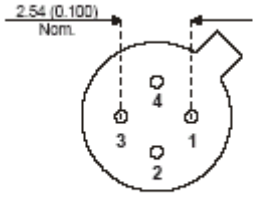
BFX89 – BFY90

WIDE BAND VHF/UHF AMPLIFIER

DESCRIPTION :

- SILICON PLANAR EPITAXIAL TRANSISTORS
- TO-72 METAL CASE
- VERY LOW NOISE



TO72

APPLICATIONS :

- TELECOMMUNICATIONS
- WIDE BAND UHF AMPLIFIER
- RADIO COMMUNICATIONS

The BFX89 and BFY90 are silicon planar epitaxial NPN transistors produced using interdigitated base emitter geometry. They are particulary designed for use in wide band common-emitter linear amplifiers up to 1 GHz. They feature very high f_T, low reverse capacitance, excellent cross modulation properties and very low noise performance. The BFY90 is complementary to the BFR99A. Typical applications include telecommunication and radio communication equipment.

ABSOLUTE MAXIMUM RATINGS

Symbol	Ratings	Value	Unit
V_{CEO}	Collector-Emitter Voltage (IB = 0)	15	V
V_{CER}	Collector-Emitter Voltage (RBE $\leq 50\Omega$)	30	V
V_{CBO}	Collector-Base Voltage (IE= 0)	30	V
V_{EBO}	Collector-Base Voltage (IC = 0)	2.5	V
I_C	Collector Current	25	mA
I_{CM}	Collector Peak Current	50	mA
Ptot	Total Power Dissipation at Tamb $\leq$ 25 °C	200	mW
Tstg, Tj	Storage and Junction Temperature	-65 to 200	°C

BFX89 – BFY90

THERMAL CHARACTERISTICS

Symbol	Ratings		Value	Unit
R_{thJ-C}	Thermal Resistance, Junction – Case	Max	580	°C/W
R_{thJ-}	Thermal Resistance, Junction – ambient	Max	880	°C/W

ELECTRICAL CHARACTERISTICS

Tamb = 25°C unless otherwise specified

Symbol	Ratings	Test Condition(s)		Min	Typ	Max	Unit
I_{CBO}	Collector Cutoff Current (I_E=0)	V_{CB} = 15V		-	-	10	nA
V_{CEK}*	Collector-emitter Knee Voltage	I_C = 20mA		-	-	0.75	V
f_T	Transition Frequency	V_{CE} = 5V f = 500MHZ I_C =2 mA	BFX89	-	1	-	GHz
			BFY90	1	1.1	-	
		V_{CE} = 5V f = 500MHZ I_C =25 mA	BFX89	-	1.2	-	
			BFY90	1.3	1.4	-	
h_{FE}	DC Current Gain	I_C= 2mA V_{CE}= 1 V	BFX89	20	-	150	-
			BFY90	25	-	150	
		I_C= 25mA V_{CE}= 1 V	BFX89	20	-	125	
			BFY90	25	-	125	
C_{CBO}(1)	Collector-base Capacitance	I_E =0 V_{CB} = 10V f= 1MHZ V_{CE}= 5	BFX89	-	-	1.7	pF
			BFY90	-	-	1.5	
Cre(2)	Reverse Capacitance	I_C= 2mAV f = 1MHZ	BFX89	-	0.6	-	pF
			BFY90	-	0.6	0.8	

BFX89 – BFY90

ELECTRICAL CHARACTERISTICS

Tamb = 25°C unless otherwise specified

Symbol	Ratings	Test Condition(s)		Min	Typ	Mx	Unit
NF(2)	Noise Figure	I_C= 2mA , V_{CE}= 5 V f = 100KHz Rg = Optimized	BFY90 Only	-	-	4	dB
		I_C= 2mA , V_{CE}= 5 V f= 200 MHz Rg = Optimized	BFX89	-	3.3	4	
			BFY90	-	2.5	3.5	
		I_C= 2mA , V_{CE}= 5 V f = 500 MHz Rg = 50 Ω	BFX89	-	-	6.5	
			BFY90	-	-	5	
		I_C= 2mA , V_{CE}= 5 V f = 800 MHz Rg = Optimized	BFX89	-	7	-	
			BFY90	-	5.5	-	
Gpe (2)	Power Gain (not neutralized)	For BFX89 I_C= 8mA V_{CE}= 10 V	f=200 MHz	19	22	-	dB
			f=800 MHz	-	7	-	
		For BFY90 I_C= 14mA V_{CE}= 10 V	f=200 MHz	21	23	-	
			f=800 MHz	-	8	-	
Po	Output Power	For BFX89 I_C=8mA V_{CE}= 10 V D_{im} = -30 dB	(3) Channel 9	-	6	-	mW
			(4) Channel 62	-	6		
		For BFY90 I_C=14mA V_{CE}= 10 V D_{im} = -30 dB	(3) Channel 9	10	12	-	
			(4) Channel 62	-	12	-	

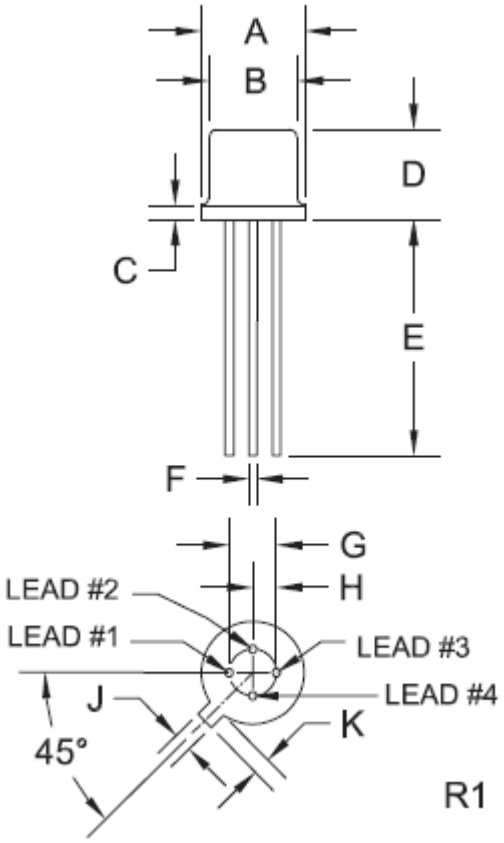
* I_B = value for which I_C =22 mA at V_{CE} = 1V

(1) Shield lead not grounded
(2) Shield lead grounded
(3) f_p = 202MHz, f_q = 205 MHz, $f_{(2q-p)}$ = 208MHz
(4) f_p = 798MHz, f_q = 802 MHz, $f_{(2q-p)}$ = 806MHz

BFX89 – BFY90

MECHANICAL DATA CASE TO-72

DIMENSIONS		
	mm	
	min	max
A	5.31	5.84
B	4.45	4.95
C	-	0.76
D	4.32	5.33
E	12.7	-
F	0.41	0.48
G	2.54	
H	1.27	
J	0.91	1.17
K	0.71	1.22



Pin 1 :	Emitter
Pin 2 :	Base
Pin 3 :	Collector
Pin 4 :	Case

Revised August 2012