

## TRANSISTOR (NPN)

### FEATURES

- Low Voltage
- High Current
- Complement to BSR33

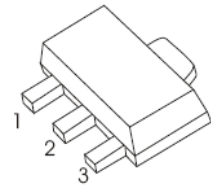
### APPLICATIONS

- Thick and Thin-Film Circuits
- Telephony and General Industrial Applications

**MARKING:AR4**

### SOT-89-3L

1. BASE
2. COLLECTOR
3. EMITTER



### MAXIMUM RATINGS (T<sub>a</sub>=25°C unless otherwise noted)

Symbol	Parameter	Value	Unit
V <sub>CB0</sub>	Collector-Base Voltage	90	V
V <sub>CEO</sub>	Collector-Emitter Voltage	80	V
V <sub>EBO</sub>	Emitter-Base Voltage	5	V
I <sub>C</sub>	Collector Current	1	A
P <sub>C</sub>	Collector Power Dissipation	500	mW
R <sub>θJA</sub>	Thermal Resistance From Junction To Ambient	250	°C/W
T <sub>j</sub>	Junction Temperature	150	°C
T <sub>stg</sub>	Storage Temperature	-55~+150	°C

### ELECTRICAL CHARACTERISTICS (T<sub>a</sub>=25°C unless otherwise specified)

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	V <sub>(BR)CBO</sub>	I <sub>C</sub> =100μA, I <sub>E</sub> =0	90			V
Collector-emitter breakdown voltage	V <sub>(BR)CEO</sub>	I <sub>C</sub> =1mA, I <sub>B</sub> =0	80			V
Emitter-base breakdown voltage	V <sub>(BR)EBO</sub>	I <sub>E</sub> =100μA, I <sub>C</sub> =0	5			V
Collector cut-off current	I <sub>CB0</sub>	V <sub>CB</sub> =60V, I <sub>E</sub> =0			100	nA
Emitter cut-off current	I <sub>EBO</sub>	V <sub>EB</sub> =5V, I <sub>C</sub> =0			100	nA
DC current gain	h <sub>FE(1)</sub> *	V <sub>CE</sub> =5V, I <sub>C</sub> =0.1mA	30			
	h <sub>FE(2)</sub> *	V <sub>CE</sub> =5V, I <sub>C</sub> =100mA	100		300	
	h <sub>FE(3)</sub> *	V <sub>CE</sub> =5V, I <sub>C</sub> =500mA	50			
Collector-emitter saturation voltage	V <sub>CE(sat)</sub> *	I <sub>C</sub> =150mA, I <sub>B</sub> =15mA			0.25	V
		I <sub>C</sub> =500mA, I <sub>B</sub> =50mA			0.5	V
Base-emitter saturation voltage	V <sub>BE(sat)</sub> *	I <sub>C</sub> =150mA, I <sub>B</sub> =15mA			1	V
		I <sub>C</sub> =500mA, I <sub>B</sub> =50mA			1.2	V
Transition frequency	f <sub>T</sub>	V <sub>CE</sub> =10V, I <sub>C</sub> =50mA, f=100MHz	100			MHz
Collector output capacitance	C <sub>ob</sub>	V <sub>CB</sub> =10V, I <sub>E</sub> =0, f=1MHz			12	pF
Emitter input capacitance	C <sub>ib</sub>	V <sub>BE</sub> =0.5V, I <sub>C</sub> =0, f=1MHz			90	pF

\*Pulse test