

**BFX89
BFY90**

**NPN SILICON
RF TRANSISTORS**



JEDEC TO-72 CASE

CentralTM
Semiconductor Corp.

DESCRIPTION:

The CENTRAL SEMICONDUCTOR BFX89 and BFY90 are Silicon NPN Epitaxial Planar Transistors mounted in a hermetically sealed package designed for VHF/UHF amplifier, oscillator, and converter applications.

MARKING CODE: FULL PART NUMBER

MAXIMUM RATINGS: ($T_A=25^\circ\text{C}$)

Collector-Base Voltage
Collector-Emitter Voltage ($R_{BE} \leq 50\Omega$)
Collector-Emitter Voltage
Emitter-Base Voltage
Collector Current
Peak Collector Current ($f \geq 1 \text{ MHz}$)
Power Dissipation
Power Dissipation ($T_C=25^\circ\text{C}$)
Operating and Storage
Junction Temperature
Thermal Resistance
Thermal Resistance

SYMBOL		UNITS
V_{CBO}	30	V
V_{CER}	30	V
V_{CEO}	15	V
V_{EBO}	2.5	V
I_C	25	mA
I_{CM}	50	mA
P_D	200	mW
P_D	300	mW
T_J, T_{stg}	-65 to +200	$^\circ\text{C}$
θ_{JA}	875	$^\circ\text{C/W}$
θ_{JC}	583	$^\circ\text{C/W}$

ELECTRICAL CHARACTERISTICS: ($T_A=25^\circ\text{C}$ unless otherwise noted)

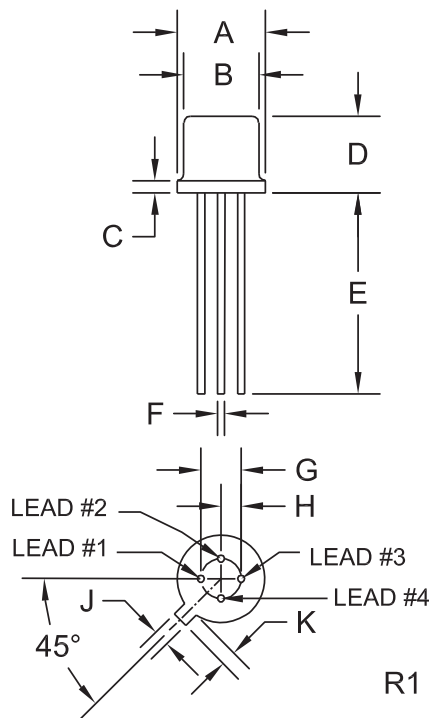
SYMBOL	TEST CONDITIONS	<u>BFX89</u>			<u>BFY90</u>			UNITS
		MIN	TYP	MAX	MIN	TYP	MAX	
I_{CBO}	$V_{CB}=15\text{V}$			10			10	nA
BV_{CBO}	$I_C=10\mu\text{A}$	30			30			V
BV_{CER}	$I_C=1.0\text{mA}, R_{BE}=50\Omega$	30			30			V
BV_{CEO}	$I_C=1.0\text{mA}$	15			15			V
BV_{EBO}	$I_E=10\mu\text{A}$	2.5			2.5			V
h_{FE}	$V_{CE}=1.0\text{V}, I_C=2.0\text{mA}$	20		150	25		150	
h_{FE}	$V_{CE}=1.0\text{V}, I_C=25\text{mA}$	20		125	20		125	
f_T	$V_{CE}=5.0\text{V}, I_C=2.0\text{mA}, f=500\text{MHz}$		1.0		1.0	1.1		GHz
f_T	$V_{CE}=5.0\text{V}, I_C=25\text{mA}, f=500\text{MHz}$		1.2		1.3	1.4		GHz
C_{ob}	$V_{CB}=10\text{V}, I_E=0, f=1.0\text{MHz}$			1.7			1.5	pF
C_{re}	$V_{CE}=5.0\text{V}, I_C=2.0\text{mA}, f=1.0\text{MHz}$		0.6			0.6	0.8	pF

R3 (20-March 2006)

ELECTRICAL CHARACTERISTICS (CONTINUED): ($T_A=25^\circ\text{C}$ unless otherwise noted)

SYMBOL	TEST CONDITIONS	BFX89			BFY90			UNITS
		MIN	TYP	MAX	MIN	TYP	MAX	
G_{pe}	$V_{CE}=10\text{V}$, $I_C=8\text{mA}$, $f=200\text{MHz}$		19	22				dB
G_{pe}	$V_{CE}=10\text{V}$, $I_C=8\text{mA}$, $f=800\text{MHz}$			7.0				dB
G_{pe}	$V_{CE}=10\text{V}$, $I_C=14\text{mA}$, $f=200\text{MHz}$				21	23		dB
G_{pe}	$V_{CE}=10\text{V}$, $I_C=14\text{mA}$, $f=800\text{MHz}$					8.0		dB
NF	$V_{CE}=5.0\text{V}$, $I_C=2.0\text{mA}$, $f=100\text{kHz}$						4.0	dB
NF	$V_{CE}=5.0\text{V}$, $I_C=2.0\text{mA}$, $f=200\text{MHz}$	3.3	4.0		2.5	3.5		dB
NF	$V_{CE}=5.0\text{V}$, $I_C=2.0\text{mA}$, $f=500\text{MHz}$, $R_G=50\Omega$			6.5			5.0	dB
NF	$V_{CE}=5.0\text{V}$, $I_C=2.0\text{mA}$, $f=800\text{MHz}$	7.0				5.5		dB
P_o	$V_{CE}=10\text{V}$, $I_C=8\text{mA}$, $f=205\text{MHz}$	6.0						mW
P_o	$V_{CE}=10\text{V}$, $I_C=14\text{mA}$, $f=205\text{MHz}$				10	12		mW

JEDEC TO-72 CASE - MECHANICAL OUTLINE



SYMBOL	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A (DIA)	0.209	0.230	5.31	5.84
B (DIA)	0.175	0.195	4.45	4.95
C	-	0.030	-	0.76
D	0.170	0.210	4.32	5.33
E	0.500	-	12.70	-
F (DIA)	0.016	0.019	0.41	0.48
G (DIA)	0.100	-	2.54	-
H	0.050	-	1.27	-
J	0.036	0.046	0.91	1.17
K	0.028	0.048	0.71	1.22

TO-72 (REV: R1)

LEAD CODE:

- 1) EMITTER
- 2) BASE
- 3) COLLECTOR
- 4) CASE