

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

**FEATURES**

- Low voltage

**MARKING: SA, SB, SC, SD**

**SOT-89**

1. BASE
2. COLLECTOR
3. EMITTER

UNIT:mm

**MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS**  
 Ratings at 25°C ambient temperature unless otherwise specified.

**MAXIMUM RATINGS**

Parameter	Symbol	Value	UNITS
Collector-Base Voltage	$V_{CBO}$	30	V
Collector-Emitter Voltage	$V_{CEO}$	10	V
Emitter-Base Voltage	$V_{EBO}$	6	V
Collector Current – Continuous	$I_C$	2	A
Collector Dissipation	$P_C$	0.5	W
Junction and Storage Temperature	$T_J, T_{stg}$	-55-150	°C

**ELECTRICAL CHARACTERISTICS**

Parameter	Symbol	Test conditions	MIN	TYP	MAX	UNIT
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C=1mA, I_E=0$	30			V
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C=10mA, I_B=0$	10			V
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E=1mA, I_C=0$	6			V
Collector Cut-Off Current	$I_{CBO}$	$V_{CB}=30V, I_E=0$			0.1	μA
Emitter Cut-Off Current	$I_{EBO}$	$V_{EB}=6V, I_C=0$			0.1	μA
DC Current Gain	$h_{FE(1)}$ $h_{FE(2)}$	$V_{CE}=1V, I_C=0.5A$ $V_{CE}=1V, I_C=2A$	140 70		600	
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=2A, I_B=50mA$			0.5	V
Base-Emitter Voltage	$V_{BE}$	$V_{CE}=1V, I_C=2A$			1.5	V
Transition Frequency	$f_T$	$V_{CE}=1V, I_C=0.5A$		150		MHz
Collector Output Capacitance	$C_{ob}$	$V_{CB}=10V, I_E=0, f=1MHz$		27		pF

**CLASSIFICATION OF  $h_{FE(1)}$** 

Rank	A	B	C	D
Range	140-240	200-330	300-450	420-600

[www.s-manuals.com](http://www.s-manuals.com)