 A, I <sub>B1</sub> (end) = 1.0 A f <sub>H</sub> = 32 kHz	—	3.5	—	μs
	Fall Time	t <sub>f(1)</sub>		—	0.25	—	
	Storage Time	t <sub>stg(2)</sub>	I <sub>CP</sub> = 6.5 A, I <sub>B1</sub> (end) = 0.9 A f <sub>H</sub> = 100 kHz	—	1.8	—	μs
	Fall Time	t <sub>f(2)</sub>		—	0.1	—	







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