New Jersey Semi-Conductor Products, Inc.

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Silicon NPN RF Transistor — BFS540

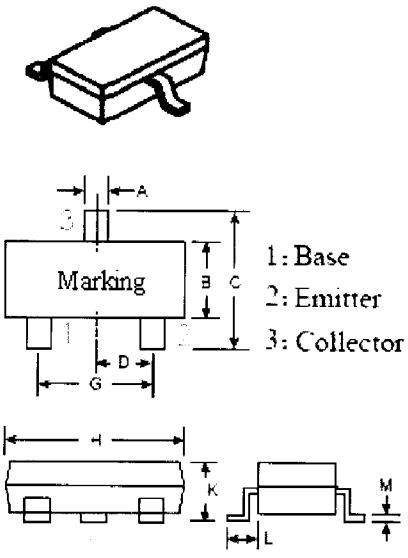
DESCRIPTION

- Low Noise Figure
  NF = 1.3 dB TYP. @V_{CE} = 8 V, I_C = 10 mA, f = 900 MHz
- High Current-Gain—Bandwidth Product
  fT= 9 GHz TYP. @V_{CE} = 8 V, I_C = 40 mA, f = 1 GHz

APPLICATIONS

- Designed for RF wideband amplifier applications such as satellite TV systems and RF portable communication equipment with signal frequencies up to 2 GHz.

SOT-323 package



DIM	mm MIN	mm MAX
A	0.30	0.40
B	1.15	1.35
C	2.00	2.10
D	0.65	
H	1.80	2.20
K	0.80	1.00
M	0.10	0.25

ABSOLUTE MAXIMUM RATINGS(T_a=25℃)

SYMBOL	PARAMETER	VALUE	UNIT
V_{CBO}	Collector-Base Voltage	20	V
V_{CEO}	Collector-Emitter Voltage	15	V
V_{EBO}	Emitter-Base Voltage	2.5	V
I_C	Collector Current-Continuous	120	mA
P_C	Collector Power Dissipation @T_C=25℃	0.5	W
T_J	Junction Temperature	175	℃
T_{stg}	Storage Temperature Range	-65~150	℃

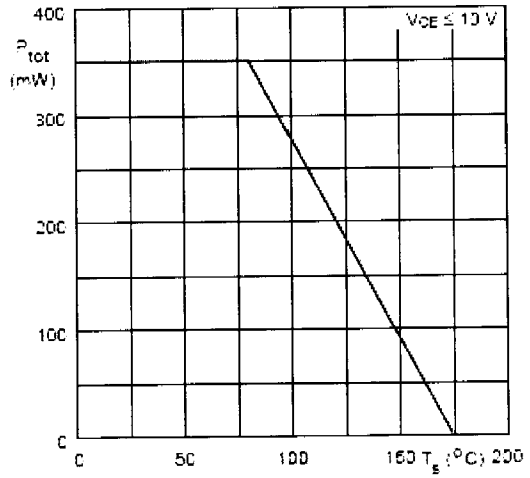
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Quality Semi-Conductors

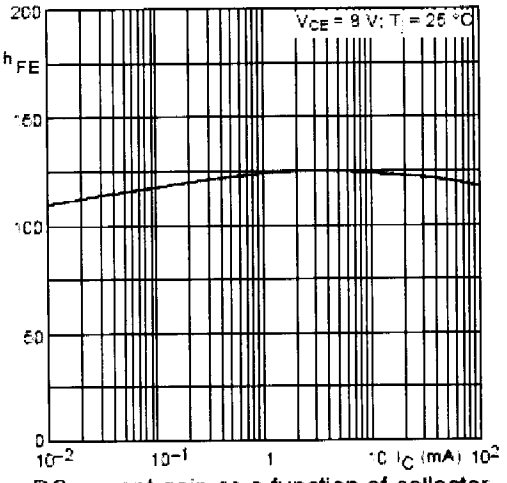
ELECTRICAL CHARACTERISTICS

T_C=25℃ unless otherwise specified

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP.	MAX	UNIT
I_{CBO}	Collector Cutoff Current	V_{CB}= 8V; I_E= 0			0.05	μA
h_{FE}	DC Current Gain	I_C= 40mA ; V_{CE}= 8V	60		250	
f_T	Current-Gain—Bandwidth Product	I_C= 40mA ; V_{CE}= 8V; f= 1GHz		9		GHz
C_{OB}	Output Capacitance	I_E= 0 ; V_{CB}= 8V; f= 1MHz		0.9		pF
C_{re}	Feedback Capacitance	I_C= 0 ; V_{CB}= 8V; f= 1MHz		0.6		pF
$\lvert S_{21e} \rvert^2$	Insertion Power Gain	I_C= 40mA ; V_{CE}= 8V; f= 900MHz	12	13		dB
NF	Noise Figure	I_C= 10mA ; V_{CE}= 8V; f= 900MHz		1.3	1.8	dB
NF	Noise Figure	I_C= 40mA ; V_{CE}= 8V; f= 900MHz		1.9	2.4	dB
NF	Noise Figure	I_C= 10mA ; V_{CE}= 8V; f= 2GHz		2.1		dB



Power derating curve



DC current gain as a function of collector current