

**Silicon NPN RF Transistor**

**BFS540**

**DESCRIPTION**

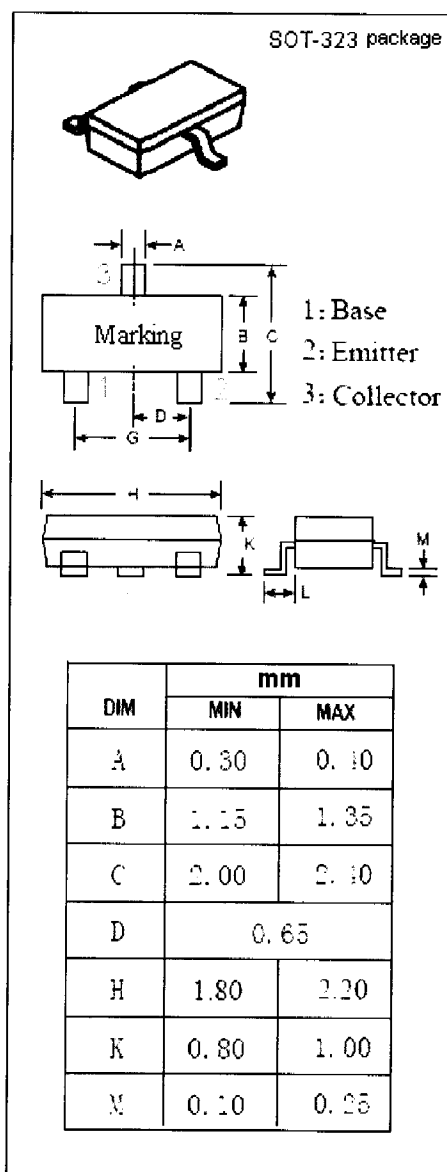
- Low Noise Figure  
 NF = 1.3 dB TYP. @ $V_{CE} = 8\text{ V}$ ,  $I_C = 10\text{ mA}$ ,  $f = 900\text{ MHz}$
- High Current-Gain—Bandwidth Product  
 $fT = 9\text{ GHz}$  TYP. @ $V_{CE} = 8\text{ V}$ ,  $I_C = 40\text{ mA}$ ,  $f = 1\text{ GHz}$

**APPLICATIONS**

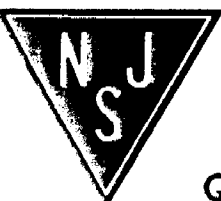
- Designed for RF wideband amplifier applications such as satellite TV systems and RF portable communication equipment with signal frequencies up to 2 GHz.

**ABSOLUTE MAXIMUM RATINGS( $T_a=25^\circ\text{C}$ )**

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 @ $T_c=25^\circ\text{C}$	0.5	W
$T_J$	Junction Temperature	175	$^\circ\text{C}$
$T_{stg}$	Storage Temperature Range	-65~150	$^\circ\text{C}$



NJ Semi-Conductors reserves the right to change test conditions, parameter limits and package dimensions without notice. Information furnished by NJ Semi-Conductors is believed to be both accurate and reliable at the time of going to press. However, NJ Semi-Conductors assumes no responsibility for any errors or omissions discovered in its use. NJ Semi-Conductors encourages customers to verify that datasheets are current before placing orders.



# Silicon NPN RF Transistor

# BFS540

## ELECTRICAL CHARACTERISTICS

$T_C=25^\circ\text{C}$  unless otherwise specified

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

