TOSHIBA Transistor Silicon NPN Epitaxial Type (PCT process)

2SC4116

Audio Frequency General Purpose Amplifier Applications

• High voltage and high current: $V_{CEO} = 50 \text{ V}$, $I_C = 150 \text{ mA}$ (max)

Excellent hFE linearity: hFE (IC = 0.1 mA)/hFE (IC = 2 mA) = 0.95 (typ.)

High hFE: $hFE = 70 \sim 700$

Low noise: NF = 1dB (typ.), 10dB (max)

Complementary to 2SA1586

Small package

Absolute Maximum Ratings (Ta = 25°C)

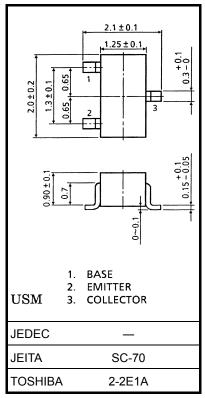
Characteristics	Symbol	Rating	Unit
Collector-base voltage	V_{CBO}	60	V
Collector-emitter voltage	V_{CEO}	50	V
Emitter-base voltage	V_{EBO}	5	V
Collector current	IC	150	mA
Base current	lΒ	30	mA
Collector power dissipation	PC	100	mW
Junction temperature	Tj	125	°C
Storage temperature range	T _{stg}	-55~125	°C

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).

Unit: mm



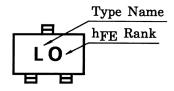
Weight: 0.006 g (typ.)

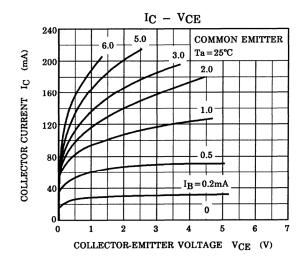
Electrical Characteristics (Ta = 25°C)

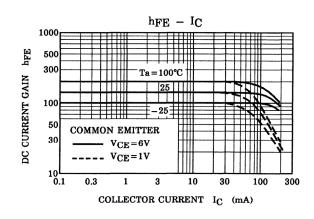
Characteristics	Symbol	Test Condition	Min	Тур.	Max	Unit
Collector cut-off current	I _{CBO}	V _{CB} = 60 V, I _E = 0	_	_	0.1	μΑ
Emitter cut-off current	I _{EBO}	V _{EB} = 5 V, I _C = 0		_	0.1	μА
DC current gain (Note)	h _{FE} (Note)	V _{CE} = 6 V, I _C = 2 mA	70	_	700	
Collector-emitter saturation voltage	V _{CE} (sat)	I _C = 100 mA, I _B = 10 mA	_	0.1	0.25	٧
Transition frequency	f _T	V _{CE} = 10 V, I _C = 1 mA	80	_	_	MHz
Collector output capacitance	C _{ob}	V _{CB} = 10 V, I _E = 0, f = 1 MHz	_	2.0	3.5	pF
Noise figure	NF	$\begin{split} V_{CE} = 6 \text{ V, I}_{C} = 0.1 \text{ mA, f} = 1 \text{ kHz,} \\ R_g = 10 \text{ k}\Omega, \end{split}$		1.0	10	dB

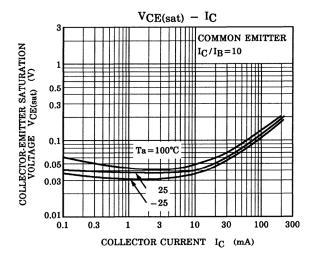
Note: hFE classification O (O): 70~140, Y (Y): 120~240, GR (G): 200~400, BL (L): 350~700, () marking symbol

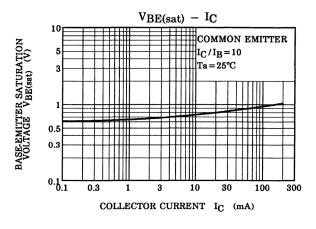
Marking

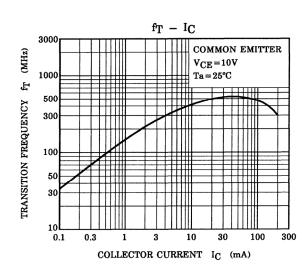


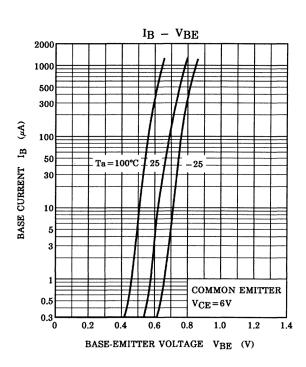


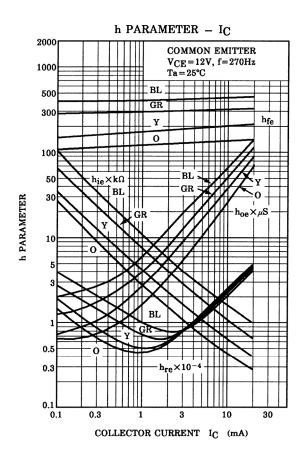


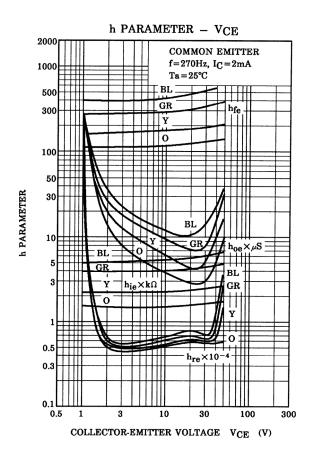


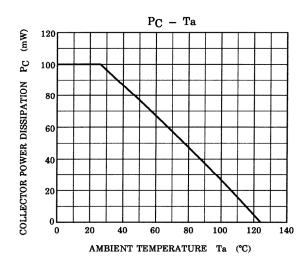












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20070701-EN GENERAL

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