

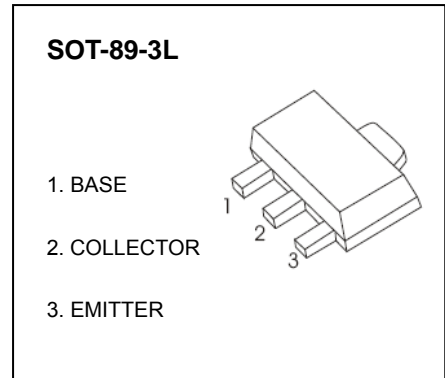


# SOT-89-3L Plastic-Encapsulate Transistors

**2SD1005** TRANSISTOR (NPN)

**FEATURES**

- Small Flat Package
- High Breakdown Voltage
- Excellent DC Current Gain Linearity



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

Symbol	Parameter	Value	Unit
V <sub>CB0</sub>	Collector-Base Voltage	100	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> =0.1mA, I <sub>E</sub> =0	100			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> =0.1mA, I <sub>C</sub> =0	5			V
Collector cut-off current	I <sub>CBO</sub>	V <sub>CB</sub> =100V, I <sub>E</sub> =0			0.1	μA
Emitter cut-off current	I <sub>EBO</sub>	V <sub>EB</sub> =5V, I <sub>C</sub> =0			0.1	μA
DC current gain	h <sub>FE(1)</sub> *	V <sub>CE</sub> =2V, I <sub>C</sub> =100mA	90		400	
	h <sub>FE(2)</sub> *	V <sub>CE</sub> =2V, I <sub>C</sub> =500mA	25			
Collector-emitter saturation voltage	V <sub>CE(sat)</sub> *	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> =500mA, I <sub>B</sub> =50mA			1.5	V
Base-emitter voltage	V <sub>BE</sub> *	V <sub>CE</sub> =10V, I <sub>C</sub> =10mA	0.6		0.7	V
Transition frequency	f <sub>T</sub>	V <sub>CE</sub> =5V, I <sub>C</sub> =10mA		160		MHz
Collector output capacitance	C <sub>ob</sub>	V <sub>CB</sub> =10V, I <sub>E</sub> =0, f=1MHz		12		pF

\*Pulse test

**CLASSIFICATION OF h<sub>FE(1)</sub>**

RANK	W	V	U
RANGE	90 - 180	135 - 270	200 - 400
MARKING	BW	BV	BU