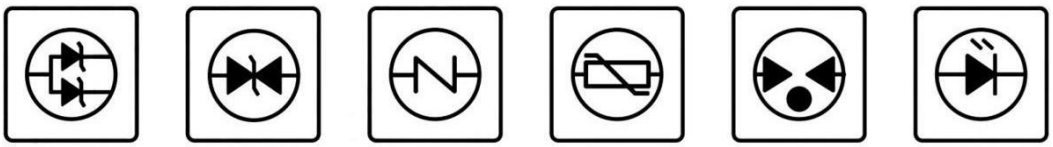
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SEMICONDUCTOR



BFU590Q-MS

Product specification

BFU590Q-MS

NPN Wideband Silicon RF Transistor

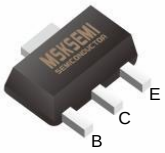
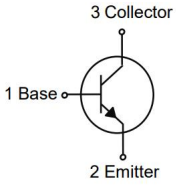
Features

- Low Noise and High Gain
- High Power Gain

Application

- low noise amplifier at VHF, UHF and CATV band applications

Reference News

SOT-89-3L	Schematic diagram	Marking
		

S59= Device code

XX= Code

Maximum Ratings(Ta=25℃ unless otherwise noted)

Symbol	Parameter	Value	Unit
V_{CBO}	Collector-Base Voltage	24	V
V_{CEO}	Collector-Emitter Voltage	12	V
V_{EBO}	Emitter-Base Voltage	2	V
I_C	Collector Current	300	mA
P_C	Collector Power Dissipation	2	W
$R_{\Theta JA}$	Thermal Resistance From Junction To Ambient	62.5	°C/W
T_J, T_{stg}	Operation Junction and Storage Temperature Range	-50~+150	°C

Ordering Information (Example)

Type	Package	Minimum Package(pcs)	Inner Box Quantity(pcs)	Outer Carton Quantity(pcs)	Delivery Mode
BFU590Q-MS	SOT-89-3L	1,000	4,000	24,000	7"reel

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Electrical Characteristics (TJ=25℃ unless otherwise noted)

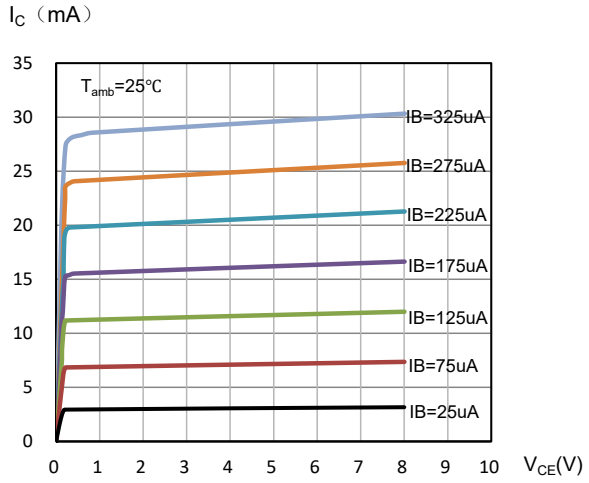
Symbol	Parameter	Condition	Min	Typ	Max	Unit
$V_{(BR)CBO}$	Collector-base breakdown voltage	I_C=100nA, I_E=0	24	--	--	V
$V_{(BR)CEO}$	Collector-emitter breakdown voltage	I_C=150nA, I_B=0	12	--	--	V
$V_{(BR)EBO}$	Emitter-base breakdown voltage	I_E=100μA, I_C=0	2	--	--	V
I_{CBO}	Collector cut-off current	V_{CB}=10 V , I_E=0	--	--	1	μA
I_{EBO}	Emitter cut-off current	V_{EB}= 1V , I_C=0	--	--	1	μA
h_{FE}	DC current gain	V_{CE}=8V, I_C= 80mA	60	--	250	
$V_{CE(sat)}$	Collector-emitter saturation voltage	I_C=50 mA, I_B= 5mA	--	--	0.3	V
$V_{BE(sat)}$	Base-emitter saturation voltage	I_C=50 mA, I_B= 5mA	--	--	1.15	V
C_e	Emitter Capacitance	V_{EB}=0.5V,I_C=0mA, f=1MHz	--	3.3		pF
C_{re}	Feedback Capacitance	V_{CE}=8V, I_C=0mA, f=1MHz	--	1.3		pF
C_c	Collector Capacitance	V_{CB}=8V, I_E=0mA, f=1MHz		1.8		pF
f_T	Transition frequency	V_{CB}=8V, I_C=50mA, f=900MHz	--	8.5	--	GHz

Classification of hFE

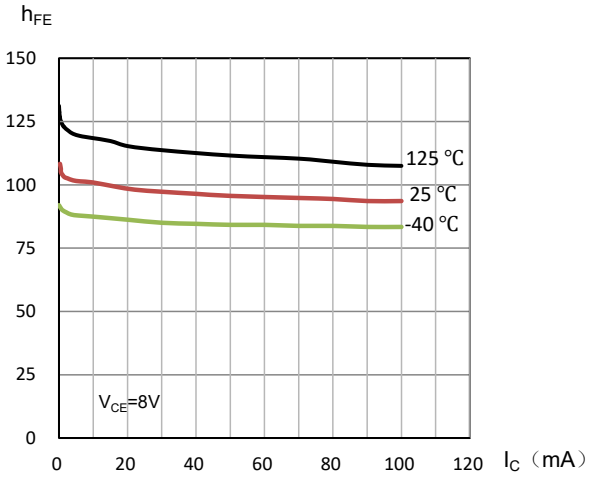
Rank	L	H
Range	60~130	120~250

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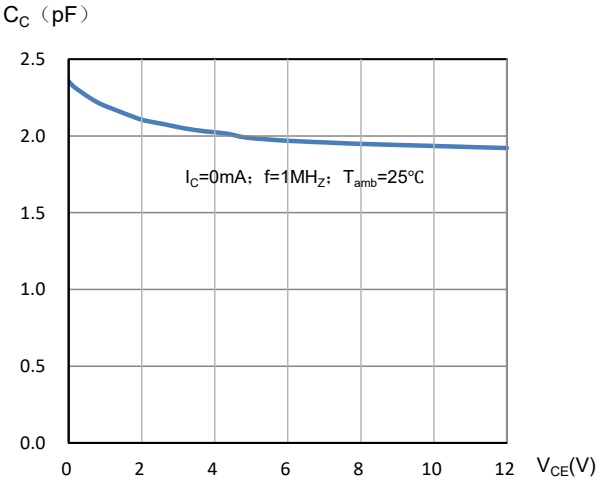
Typical Operating Characteristics



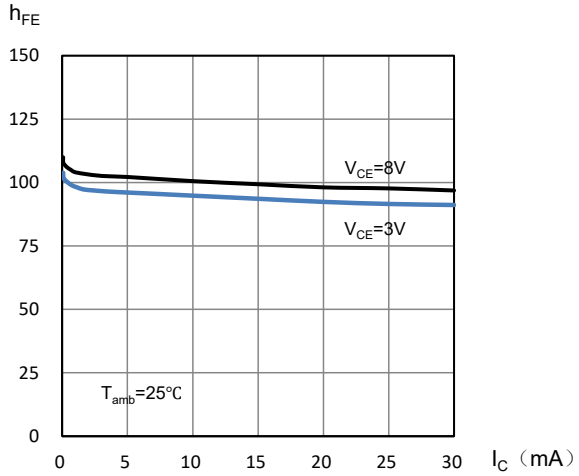
Collector current as a function of collector-emitter voltage; typical values



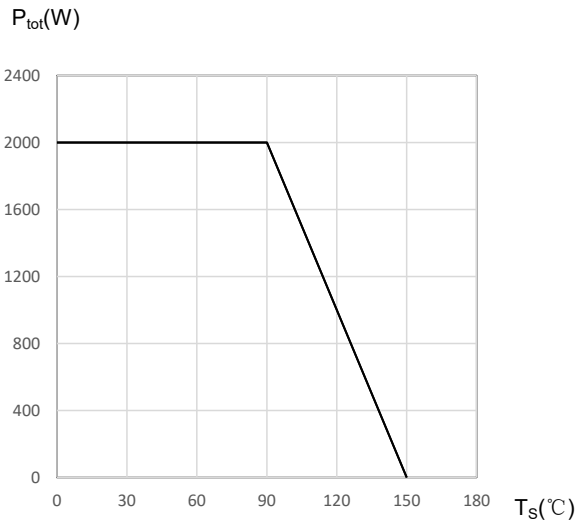
DC current gain as a function of collector current; typical values



Collector capacitance as a function of collector-base voltage; typical values



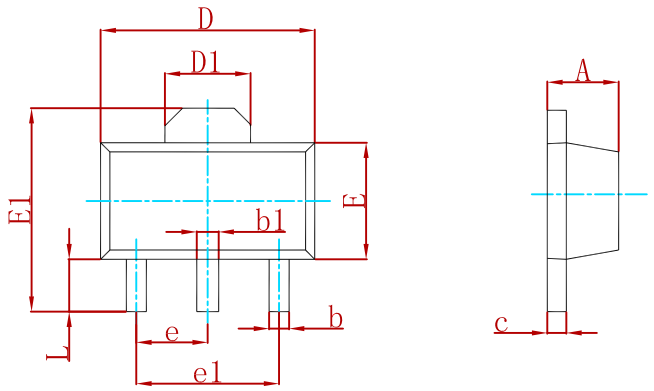
DC current gain as a function of collector current; typical values



Power derating curve

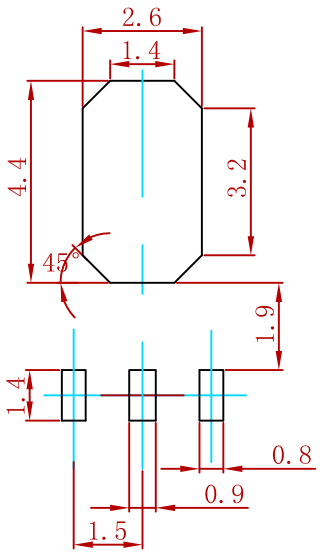
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PACKAGE MECHANICAL DATA



Symbol	Dimensions In Millimeters		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

Suggested Pad Layout



Note:
1.Controlling dimension:in millimeters.
2.General tolerance:±0.05mm.
3.The pad layout is for reference purposes only.

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