TOSHIBA Transistor Silicon NPN Epitaxial Type (PCT process)

2SC1815

Audio Frequency General Purpose Amplifier Applications

Driver Stage Amplifier Applications

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

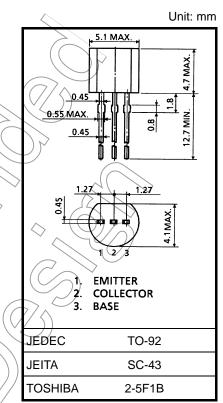
• Excellent hFE linearity: hFE (2) = 100 (typ.)

= 0.95 (typ.)

- Low noise: NF = 1dB (typ.) at f = 1 kHz
- Complementary to 2SA1015 (O, Y, GR class)

Absolute Maximum Ratings (Ta = 25°C)

Characteristics	Symbol	Rating	Unit
Collector-base voltage	V _{CBO}	60	\sim
Collector-emitter voltage	V _{CEO}	50	> v
Emitter-base voltage	V _{EBO}	5	V
Collector current	Ι _C	150	mA
Base current	I _B <	50	mA
Collector power dissipation	PC	400	mW
Junction temperature	тј	125	°C
Storage temperature range	Tstg	-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.

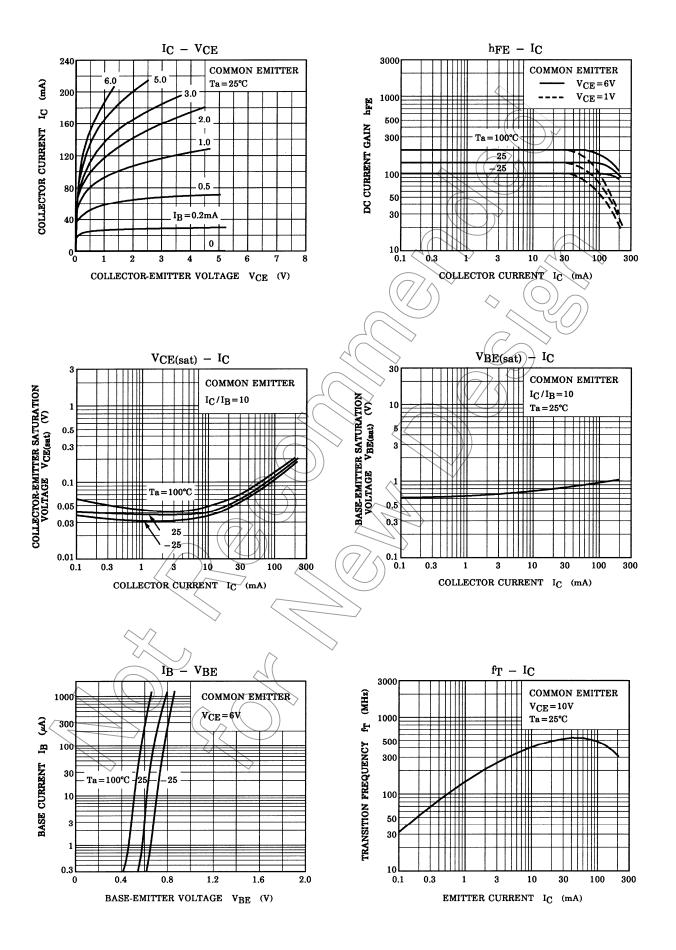
Please design the appropriate reliability upon reviewing the Toshiba Semiconductor Reliability Handbook ("Handling Precautions"/"Derating Concept and Methods") and individual reliability data (i.e. reliability test report and estimated failure rate, etc).

Electrical Characteristics (Ta = 25°C)

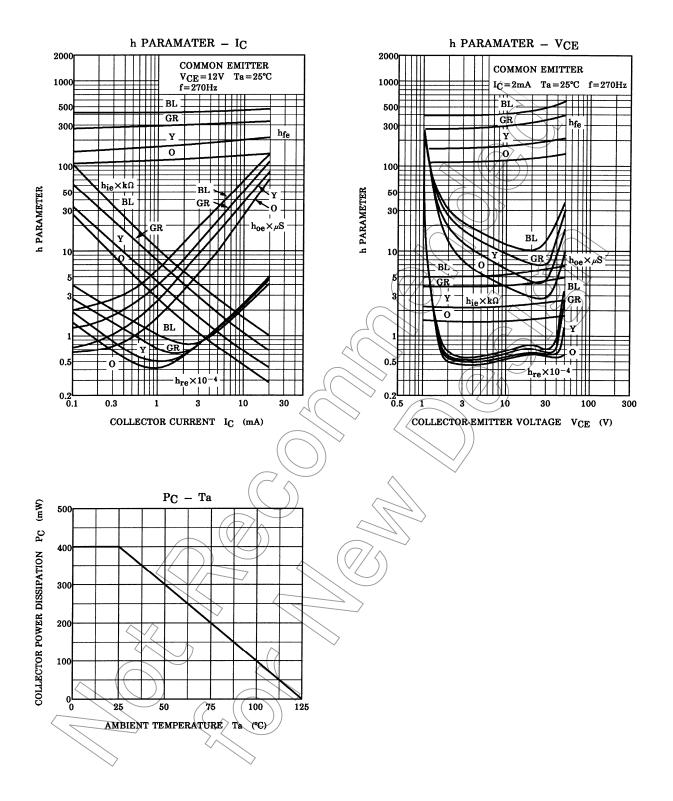
Characteristics	Symbol	Test Condition	Min	Тур.	Max	Unit
Collector cut-off current	Ісво	$V_{CB} = 60 \text{ V}, I_E = 0$	_		0.1	μΑ
Emitter cut-off current	IEBQ	$V_{EB} = 5 V, I_{C} = 0$	_	_	0.1	μΑ
DC current gain	hFE (1) (Note)	$V_{CE} = 6 \text{ V}, \text{ I}_{C} = 2 \text{ mA}$	70	_	700	
	h _{FE} (2)	$V_{CE} = 6 \text{ V}, I_{C} = 150 \text{ mA}$	25	100		
Collector-emitter saturation voltage	VCE (sat)	$I_{C} = 100 \text{ mA}, I_{B} = 10 \text{ mA}$		0.1	0.25	V
Base-emitter saturation voltage	V _{BE (sat)}	$I_{C} = 100 \text{ mA}, I_{B} = 10 \text{ mA}$		_	1.0	V
Transition frequency	f _T	$V_{CE} = 10 \text{ V}, \text{ I}_{C} = 1 \text{ mA}$	80	—		MHz
Collector output capacitance	C _{ob}	$V_{CB} = 10 \text{ V}, \text{ I}_{E} = 0, \text{ f} = 1 \text{ MHz}$	_	2.0	3.5	pF
Base intrinsic resistance	r _{bb'}	V _{CE} = 10 V, I _E = -1 mA f = 30 MHz	_	50		Ω
Noise figure	NF	$V_{CE} = 6 \text{ V}, \text{ I}_{C} = 0.1 \text{ mA}$ f = 1 kHz, R _G = 10 k Ω		1.0	10	dB

Note: hFE classification O: 70~140, Y: 120~240, GR: 200~400, BL: 350~700

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