

TOSHIBA Transistor Silicon PNP Epitaxial Type (PCT process)

# 2SA1300

Strobe Flash Applications  
Medium Power Amplifier Applications

Unit: mm

- High DC current gain and excellent  $h_{FE}$  linearity  
:  $h_{FE} (1) = 140\sim 600$  ( $V_{CE} = -1\text{ V}$ ,  $I_C = -0.5\text{ A}$ )  
:  $h_{FE} (2) = 60$  (min), 120 (typ.) ( $V_{CE} = -1\text{ V}$ ,  $I_C = -4\text{ A}$ )
- Low saturation voltage:  $V_{CE(sat)} = -0.5\text{ V}$  (max)  
( $I_C = -2\text{ A}$ ,  $I_B = -50\text{ mA}$ )

## Maximum Ratings ( $T_a = 25^\circ\text{C}$ )

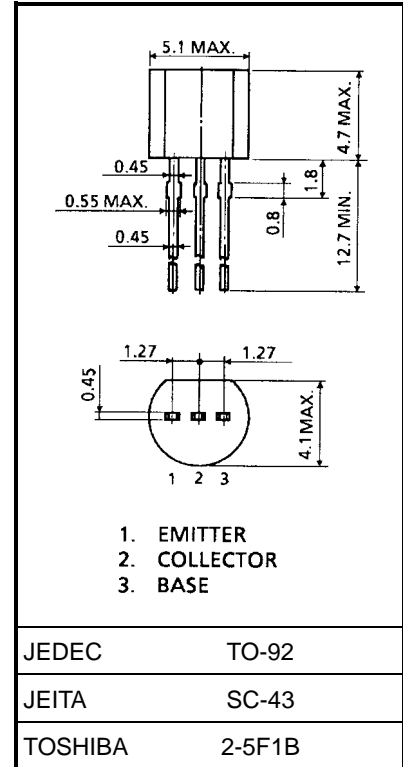
Characteristics		Symbol	Rating	Unit
Collector-base voltage		$V_{CBO}$	-20	V
Collector-emitter voltage		$V_{CES}$	-20	V
		$V_{CEO}$	-10	
Emitter-base voltage		$V_{EBO}$	-6	V
Collector current	DC	$I_C$	-2	A
	Pulsed (Note 1)	$I_{CP}$	-5	
Base current		$I_B$	-0.2	A
Collector power dissipation		$P_C$	750	mW
Junction temperature		$T_j$	150	$^\circ\text{C}$
Storage temperature range		$T_{stg}$	-55~150	$^\circ\text{C}$

Note 1: Pulse width = 10 ms (max), duty cycle = 30% (max)

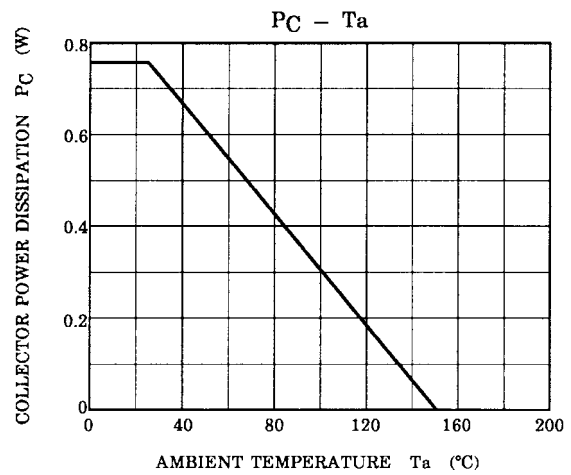
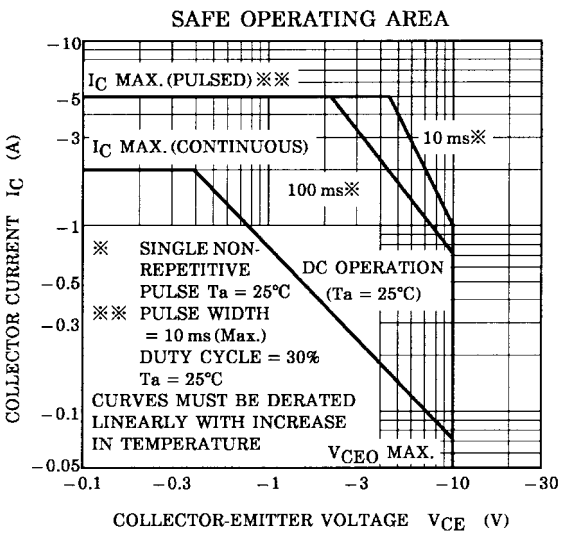
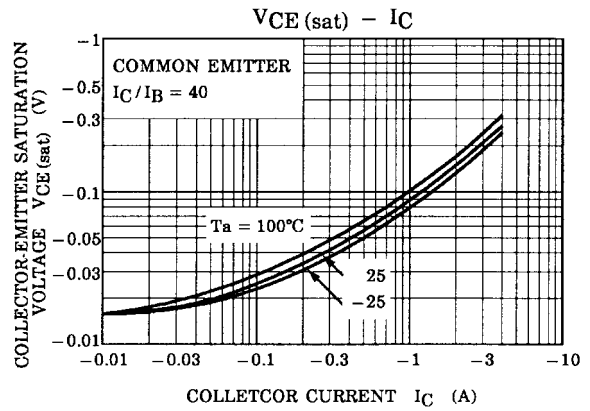
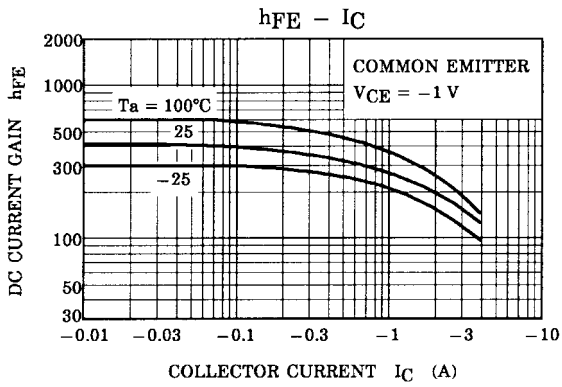
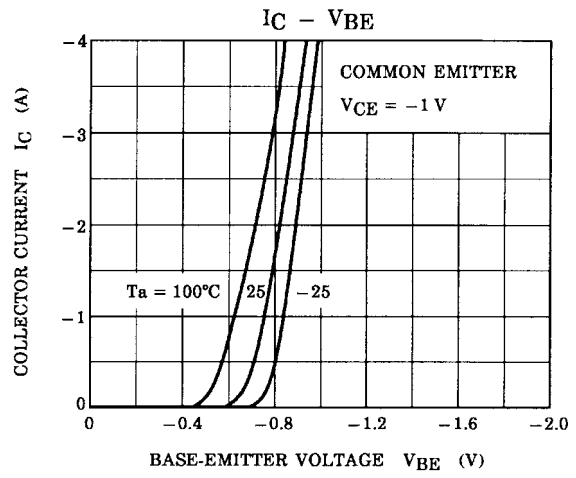
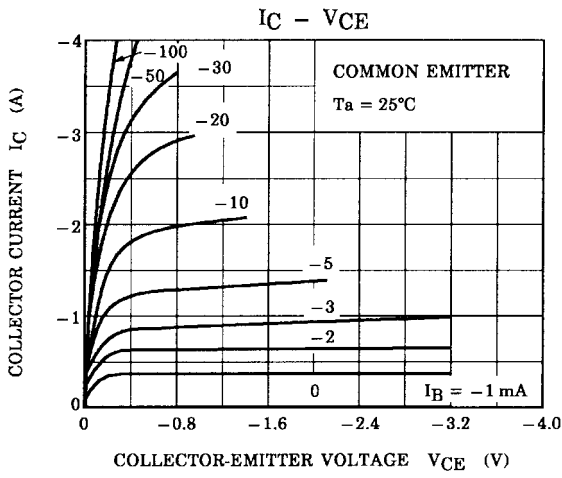
## Electrical Characteristics ( $T_a = 25^\circ\text{C}$ )

Characteristics	Symbol	Test Condition	Min	Typ.	Max	Unit
Collector cut-off current	$I_{CBO}$	$V_{CB} = -20\text{ V}$ , $I_E = 0$	—	—	-0.1	$\mu\text{A}$
Emitter cut-off current	$I_{EBO}$	$V_{EB} = -6\text{ V}$ , $I_C = 0$	—	—	-0.1	$\mu\text{A}$
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C = -10\text{ mA}$ , $I_B = 0$	-10	—	—	V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E = -1\text{ mA}$ , $I_C = 0$	-6	—	—	V
DC current gain	$h_{FE} (1)$ (Note 2)	$V_{CE} = -1\text{ V}$ , $I_C = -0.5\text{ A}$	140	—	600	
	$h_{FE} (2)$	$V_{CE} = -1\text{ V}$ , $I_C = -4\text{ A}$	60	120	—	
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = -2\text{ A}$ , $I_B = -50\text{ mA}$	—	-0.2	-0.5	V
Base-emitter voltage	$V_{BE}$	$V_{CE} = -1\text{ V}$ , $I_C = -2\text{ A}$	—	-0.83	-1.5	V
Transition frequency	$f_T$	$V_{CE} = -1\text{ V}$ , $I_C = -0.5\text{ A}$	—	140	—	MHz
Collector output capacitance	$C_{ob}$	$V_{CB} = -10\text{ V}$ , $I_E = 0$ , $f = 1\text{ MHz}$	—	50	—	pF

Note 2:  $h_{FE} (1)$  classification Y: 140~280, GR: 200~400, BL: 300~600



Weight: 0.21 g (typ.)



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