TOSHIBA Transistor Silicon PNP Epitaxial Type (PCT process)

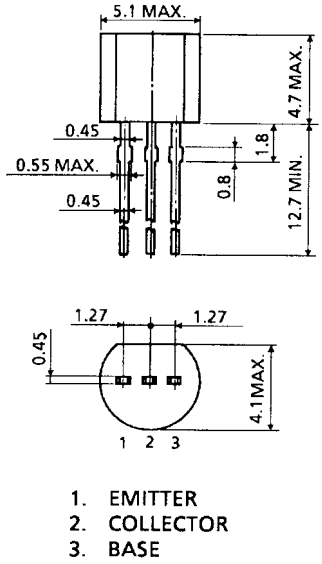
2SA1300

Strobe Flash Applications

Medium Power Amplifier Applications

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

Unit: mm



JEDEC	TO-92
JEITA	SC-43
TOSHIBA	2-5F1B

Weight: 0.21 g (typ.)

Maximum Ratings (Ta = 25°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	°C
Storage temperature range		T_{stg}	−55~150	°C

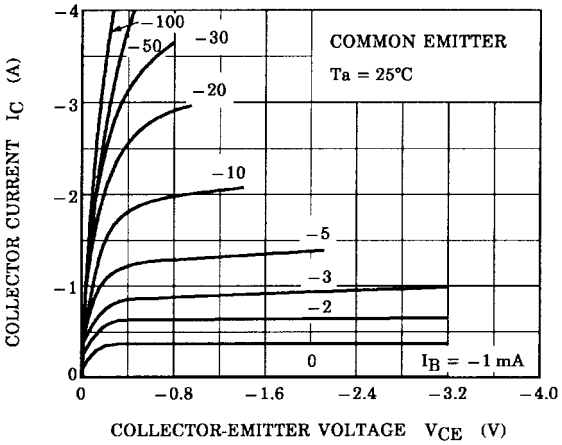
Note 1: Pulse width = 10 ms (max), duty cycle = 30% (max)

Electrical Characteristics (Ta = 25°C)

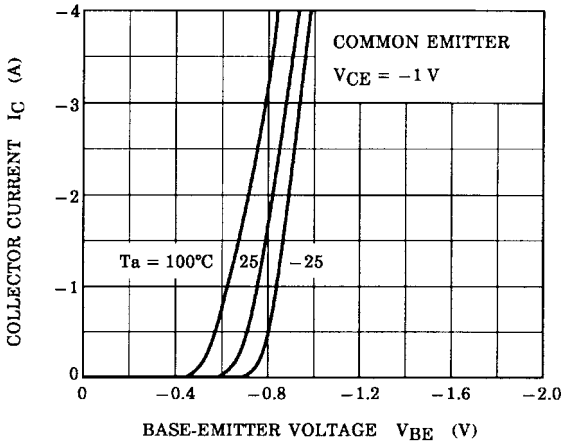
Characteristics	Symbol	Test Condition	Min	Typ.	Max	Unit
Collector cut-off current	I_{CBO}	V_{CB} = −20 V, I_E = 0	—	—	−0.1	μA
Emitter cut-off current	I_{EBO}	V_{EB} = −6 V, I_C = 0	—	—	−0.1	μA
Collector-emitter breakdown voltage	$V_{(BR)\ CEO}$	I_C = −10 mA, I_B = 0	−10	—	—	V
Emitter-base breakdown voltage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

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

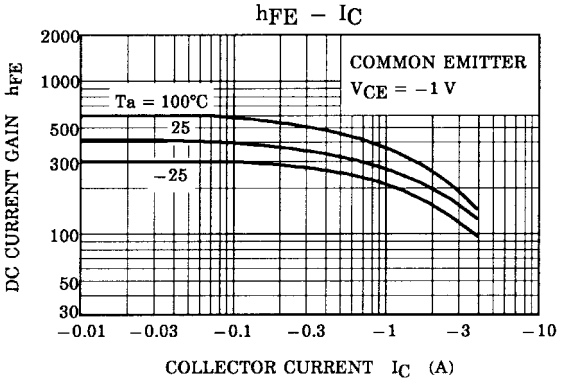
I_C – V_{CE}



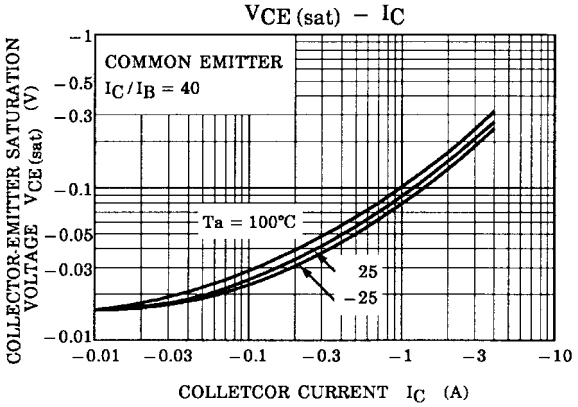
I_C – V_{BE}



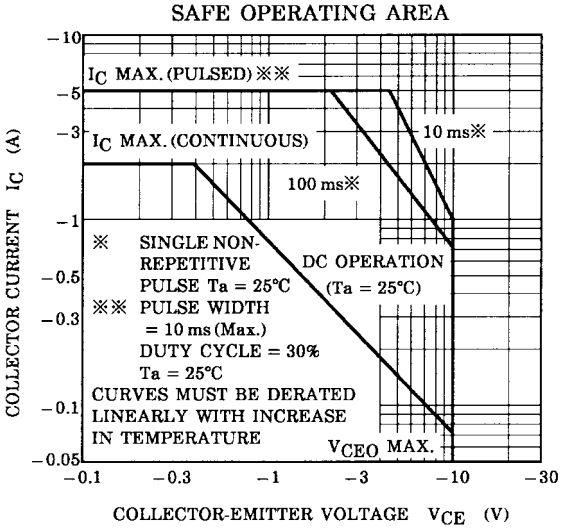
h_{FE} – I_C



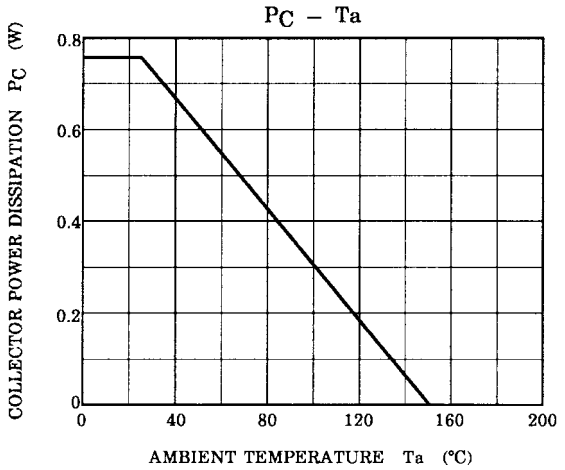
$V_{CE\,(sat)}$ – I_C



SAFE OPERATING AREA



P_C – Ta



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