

TOSHIBA TRANSISTOR SILICON NPN TRIPLE DIFFUSED TYPE

# 2SD1412A

HIGH CURRENT SWITCHING APPLICATIONS

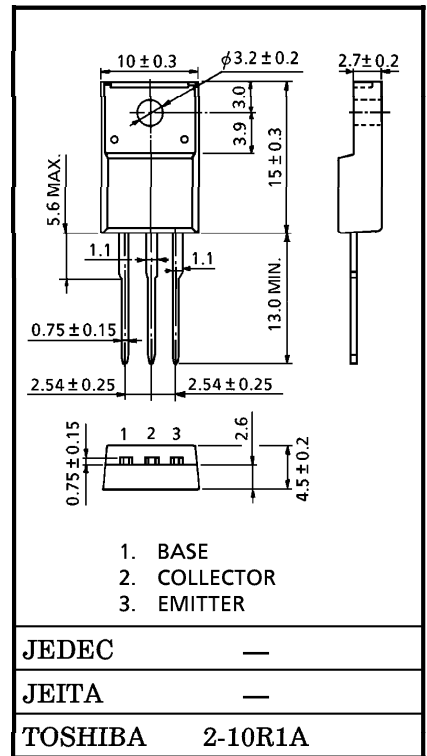
POWER AMPLIFIER APPLICATIONS

- Low Saturation Voltage :  $V_{CE(sat)} = 0.4V$  (Max.) at  $I_C = 4A$

MAXIMUM RATINGS ( $T_c = 25^\circ C$ )

CHARACTERISTIC		SYMBOL	RATING	UNIT
Collector-Base Voltage		$V_{CBO}$	70	V
Collector-Emitter Voltage		$V_{CEO}$	50	V
Emitter-Base Voltage		$V_{EBO}$	5	V
Collector Current		$I_C$	7	A
Base Current		$I_B$	1	A
Collector Power Dissipation	$T_a = 25^\circ C$	$P_C$	2.0	W
	$T_c = 25^\circ C$		30	
Junction Temperature		$T_j$	150	$^\circ C$
Storage Temperature Range		$T_{stg}$	-55~150	$^\circ C$

Unit in mm

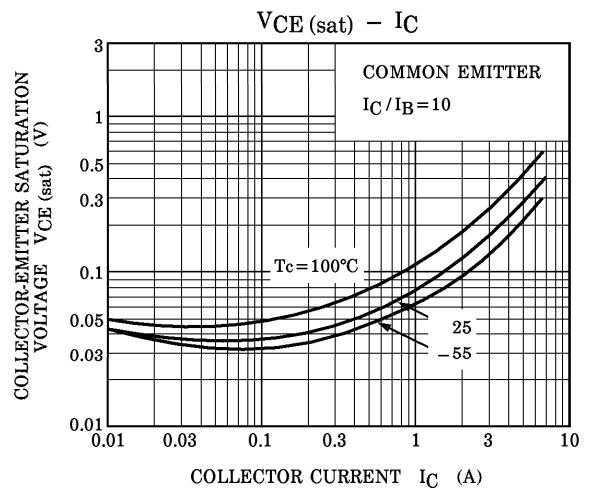
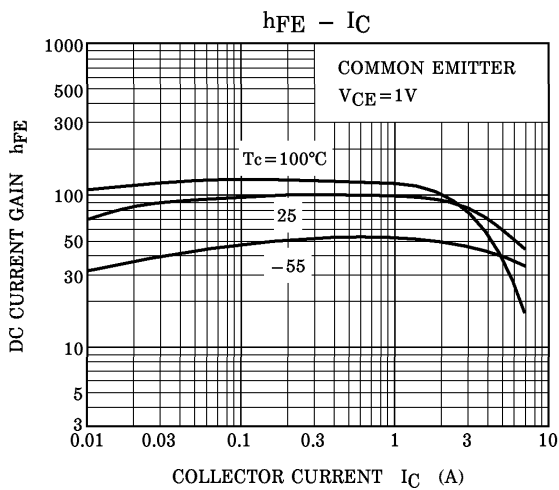
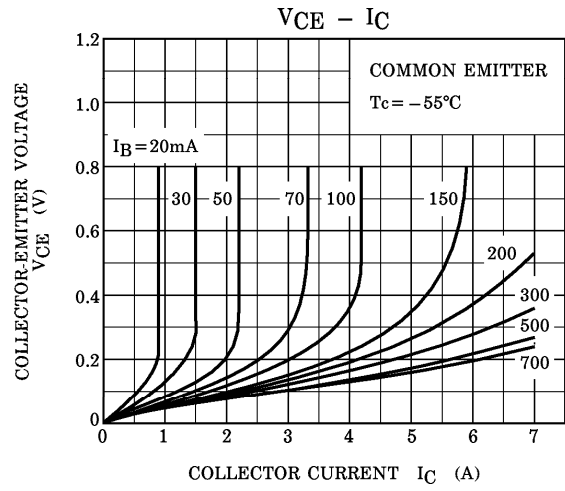
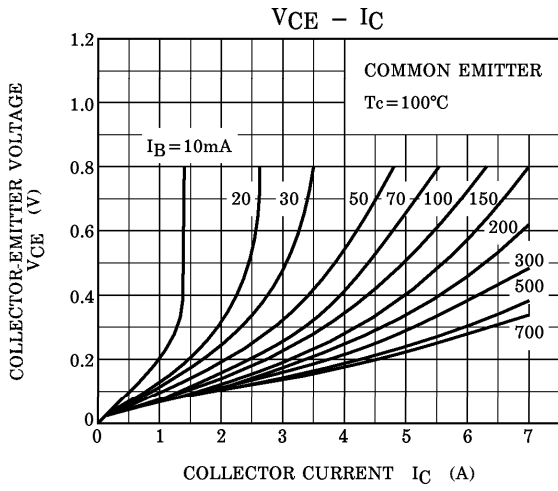
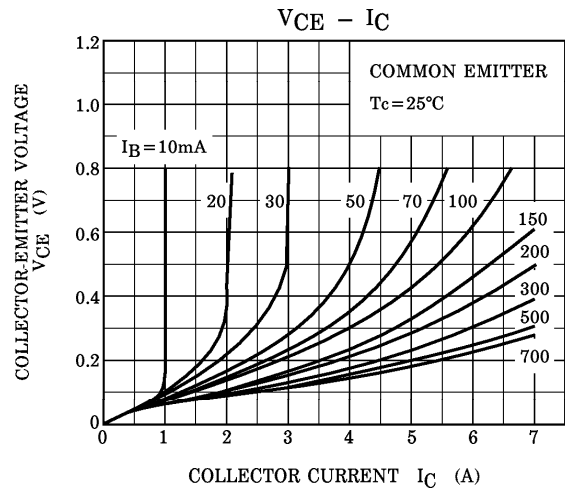
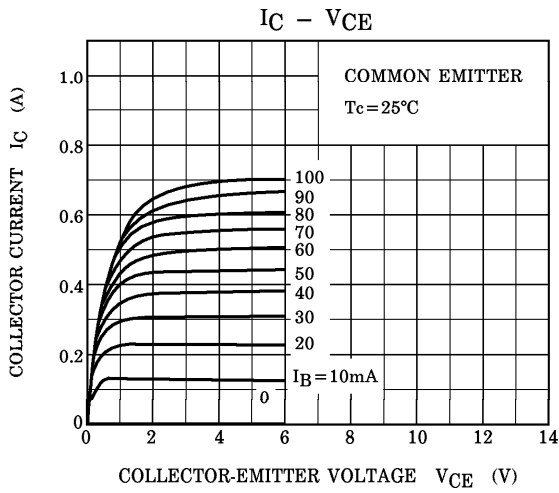


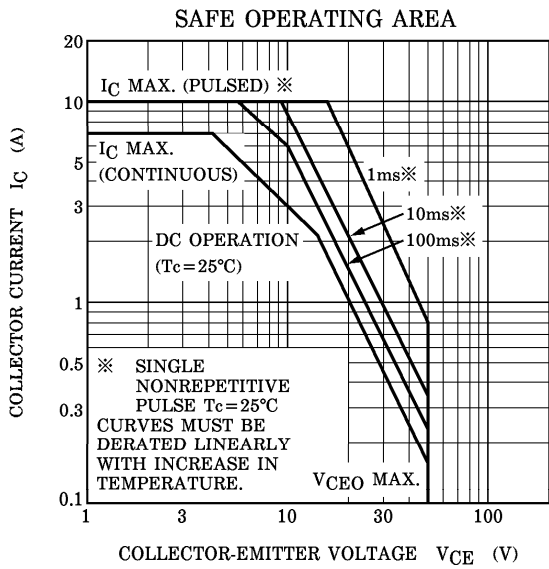
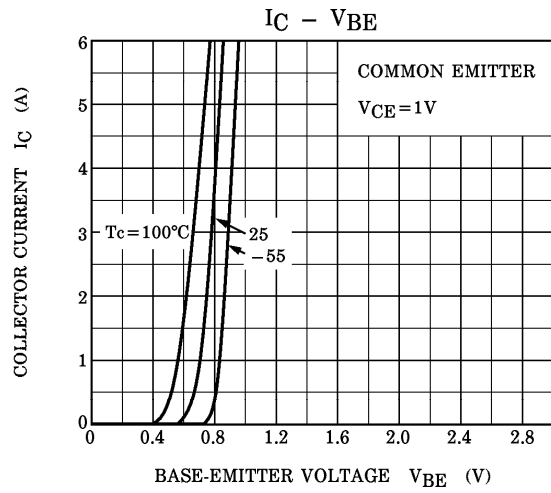
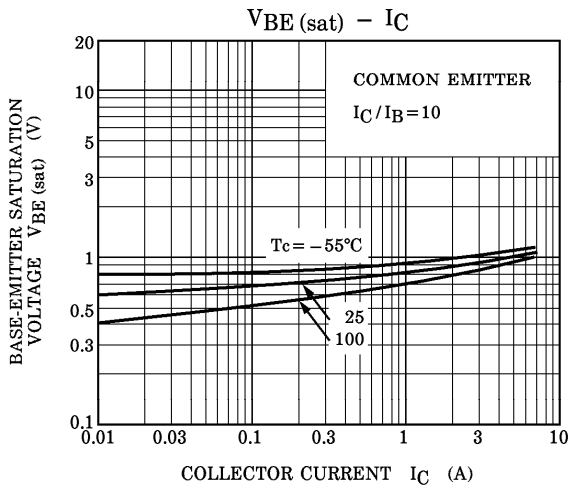
Weight : 1.7 g (Typ.)

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> = 70V, I <sub>E</sub> = 0	—	—	30	μA	
Emitter Cut-off Current	I <sub>EBO</sub>	V <sub>EB</sub> = 5V, I <sub>C</sub> = 0	—	—	50	μA	
Collector-Emitter Breakdown Voltage	V (BR) CEO	I <sub>C</sub> = 50mA, I <sub>B</sub> = 0	50	—	—	V	
DC Current Gain	h <sub>FE</sub> (1) (Note)	V <sub>CE</sub> = 1V, I <sub>C</sub> = 1A	70	—	240		
	h <sub>FE</sub> (2)	V <sub>CE</sub> = 1V, I <sub>C</sub> = 4A	30	—	—		
Collector-Emitter Saturation Voltage	V <sub>CE</sub> (sat)	I <sub>C</sub> = 4A, I <sub>B</sub> = 0.4A	—	0.2	0.4	V	
Base-Emitter Saturation Voltage	V <sub>BE</sub> (sat)	I <sub>C</sub> = 4A, I <sub>B</sub> = 0.4A	—	0.9	1.2	V	
Transition Frequency	f <sub>T</sub>	V <sub>CE</sub> = 4V, I <sub>C</sub> = 1A	—	10	—	MHz	
Collector Output Capacitance	C <sub>ob</sub>	V <sub>CB</sub> = 10V, I <sub>E</sub> = 0, f = 1MHz	—	250	—	pF	
Switching Time	Turn-on Time	t <sub>on</sub>		—	0.2	—	μs
	Storage Time	t <sub>stg</sub>		—	2.5	—	
	Fall Time	t <sub>f</sub>		I <sub>B1</sub> = -I <sub>B2</sub> = 0.3A, DUTY CYCLE ≤ 1%	—	0.5	

(Note) : h<sub>FE</sub> (1) Classification    O : 70~140,    Y : 120~240





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