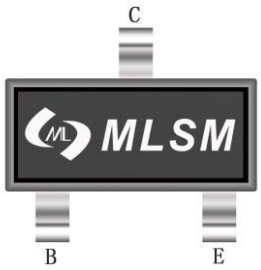
BFR540

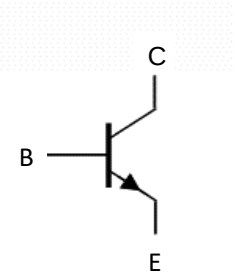
NPN Silicon RF Transistor

Features

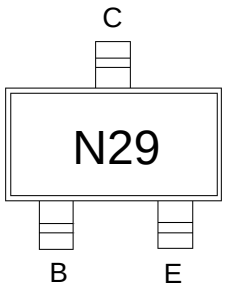
- Low Noise and High Gain
- High Power Gain



SOT-23 top view



Schematic diagram



N29:Device Code

Marking and pin assignment

Pb-Free RoHS Halogen-Free

Maximum Ratings(T_a=25℃ unless otherwise noted)

Symbol	Parameter	Value	Unit
V_{CBO}	Collector-Base Voltage	20	V
V_{CES}	Collector-Emitter Voltage	15	V
V_{EBO}	Emitter-Base Voltage	2.5	V
I_C	Collector Current	120	mA
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)

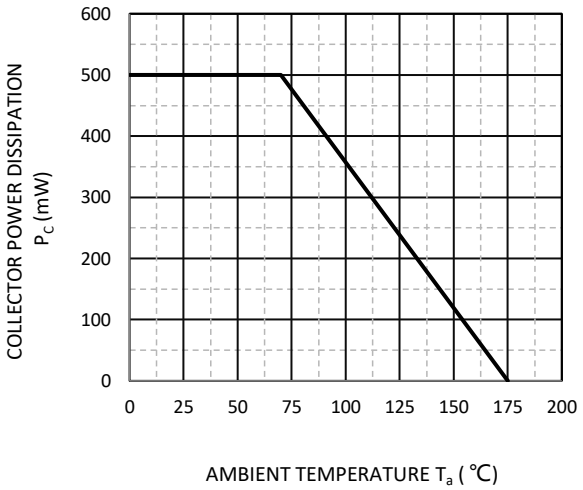
Type	Package	Marking	Minimum Package(pcs)	Inner Box Quantity(pcs)	Outer Carton Quantity(pcs)	Delivery Mode
BFR540	SOT-23	N29	3,000	45,000	180,000	7"reel

ELECTRICAL CHARACTERISTICS(Ta=25℃ unless otherwise specified)

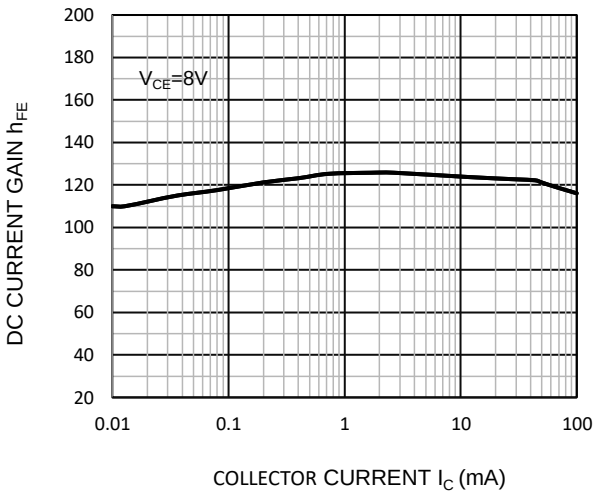
Symbol	Parameter	Condition	Min	Typ	Max	Unit
$V_{(BR)CBO}$	Collector-base breakdown voltage	I_C=100μA, I_E=0	20	--	--	V
$V_{(BR)CES}$	Collector-emitter breakdown voltage	I_C=100μA, I_B=0,R_{BE}=0	15	--	--	V
$V_{(BR)EBO}$	Emitter-base breakdown voltage	I_E=10μA, I_C=0	2.5	--	--	V
I_{CBO}	Collector cut-off current	V_{CB}=8 V , I_E=0	--	--	50	nA
h_{FE}	DC current gain	V_{CE}=8V, I_C= 40mA	60	--	250	
N_F	Noise Figure	V_{CB}=8V, I_C=10mA, f=0.9GHz	--	1.3	1.8	dB
		V_{CB}=8V, I_C=10mA, f=2GHz	--	2.1	--	dB
C_e	Emitter capacitance	V_{EB}=0.5V, I_C=0mA, f=1MHz	--	2	--	pF
C_C	Collector capacitance	V_{CB}=8V, I_E=0mA, f=1MHz	--	0.9	--	pF
C_{re}	Feedback capacitance	V_{CB}=8V, I_C=0mA, f=1MHz	--	0.6	--	pF
f_T	Transition frequency	V_{CE}=8V, I_C= 40mA, f=1GHz	--	8	--	GHz

Typical Operating Characteristics

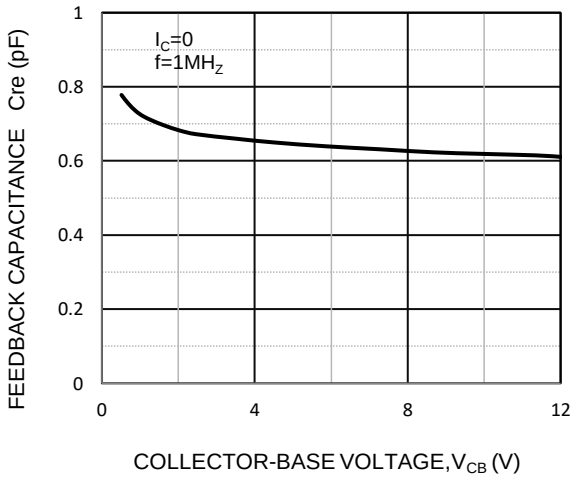
P_C —— T_a



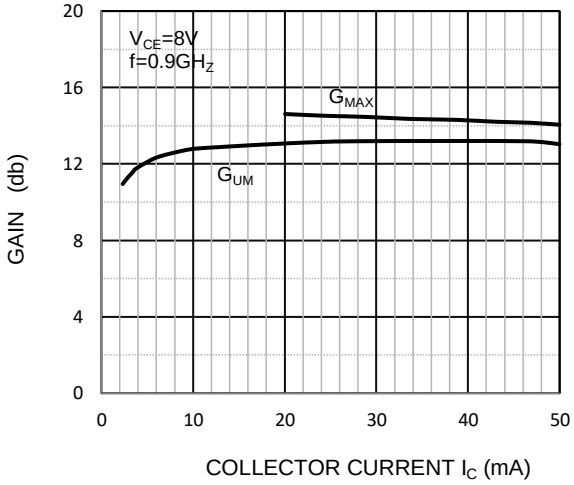
h_{FE}—— I_C



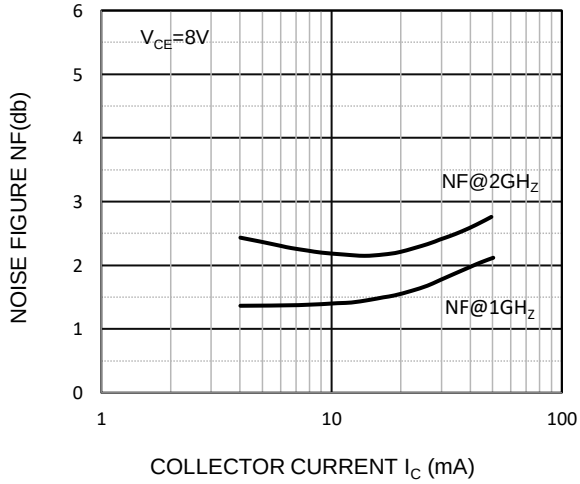
Cre —— V_{CB}



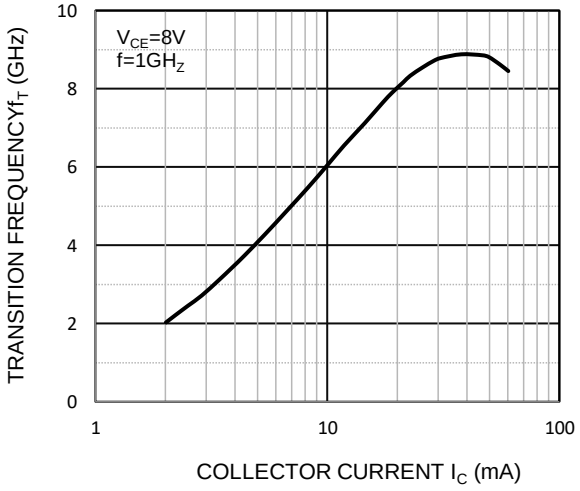
Gain —— I_C



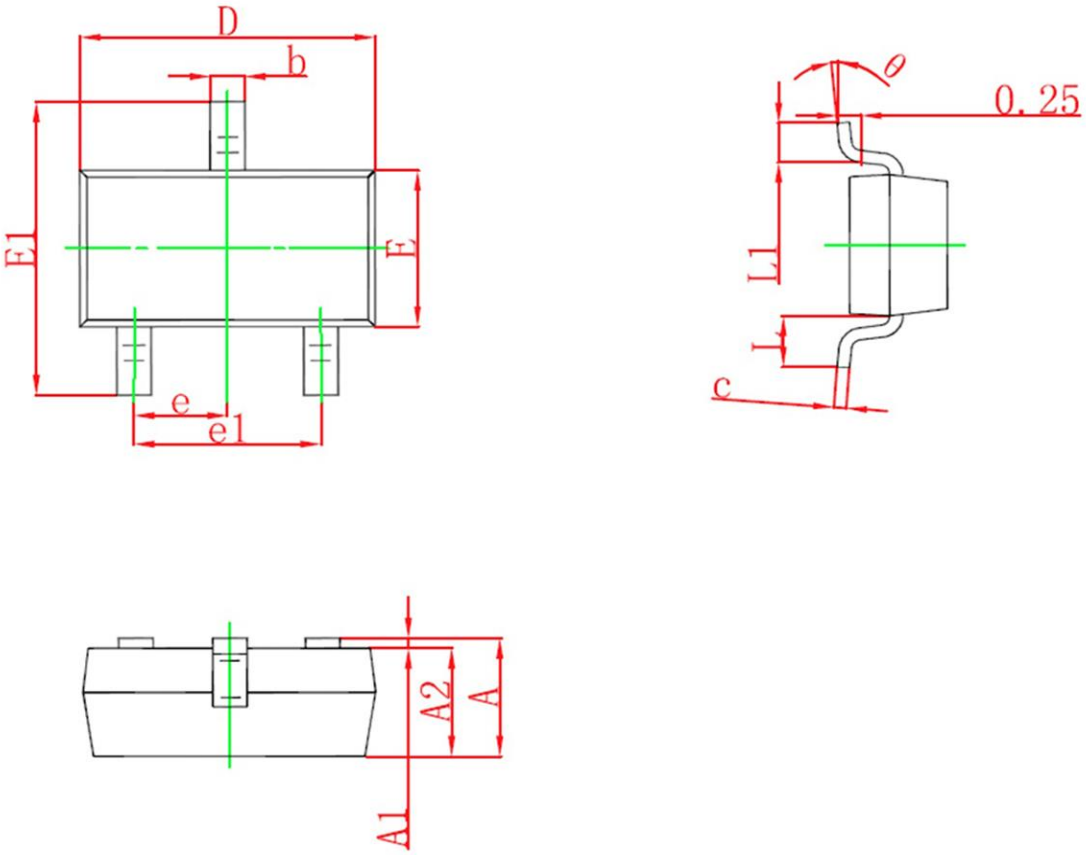
NF—— I_C



f_T —— I_C



SOT-23 Package information



Symbol	Dimensions in Millimeters(mm)		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
b	0.300	0.500	0.012	0.020
c	0.080	0.150	0.003	0.006
D	2.800	3.000	0.110	0.118
E1	2.250	2.550	0.088	0.100
E	1.200	1.400	0.047	0.055
e	0.950TYP		0.037TYP	
e1	1.800	2.000	0.071	0.079
L	0.550 REF		0.022 REF	
L1	0.300	0.500	0.012	0.020
θ	0°	8°	0°	8°