TRANSISTOR (NPN) **Plastic-Encapsulate Transistor**

FEATURES

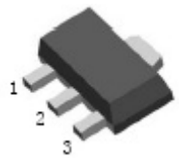
- Excellent current-to-gain characteristics
- Low collector saturation voltage, typically

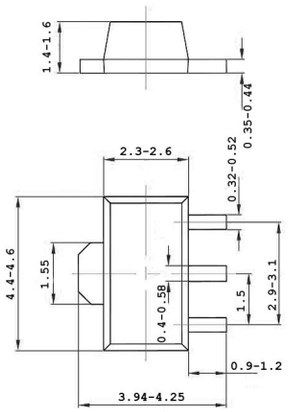
$V_{CE(SAT)}$ = 0.5V(max) for I_C/I_B = 2A/0.1A

MARKING: CFQ, CFR, CFS

SOT-89

1. BASE
2. COLLECTOR
3. EMITTER





UNIT:mm

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25℃ ambient temperature unless otherwise specified.

MAXIMUM RATINGS

Parameters	Symbols	Value	UNITS
Collector-Base Voltage	V_{CBO}	40	V
Collector-Emitter Voltage	V_{CEO}	20	V
Emitter-Base Voltage	V_{EBO}	6	V
Collector Current - Continuous	I_C	3	A
Collector Dissipation	P_C	500	mW
Junction and Storage Temperature	T_J, T_{stg}	-55-150	℃

*These ratings are limiting values above which the serviceability of any semiconductor device may be impaired.

ELECTRICAL CHARACTERISTICS

Parameters	Symbol	Test conditions	MIN	TYP	MAX	UNIT
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	I_C=50μA, I_E=0	40			V
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	I_C=1mA, I_B=0	20			V
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	I_E=50μA, I_C=0	6			V
Collector Cut-Off Current	I_{CBO}	V_{CB}=30V, I_E=0			0.1	μA
Emitter Cut-Off Current	I_{EBO}	V_{EB}=5V, I_C=0			0.1	μA
DC Current Gain	h_{FE}*	V_{CE}=2V, I_C=100mA	120		560	
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$*	I_C=2A, I_B=100mA			0.5	V
Transition Frequency	f_T*	V_{CE}=2V, I_C=500mA, f=100MHz		290		MHz
Collector Output Capacitance	C_{ob}	V_{CB}=10V, I_E=0, f=1MHz		25		pF

*Pulse test: $t_p \leq 300\mu s$; $\delta \leq 0.02$.

CLASSIFICATION OF h_{FE}

Rank	Q	R	S
Range	120-270	180-390	270-560

RoHS Pb-free TIP Semiconductor

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