TOSHIBA Transistor Silicon PNP Epitaxial Type (PCT process)

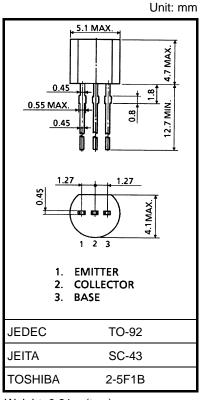
2SA1015

Audio Frequency General Purpose Amplifier Applications Driver Stage Amplifier Applications

- High voltage and high current: V_{CEO} = -50 V (min), I_{C} = -150 mA (max)
- Excellent hFE linearity: hFE (2) = 80 (typ.) at $V_{CE} = -6$ V, $I_{C} = -150$ mA : hFE ($I_{C} = -0.1$ mA)/hFE ($I_{C} = -2$ mA) = 0.95 (typ.)
- Low noise: NF = 1dB (typ.) (f = 1 kHz)
- Complementary to 2SC1815.

Absolute Maximum Ratings (Ta = 25°C)

Characteristics	Symbol	Rating	Unit
Collector-base voltage	V_{CBO}	-50	V
Collector-emitter voltage	V _{CEO}	-50	V
Emitter-base voltage	V _{EBO}	-5	V
Collector current	IC	-150	mA
Base current	ΙΒ	-50	mA
Collector power dissipation	PC	400	mW
Junction temperature	Tj	125	°C
Storage temperature range	T _{stg}	-55~125	°C



Weight: 0.21 g (typ.)

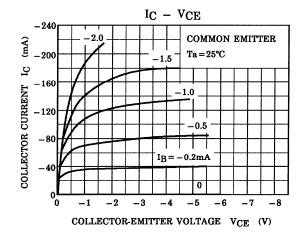
Note: Using continuously under heavy loads (e.g. the application of high temperature/current/voltage and the significant change in temperature, etc.) may cause this product to decrease in the reliability significantly even if the operating conditions (i.e. operating temperature/current/voltage, etc.)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

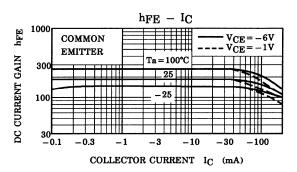
Please design the appropriate reliability upon reviewing the Toshiba Semiconductor Reliability Handbook ("Handling Precautions"/"Derating Concept and Methods") and individual reliability data (i.e. reliability test report and estimated failure rate, etc).

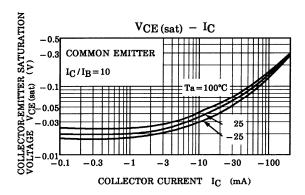
Electrical Characteristics (Ta = 25°C)

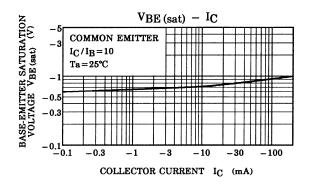
Characteristics	Symbol	Test Condition	Min	Тур.	Max	Unit
Collector cut-off current	I _{CBO}	$V_{CB} = -50 \text{ V}, I_E = 0$	_	_	-0.1	μΑ
Emitter cut-off current	I _{EBO}	$V_{EB} = -5 \text{ V, } I_{C} = 0$	_	_	-0.1	μΑ
DC current gain	h _{FE (1)} (Note)	$V_{CE} = -6 \text{ V}, I_C = -2 \text{ mA}$	70	_	400	
	h _{FE (2)}	$V_{CE} = -6 \text{ V}, I_{C} = -150 \text{ mA}$	25	80	_	
Collector-emitter saturation voltage	V _{CE} (sat)	$I_C = -100 \text{ mA}, I_B = -10 \text{ mA}$	_	-0.1	-0.3	V
Base-emitter saturation voltage	V _{BE} (sat)	$I_C = -100 \text{ mA}, I_B = -10 \text{ mA}$	_	_	-1.1	V
Transition frequency	f _T	$V_{CE} = -10 \text{ V}, I_{C} = -1 \text{ mA}$	80	_	_	MHz
Collector output capacitance	C _{ob}	$V_{CB} = -10 \text{ V}, I_E = 0, f = 1 \text{ MHz}$	_	4	7	pF
Base intrinsic resistance	r _{bb'}	$V_{CE} = -10 \text{ V}, I_{E} = 1 \text{ mA}, f = 30 \text{ MHz}$	_	30	_	Ω
Noise figure	NF	$\begin{split} V_{CE} = -6 \ V, \ I_{C} = -0.1 \ mA, \ R_{G} = 10 \ k\Omega, \\ f = 1 \ kHz \end{split}$	_	1.0	10	dB

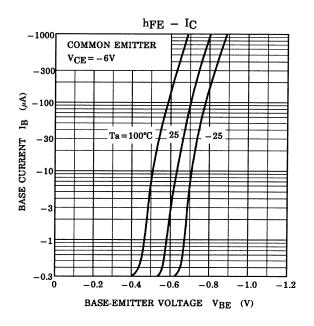
Note: hFE (1) classification O: 70~140, Y: 120~240, GR: 200~400

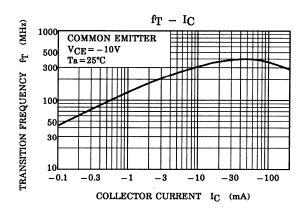


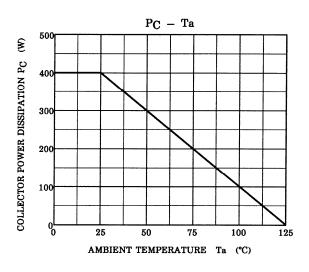












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