2SD999 TRANSISTOR (NPN)

1.BASE
2.COLLECTOR
3.EMITTER

SOT-89

FEATURES

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

MAXIMUM RATINGS (T_a=25℃ unless otherwise noted)

Symbol	Parameter	Value	Unit
V_{CBO}	Collector-Base Voltage	30	V
V_{CEO}	Collector-Emitter Voltage	25	V
V_{EBO}	Emitter-Base Voltage	5	V
I_C	Collector Current	1	A
P_C	Collector Power Dissipation	500	mW
$R_{\theta JA}$	Thermal Resistance From Junction To Ambient	250	℃/W
T_J,T_{stg}	Operation Junction and Storage Temperature Range	-55~+150	℃

ELECTRICAL CHARACTERISTICS (T_a=25℃ unless otherwise specified)

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	$V_{(BR)CBO}$	I_C=100μA,I_E=0	30			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	I_C=1mA,I_B=0	25			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	I_E=100μA,I_C=0	5			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	$h_{FE(1)}$*	V_{CE}=1V, I_C=100mA	90		400	
	$h_{FE(2)}$*	V_{CE}=1V, I_C=1A	50			
Collector-emitter saturation voltage	$V_{CE(sat)}$*	I_C=1A,I_B=0.1A			0.4	V
Base-emitter saturation voltage	$V_{BE(sat)}$*	I_C=1A,I_B=0.1A			1.2	V
Base -emitter voltage	V_{BE}*	V_{CE}=6V, I_C=10mA	0.6		0.7	V
Transition frequency	f_T	V_{CE}=6V,I_C=10mA		130		MHz
Collector output capacitance	C_{ob}	V_{CB}=6V, I_E=0, f=1MHz		22		pF

*Pulse test: pulse width ≤350μs, duty cycle≤ 2.0%.

CLASSIFICATION OF $h_{FE(1)}$

RANK	CM	CL	CK
RANGE	90 – 180	135 – 270	200 – 400
MARKING	CM	CL	CK