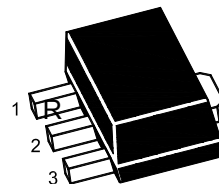


NPN Silicon Epitaxial Planar Transistor

Low frequency transistor

Marking : R CFR
S CFS



1.Base 2.Collector 3.Emitter
SOT-89 Plastic Package

Absolute Maximum Ratings (T_a = 25 °C)

Parameter	Symbol	Value	Unit
Collector Base Voltage	V _{CBO}	40	V
Collector Emitter Voltage	V _{CEO}	20	V
Emitter Base Voltage	V _{EBO}	6	V
Collector Current - DC	I _C	3	A
Collector Current - Pulse ¹⁾	I _{CP}	5 ¹⁾	A
Total Power Dissipation	P _{tot}	0.5 2 ²⁾	W
Junction Temperature	T _J	150	°C
Storage Temperature Range	T _{Stg}	- 55 to + 150	°C

¹⁾ Single pulse Pw = 10 ms.

²⁾ Mounted on a 40 X 40 X 0.7 mm ceramic substrate.

Characteristics at T_a = 25 °C

Parameter	Symbol	Min.	Typ.	Max.	Unit
DC Current Gain at V _{CE} = 2 V, I _C = 100 mA Current Gain Group R S	h _{FE}	180	-	390	-
	h _{FE}	270	-	560	-
Collector Base Breakdown Voltage at I _C = 50 μA	V _{(BR)CBO}	40	-	-	V
Collector Emitter Breakdown Voltage at I _C = 1 mA	V _{(BR)CEO}	20	-	-	V
Emitter Base Breakdown Voltage at I _E = 50 μA	V _{(BR)EBO}	6	-	-	V
Collector Cutoff Current at V _{CB} = 30 V	I _{CBO}	-	-	100	nA
Emitter Cutoff Current at V _{EB} = 5 V	I _{EBO}	-	-	100	nA
Collector Emitter Saturation Voltage at I _C = 2 A, I _B = 100 mA	V _{CE(sat)}	-	-	0.5	V
Transition Frequency at V _{CE} = 2 V, -I _E = 500 mA, f = 100 MHz	f _T	-	290	-	MHz
Collector Output Capacitance at V _{CE} = 10 V, I _E = 0 A, f = 1 MHz	C _{ob}	-	25	-	pF

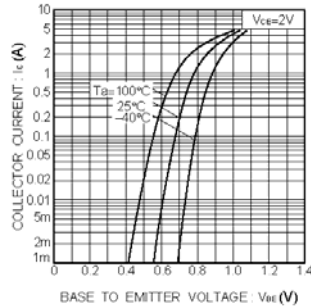


Fig.1 Grounded emitter propagation characteristics

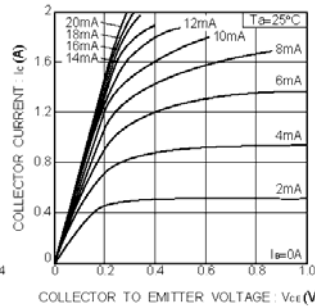


Fig.2 Grounded emitter output characteristics (I)

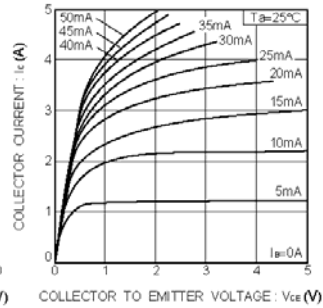


Fig.3 Grounded emitter output characteristics (II)

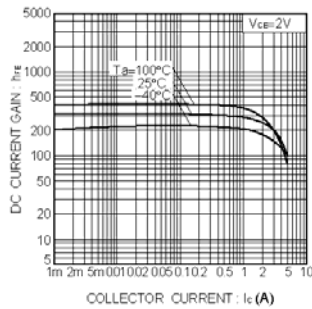


Fig.4 DC current gain vs. collector current

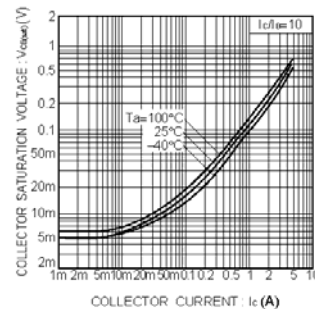


Fig.5 Collector-emitter saturation voltage vs. collector current (I)

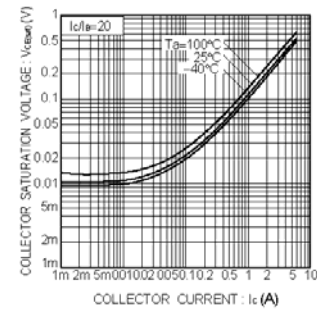


Fig.6 Collector-emitter saturation voltage vs. collector current (II)

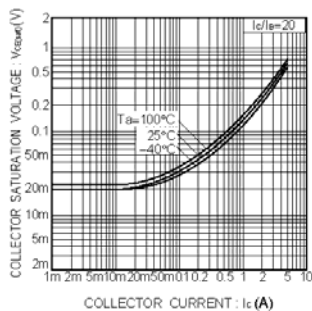


Fig.7 Collector-emitter saturation voltage vs. collector current (III)

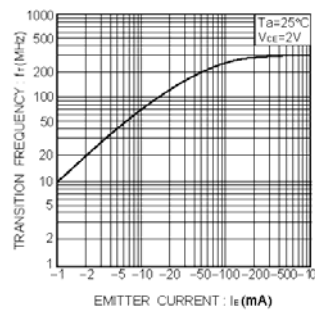


Fig.8 Gain bandwidth product vs. emitter current

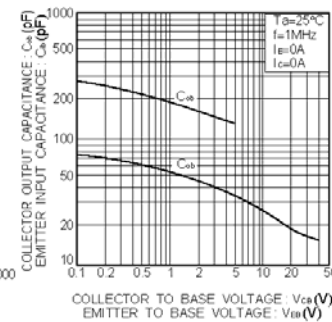


Fig.9 Collector output capacitance vs. collector-base voltage
Emitter input capacitance vs. emitter-base voltage



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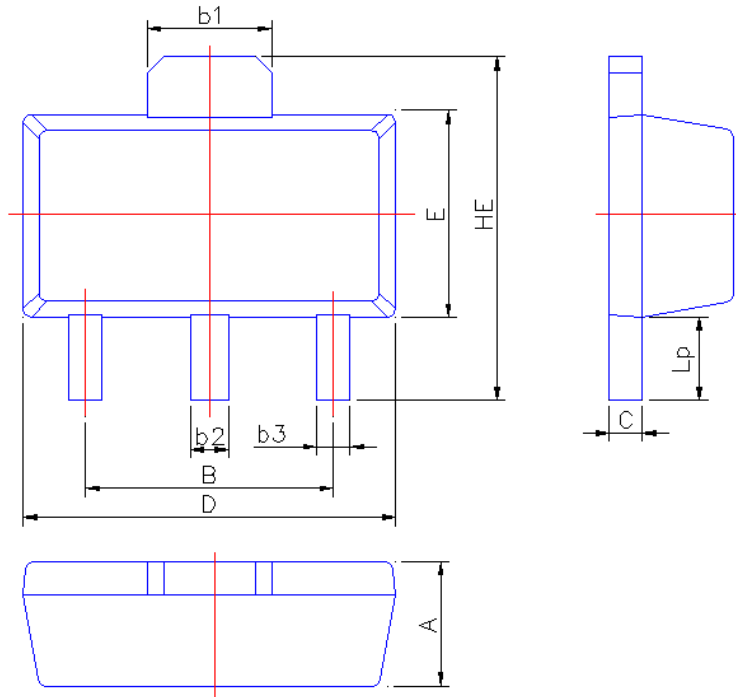
SOT-89

2SD2150U



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SOT-89 PACKAGE OUTLINE



Symbol	Dimension in Millimeters	
	Min	Max
A	1.40	1.60
B	2.95	3.05
b1	1.45	1.70
b2	0.45	0.56
b3	0.35	0.50
C	0.35	0.50
D	4.40	4.60
E	2.35	2.55
HE	3.90	4.40
Lp	0.90	1.10