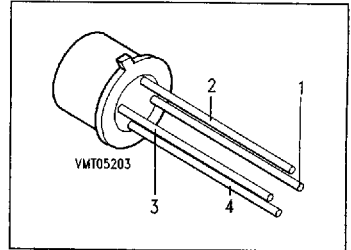


NPN Silicon RF Transistor

BFX 59
BFX 59F

- For broadband amplifiers at collector currents up to 30 mA.



ESD: Electrostatic discharge sensitive device, observe handling precautions!

Type	Marking	Ordering Code	Pin Configuration				Package ¹⁾
			1	2	3	4	
BFX 59 BFX 59F	BFX 59 BFX 59F	Q60206-X59 Q60206-X59-S5	B	E	Case	C	TO-72

Maximum Ratings

Parameter	Symbol	Values	Unit
Collector-emitter voltage	V_{CE0}	20	V
Collector-base voltage	V_{CB0}	30	
Emitter-base voltage	V_{EB0}	3	
Collector current	I_C	100	mA
Base current	I_B	30	
Total power dissipation, $T_A \leq 70^\circ\text{C}$	P_{tot}	370	mW
Junction temperature	T_j	200	°C
Ambient temperature range	T_A	- 65 ... + 175	
Storage temperature range	T_{stg}	- 65 ... + 175	

Thermal Resistance

Junction - ambient	$R_{th JA}$	≤ 650	K/W
Junction - case	$R_{th JC}$	≤ 350	

¹⁾ For detailed information see chapter Package Outlines.

Electrical Characteristics

 at $T_A = 25^\circ\text{C}$, unless otherwise specified.

Parameter	Symbol	Values			Unit
		min.	typ.	max.	

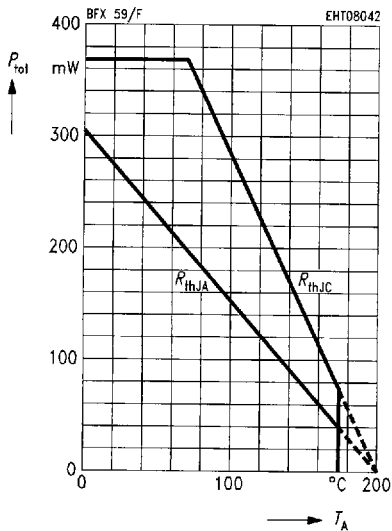
DC Characteristics

Collector-emitter breakdown voltage $I_C = 1\text{ mA}, I_B = 0$	$V_{(BR)CEO}$	20	—	—	V
Collector-base cutoff current $V_{CB} = 20\text{ V}, I_E = 0$	I_{CBO}	—	0.3	10	nA
Emitter-base cutoff current $V_{EB} = 3\text{ V}, I_C = 0$	I_{EBO}	—	—	10	μA
DC current gain $I_C = 10\text{ mA}, V_{CE} = 10\text{ V}$	h_{FE}	30	—	200	—

AC Characteristics

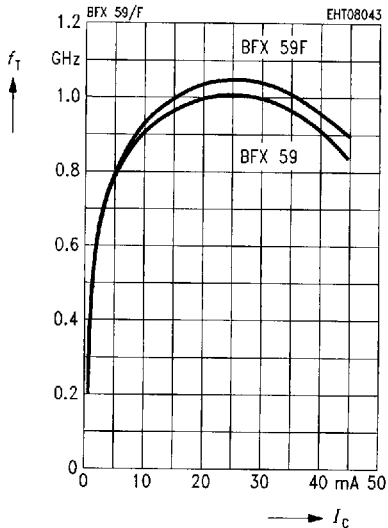
Transition frequency $I_C = 8\text{ mA}, V_{CE} = 10\text{ V}, f = 100\text{ MHz}$ $I_C = 20\text{ mA}, V_{CE} = 10\text{ V}, f = 100\text{ MHz}$ BFX 59 BFX 59F $I_C = 35\text{ mA}, V_{CE} = 10\text{ V}, f = 100\text{ MHz}$ BFX 59F	f_T	600 700 700 700	900 1000 1050 1000	— — — —	GHz
Collector-base capacitance BFX 59 $V_{CB} = 10\text{ V}, V_{BE} = v_{be} = 0, f = 1\text{ MHz}$ BFX 59F	C_{cb}	0.4 0.55	— —	0.7 0.9	pF
Noise figure $I_C = 3\text{ mA}, V_{CE} = 10\text{ V}, f = 300\text{ MHz}, Z_s = 300\ \Omega$ $I_C = 3\text{ mA}, V_{CE} = 10\text{ V}, f = 200\text{ MHz}, Z_s = 60\ \Omega$	F	— —	2.6 3.4	— 4.5	dB

Total power dissipation $P_{tot} = f(T_A)$



Transition frequency $f_T = f(I_C)$

$V_{CE} = 10 \text{ V}, f = 100 \text{ MHz}$



Collector-base capacitance $C_{cb} = f(V_{CB})$

$V_{BE} = v_{be} = 0, f = 1 \text{ MHz}$

