

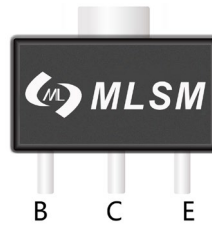
Features

- Low Voltage
- High Current
- Complement to BSR43

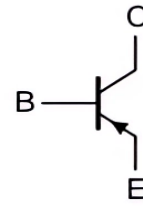
Application

- Medium Power Transistor

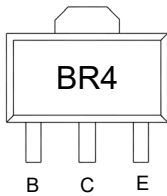
Marking:BR4



SOT-89-3L top view



Schematic diagram



Marking and pin assignment



Halogen-Free

Maximum Ratings (Ta=25°C unless otherwise noted)

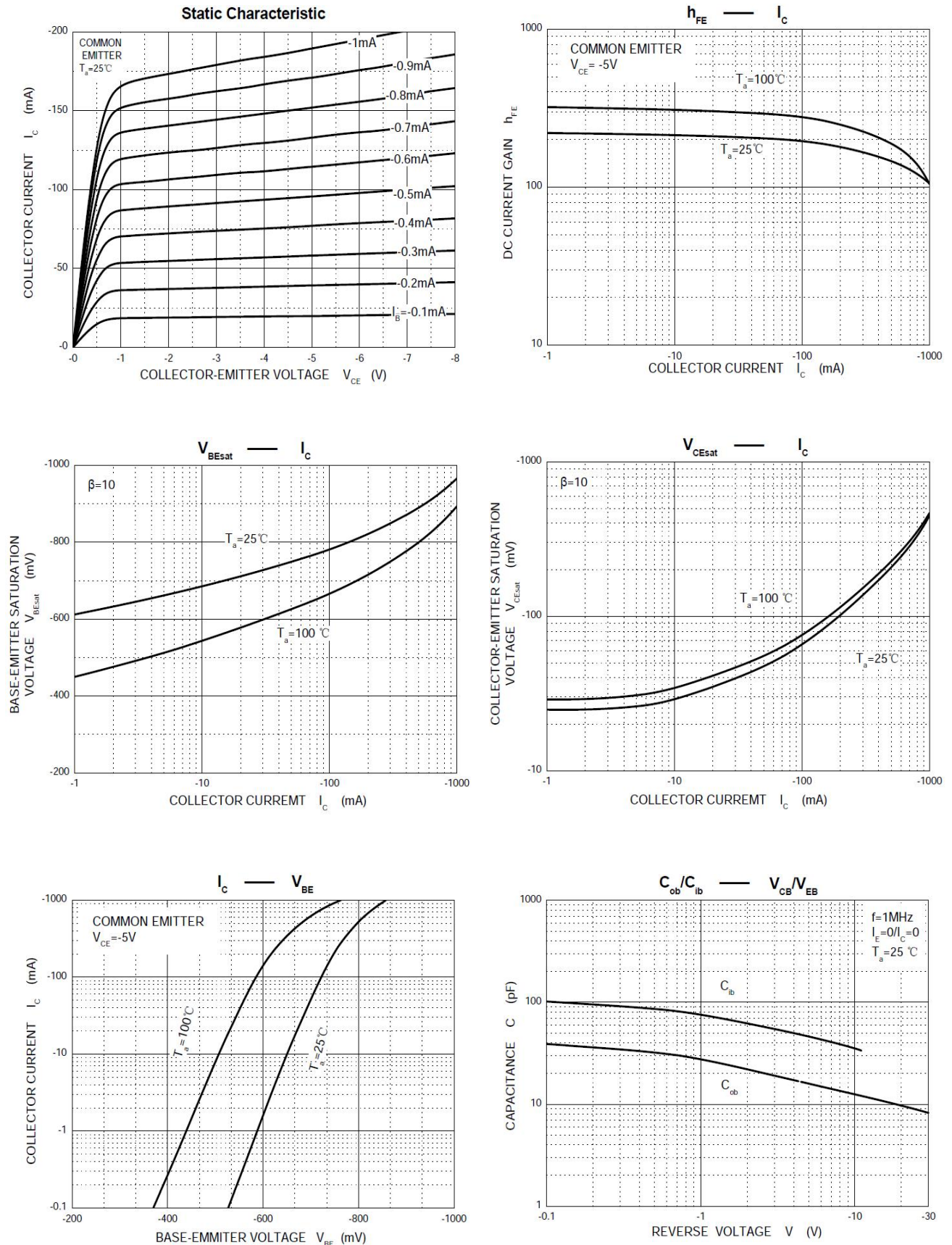
Symbol	Parameter	Value	Unit
V_{CBO}	Collector-Base Voltage	-90	V
V_{CEO}	Collector-Emitter Voltage	-80	V
V_{EBO}	Emitter-Base Voltage	-5	V
I_C	Collector Current	-1	A
P_C	Collector Power Dissipation	500	mW
$R_{\theta JA}$	Thermal Resistance Junction to Ambient	250	°C/W
T_J, T_{STG}	Operating and Storage Temperature Range	-55~+150	°C

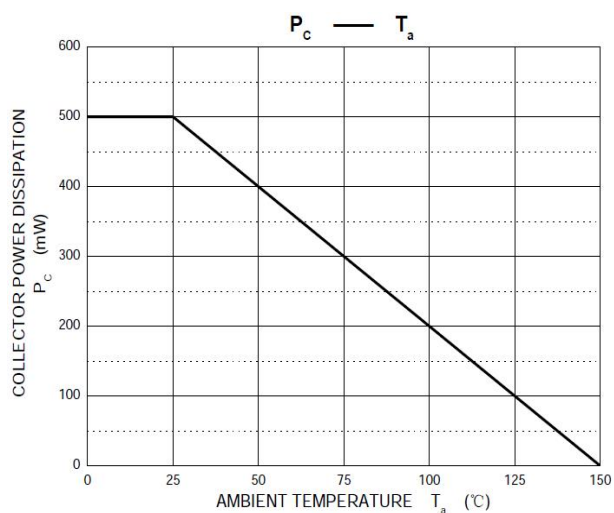
Electrical Characteristics (Ta=25°C unless otherwise specified)

Symbol	Parameter	Test conditions	Min	Typ	Max	Unit
$V_{(BR)CBO}$	Collector-base breakdown voltage	$I_C = -100\mu A, I_E = 0$	-90	--	--	V
$V_{(BR)CEO}$	Collector-emitter breakdown voltage	$I_C = -1mA, I_B = 0$	-80	--	--	V
$V_{(BR)EBO}$	Emitter-base breakdown voltage	$I_E = 100\mu A, I_C = 0$	-5	--	--	V
I_{CBO}	Collector cut-off current	$V_{CB} = -60V, I_E = 0$	--	--	-100	nA
I_{EBO}	Emitter cut-off current	$V_{EB} = -5V, I_C = 0$	--	--	-100	nA
h_{FE1}^*	DC current gain	$V_{CE} = -5V, I_C = 0.1mA$	30	--	--	
h_{FE2}^*		$V_{CE} = -5V, I_C = -100mA$	100	--	300	
h_{FE3}^*		$V_{CE} = -5V, I_C = -500mA$	50	--	--	
$V_{CE(sat)}^*$	Collector-emitter saturation voltage	$I_C = -150mA, I_B = -15mA$	--	--	-0.25	V
		$I_C = -500mA, I_B = -50mA$	--	--	-0.5	V
$V_{BE(sat)}^*$	Base-emitter saturation voltage	$I_C = -150mA, I_B = -15mA$	--	--	-1	V
		$I_C = -500mA, I_B = -50mA$	--	--	-1.2	V
f_T	Transition frequency	$V_{CE} = -10V, I_C = -50mA, f = 100MHz$	100	--	--	MHz

*Pulse test

Typical Characteristics

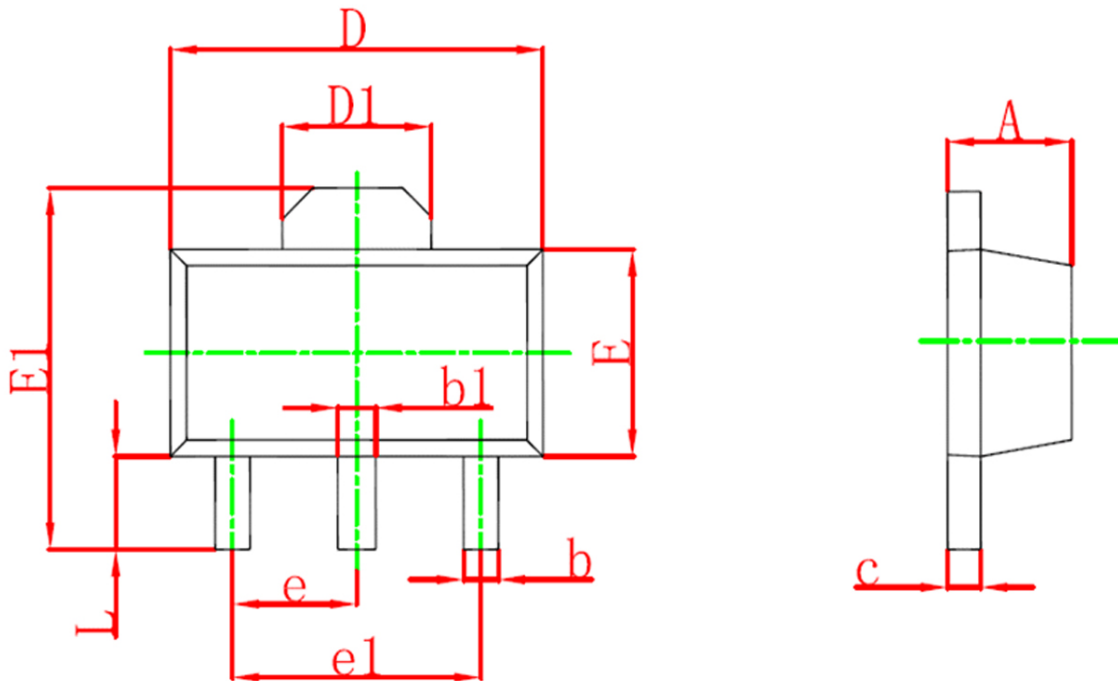




Ordering Information (Example)

Type	Package	Marking	Minimum Package(pcs)	Inner Box Quantity(pcs)	Outer Carton Quantity(pcs)	Delivery Mode
BSR33	SOT-89-3L	BR4	1,000	10,000	40,000	7"reel

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