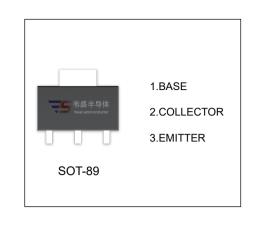


# 2SD999 TRANSISTOR (NPN)

#### **FEATURES**

- Low Collector-Emitter Saturation Voltage
- Mini Power Type Package
- Excellent DC Current Gain Linearity

## MAXIMUM RATINGS ( $T_a$ =25°C unless otherwise noted)



Symbol	Parameter	Value	Unit
V <sub>CBO</sub>	Collector-Base Voltage	30	V
V <sub>CEO</sub>	Collector-Emitter Voltage	25	V
V <sub>EBO</sub>	Emitter-Base Voltage	5	V
Ic	Collector Current	1	Α
Pc	Collector Power Dissipation	500	mW
R <sub>θJA</sub>	Thermal Resistance From Junction To Ambient	250	°C/W
$T_J$ , $T_{stg}$	Operation Junction and Storage Temperature Range	-55~+150	℃

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

Parameter	Symbol	Test conditions	Min	Тур	Max	Unit
Collector-base breakdown voltage	V <sub>(BR)CBO</sub>	I <sub>C</sub> =100μA,I <sub>E</sub> =0	30			V
Collector-emitter breakdown voltage	V <sub>(BR)CEO</sub>	I <sub>C</sub> =1mA,I <sub>B</sub> =0	25			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>CBO</sub>	V <sub>CB</sub> =30V,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> =1V, I <sub>C</sub> =100mA	90		400	
DC Current gam	h <sub>FE(2)</sub> *	V <sub>CE</sub> =1V, I <sub>C</sub> =1A	50			
Collector-emitter saturation voltage	V <sub>CE(sat)</sub> *	I <sub>C</sub> =1A,I <sub>B</sub> =0.1A			0.4	V
Base-emitter saturation voltage	V <sub>BE(sat)</sub> *	I <sub>C</sub> =1A,I <sub>B</sub> =0.1A			1.2	V
Base -emitter voltage	V <sub>BE</sub> *	V <sub>CE</sub> =6V, I <sub>C</sub> =10mA	0.6		0.7	V
Transition frequency	f <sub>T</sub>	VcE=6V,Ic=10mA		130		MHz
Collector output capacitance	C <sub>ob</sub>	V <sub>CB</sub> =6V, I <sub>E</sub> =0, f=1MHz		22		pF

<sup>\*</sup>Pulse test: pulse width ≤350µs, duty cycle≤ 2.0%.

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

RANK	СМ	CL	СК
RANGE	90 - 180	135 - 270	200 - 400
MARKING	СМ	CL	CK