

TOSHIBA Transistor Silicon PNP Epitaxial Type (PCT Process)

2SA1160

Strobe Flash Applications

Medium Power Amplifier Applications

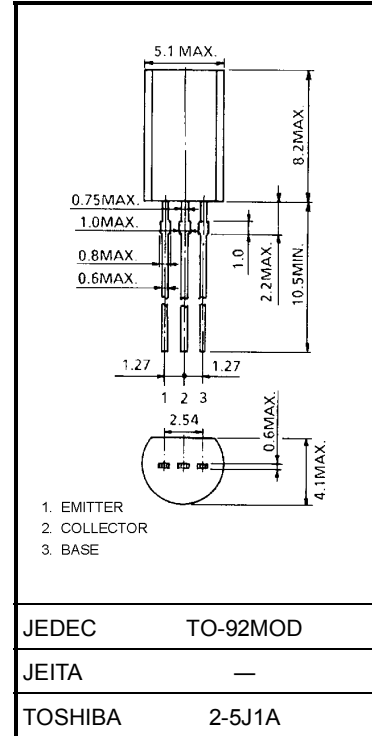
Unit: mm

- High DC current gain and excellent hFE linearity
 - : hFE (1) = 140 to 600 ($V_{CE} = -1$ V, $I_C = -0.5$ A)
 - : hFE (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)

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

Characteristics		Symbol	Rating	Unit
Collector-base voltage		V_{CBO}	-20	V
Collector-emitter voltage		V_{CEO}	-10	V
Emitter-base voltage		V_{EBO}	-6	V
Collector current	DC	I_C	-2	A
	Pulsed (Note 1)	I_{CP}	-4	
Base current		I_B	-2	A
Collector power dissipation		P_C	900	mW
Junction temperature		T_J	150	$^\circ\text{C}$
Storage temperature range		T_{stg}	-55 to 150	$^\circ\text{C}$

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

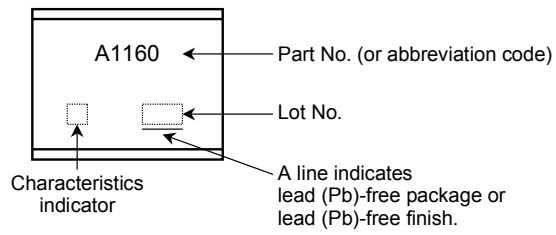


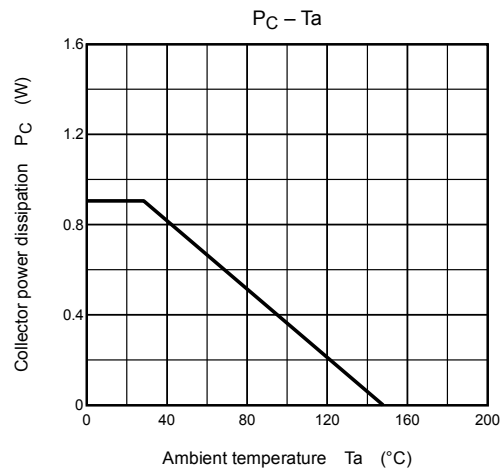
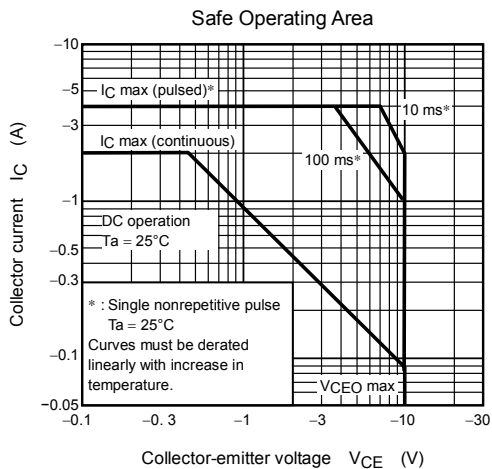
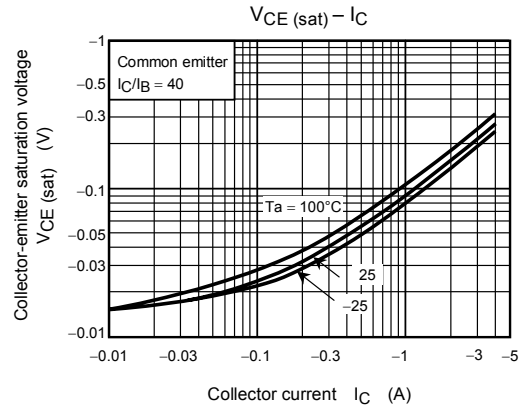
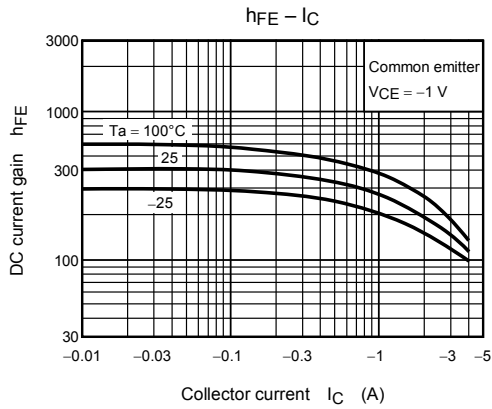
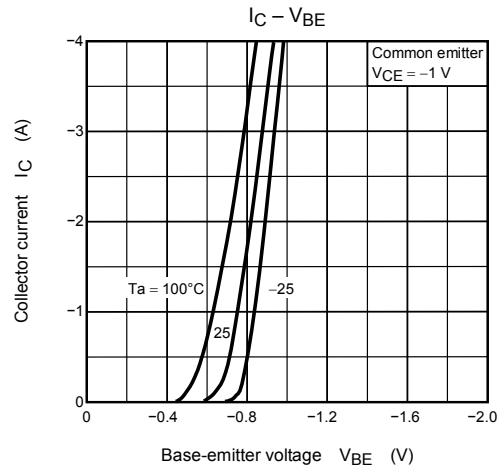
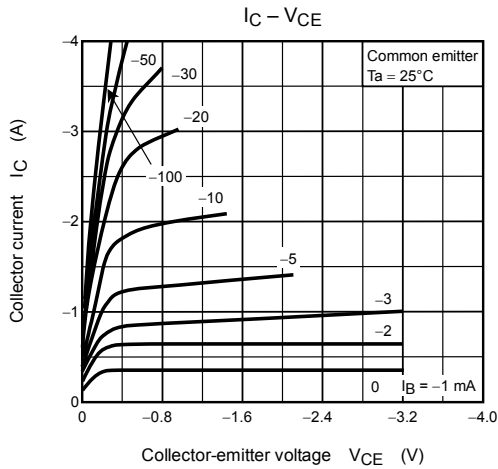
Weight: 0.36 g (typ.)

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

Characteristics	Symbol	Test Condition	Min	Typ.	Max	Unit
Collector cut-off current	I_{CBO}	$V_{CB} = -20$ V, $I_E = 0$	—	—	-100	nA
Emitter cut-off current	I_{EBO}	$V_{EB} = -6$ V, $I_C = 0$	—	—	-100	nA
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	
Collector-emitter saturation voltage	$h_{FE(2)}$	$V_{CE} = -1$ V, $I_C = -4$ A	60	120	—	
Base-emitter saturation voltage	$V_{CE(sat)}$	$I_C = -2$ A, $I_B = -50$ mA	—	-0.20	-0.50	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: hFE (1) Classification A: 140 to 280, B: 200 to 400, C: 300 to 600

Marking



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