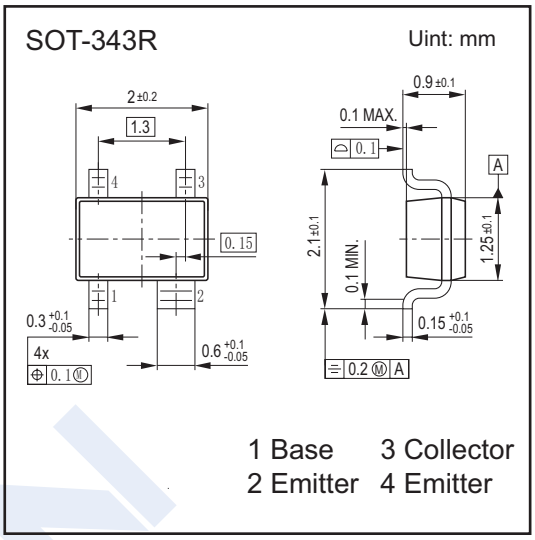
NPN Bipolar RF Transistor

BF776 (KF776)



■ Features

- High performance low noise amplifier
- Low minimum noise figure of typ. 0.8 dB @ 1.8 GHz
- For a wide range of non automotive applications such as WLAN, WiMax, UWB, Bluetooth, GPS, SDARs, DAB, LNB, UMTS/LTE and ISM bands
- Easy to use standard package with visible leads

■ Absolute Maximum Ratings（T_A = 25℃， unless otherwise specified)

Parameter	Symbol	Rating	Unit
Collector - Base Voltage	V_{CBO}	13	V
Collector - Emitter Voltage T_A = 25℃	V_{CEO}	4.0	V
Collector - Emitter Voltage T_A = -55℃	V_{CEO}	3.5	V
Collector - Emitter Voltage	V_{CES}	13	V
Emitter - Base Voltage	V_{EBO}	1.2	V
Collector Current	I_C	50	mA
Base Current	I_B	3	mA
Total Power Dissipation [1] $T_S \leqslant 90$℃	P_{tot}	200	mW
Thermal Resistance Junction to Soldering Point	R_{thJS}	300	℃/W
Junction Temperature	T_J	150	℃
Ambient temperature	T_A	-55 to 150	℃
Storage Temperature Range	Tstg	-55 to 150	℃

[1] T_S is measured on the emitter lead at the soldering point to the pcb

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■ Electrical Characteristics（T_A = 25℃， unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	V_{CBO}	I_C= 100 μA， I_E= 0	13			V
Collector- emitter breakdown voltage	V_{CEO}	I_C= 1 mA， I_B= 0	4			
Emitter - base breakdown voltage	V_{EBO}	I_E= 100 μA， I_C= 0	1.2			
Collector-base cut-off current	I_{CBO}	V_{CB}= 5 V， I_E= 0		1	100	nA
Collector- emitter cut-off current	I_{CES}	V_{CE}= 5 V， V_{BE}= 0		1	100	
Emitter cut-off current	I_{EBO}	V_{EB}= 0.5V， I_C=0		10	100	
DC current gain	h_{FE}	V_{CE}= 3 V， I_C= 30 mA, pulse measured		180		
Collector-base capacitance	C_{cb}	V_{CB}= 3 V， f = 1 MHz, V_{BE} = 0		0.09		pF
Collector-emitter capacitance	C_{ce}	V_{CE}= 3 V， f = 1 MHz, V_{BE} = 0		0.25		
Emitter-base capacitance	C_{eb}	V_{EB}= 0.5 V， f = 1 MHz, V_{CB} = 0		0.5		
Noise figure	F	I_C=5mA, V_{CE}=3V, Z_S=Z_{Sopt}, f = 1.8 GHz		0.8		dB
		f = 6 GHz		1.3		
Power gain, maximum stable [1]	G_{ms}	I_C=30mA, V_{CE}=3V, Z_S=Z_{Sopt}, Z_L=Z_{Lopt}, f = 1.8 GHz		24		
Power gain, maximum available [1]	G_{ma}	I_C=30mA, V_{CE}=3V, Z_S=Z_{Sopt}, Z_L=Z_{Lopt}, f = 6 GHz		12.5		
Transducer gain	$\lvert S_{21e}\rvert^2$	I_C=30mA, V_{CE}=3V, Z_S=Z_L=50 Ω, f = 1.8 GHz		21.5		
		f = 6 GHz		11		
Third order intercept point at output [2]	IP_3	V_{CE}=3V, IC=30mA, Z_S=Z_L=50 Ω, f = 1.8 GHz		28		dBm
1dB Compression point at output	P_{-1dB}	IC=30mA, V_{CE}=3V, Z_S=Z_L=50 Ω, f = 1.8 GHz		13		
Transition frequency	f_T	V_{CE}= 3V， I_C= 30mA, f=1GHz		46		GHz

[1] $G_{ma} = |S_{21e} / S_{12e}| (k-(k^2-1)^{1/2})$, $G_{ms} = |S_{21e} / S_{12e}|$

[2] IP3 value depends on termination of all intermodulation frequency components.

Termination used for this measurement is 50Ω from 0.1 MHz to 6 GHz

■ Marking

Type	Marking
BF776	R3s