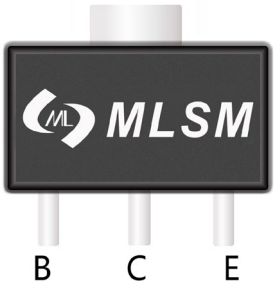
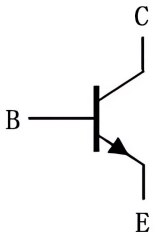
Features

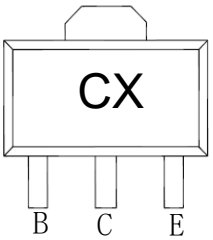
- Low Collector-Emitter Saturation Voltage
- Mini Power Type Package
- Excellent DC Current Gain Linearity



SOT-89-3L top view



Schematic diagram



Rank:X

Marking and pin assignment

Pb-Free RoHS Halogen-Free

Maximum Ratings (Ta=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	°C/W
T_J,T_{stg}	Operation Junction and Storage Temperature Range	-55~+150	°C

Ordering Information (Example)

Type	Package	Marking	Minimum Package(pcs)	Inner Box Quantity(pcs)	Outer Carton Quantity(pcs)	Delivery Mode
2SD999	SOT-89-3L	CM/CL/CK	1,000	10,000	40,000	7"reel

Electrical Characteristics (Ta=25℃ unless otherwise specified)

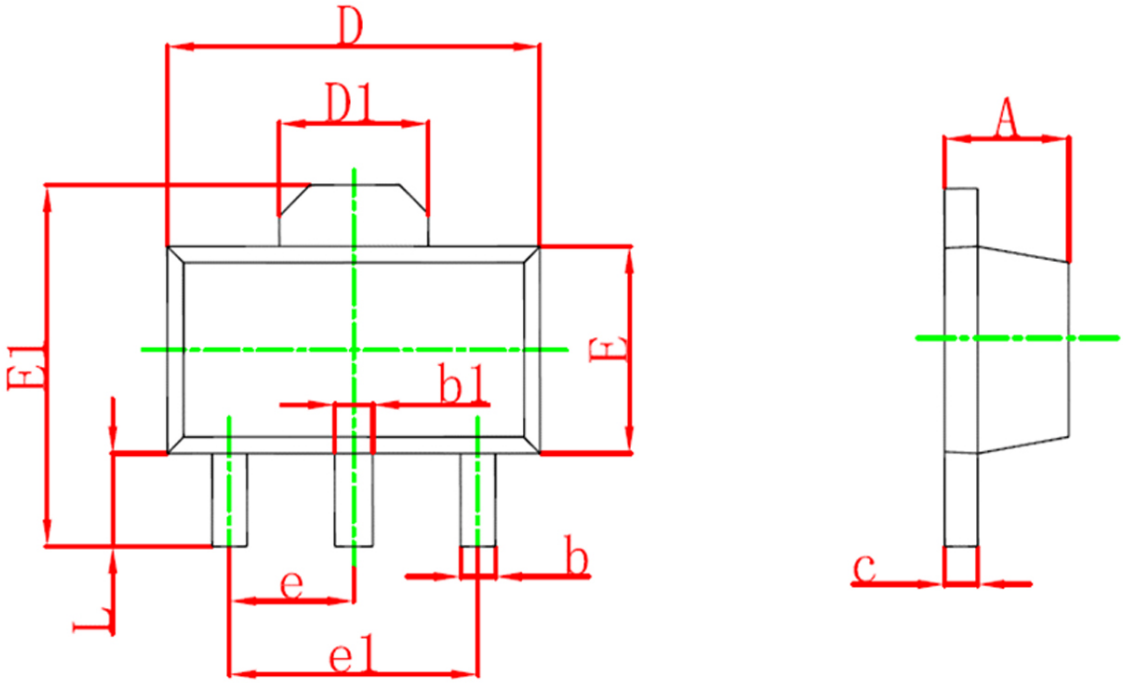
Symbol	Parameter	Condition	Min	Typ	Max	Unit
$V_{(BR)CBO}$	Collector-base breakdown voltage	I_C=100μA,I_E=0	30	--	--	V
$V_{(BR)CEO}$	Collector-emitter breakdown voltage	I_C=1mA, I_B=0	25	--	--	V
$V_{(BR)EBO}$	Emitter-base breakdown voltage	I_E=100μA,I_C=0	5	--	--	V
I_{CBO}	Collector cut-off current	V_{CB}=30V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

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

Classification of hFE

Rank	CM	CL	CK
Marking	CM	CL	CK
Range	90-180	135-270	200-400

SOT-89-3L Package information



Symbol	Dimensions in Millimeters(mm)		Dimensions in Inches	
	Min	Max	Min	Max
A	1.400	1.600	0.055	0.063
b	0.320	0.520	0.013	0.020
b1	0.400	0.580	0.016	0.023
c	0.350	0.440	0.014	0.017
D	4.400	4.600	0.173	0.181
D1	1.550 REF		0.061 REF	
E	2.300	2.600	0.091	0.102
E1	3.940	4.250	0.155	0.167
e	1.500 TYP		0.060 TYP	
e1	3.000 TYP		0.118 TYP	
L	0.900	1.200	0.035	0.047