TOSHIBA Transistor Silicon NPN Epitaxial Type (PCT process)

2SC1815(L)

Audio Frequency Voltage Amplifier Applications Low Noise Amplifier Applications

• High breakdown voltage, high current capability

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

• Excellent linearity of hFE

: h_{FE} (2) = 100 (typ.) at V_{CE} = 6 V, I_{C} = 150 mA

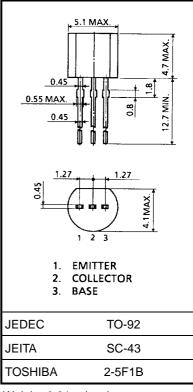
 $: h_{FE} (I_{C} = 0.1 \text{ mA})/h_{FE} (I_{C} = 2 \text{ mA}) = 0.95 \text{ (typ.)}$

- Low noise: NF = 0.2dB (typ.) (f = 1 kHz).
- Complementary to 2SA1015 (L). (O, Y, GR class).

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	ΙΒ	50	mA
Collector power dissipation	PC	400	mW
Junction temperature	Tj	125	°C
Storage temperature range	T _{stg}	-55~125	°C

Unit: mm

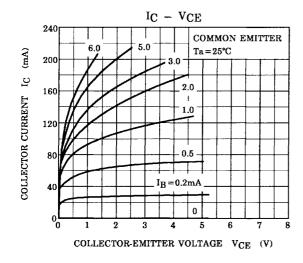


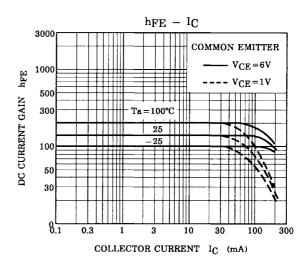
Weight: 0.21 g (typ.)

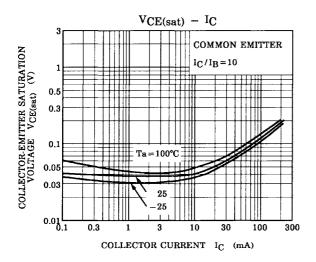
Electrical Characteristics (Ta = 25°C)

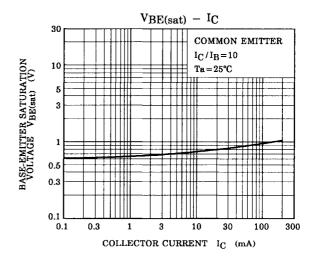
Characteristics		Symbol	Test Condition	Min	Тур.	Max	Unit	
Collector cut-off current		I _{CBO}	V _{CB} = 60 V, I _E = 0	_	_	0.1	μΑ	
Emitter cut-off current		I _{EBO}	V _{EB} = 5 V, I _C = 0	_	_	0.1	μА	
DC current gain		h _{FE (1)} (Note)	V _{CE} = 6 V, I _C = 2 mA	70	_	700		
		h _{FE (2)}	V _{CE} = 6 V, I _C = 150 mA	25	100	_	1	
Saturation voltage	Collector-emitter	V _{CE (sat)}	$I_C = 100 \text{ mA}, I_B = 10 \text{ mA}$	_	0.1	0.25	V	
	Base-emitter	V _{BE (sat)}	$I_C = 100 \text{ mA}, I_B = 10 \text{ mA}$	_	_	1.0		
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	
Base intrinsic resistance		r _{bb'}	$V_{CE} = 10 \text{ V}, I_{E} = -1 \text{ mA}, f = 30 \text{ MHz}$	_	50	_	Ω	
Noise figure		NF (1)	$V_{CE} = 6 \text{ V}, I_{C} = 0.1 \text{ mA}$ $R_{G} = 10 \text{ k}\Omega, f = 100 \text{ Hz}$	_	0.5	6	dB	
		NF (2)	$V_{CE} = 6 \text{ V}, I_{C} = 0.1 \text{ mA}$ $R_{G} = 10 \text{ k}\Omega, f = 1 \text{ kHz}$	_	0.2	3	uв	

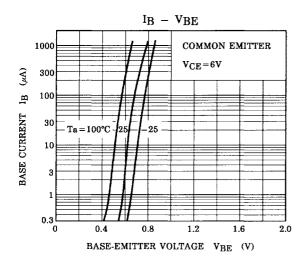
Note: $h_{FE\ (1)}$ classification O: 70~140, Y: 120~240, GR: 200~400, BL: 350~700

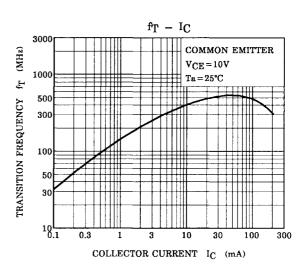




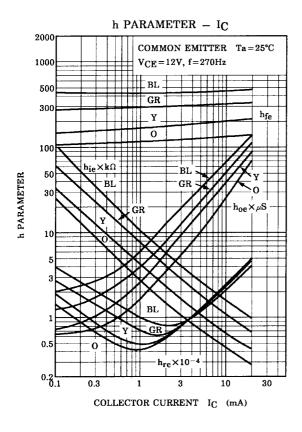


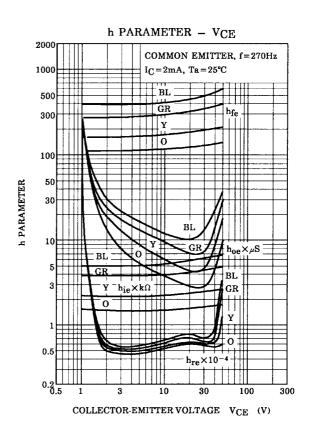


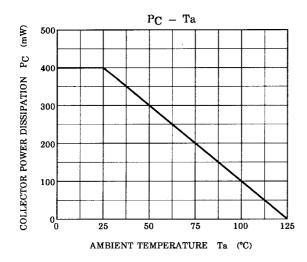




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