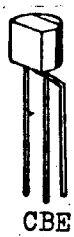
BF494 · BF495

NPN SILICON RF SMALL SIGNAL TRANSISTORS

MICRO ELECTRONICS

THE BF494, BF495 ARE NPN SILICON PLANAR EPITAXIAL TRANSISTORS FOR RF SMALL SIGNAL APPLICATIONS UP TO 100MHz.

CASE TO-92E



CBE

ABSOLUTE MAXIMUM RATINGS		BF494	BF495
Collector-Base Voltage	V_{CBO}	30V	30V
Collector-Emitter Voltage	V_{CEO}	20V	20V
Emitter-Base Voltage	V_{EBO}	5V	5V
Collector Current	I_C	30mA	
Total Power Dissipation ($T_A \leq 75°C$)	P_{tot}	300mW derate 4mW/°C above 75°C	
Operating Junction & Storage Temperature	T_j, Tstg	-55 to 150°C	

ELECTRICAL CHARACTERISTICS (T_A=25°C unless otherwise noted)

PARAMETER	SYMBOL	BF494 MIN	BF494 TYP	BF494 MAX	BF495 MIN	BF495 TYP	BF495 MAX	UNIT	TEST CONDITIONS
Emitter-Base Breakdown Voltage	BV_{EBO}	5			5			V	I_E=10μA I_C=0
Collector Cutoff Current	I_{CBO}			0.1			0.1	μA	V_{CB}=30V I_E=0
Collector Cutoff Current	I_{CEO}			1			1	μA	V_{CE}=20V I_B=0
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$		0.1			0.1		V	I_C=10mA I_B=1mA
Base-Emitter Voltage	V_{BE}	.65	.68	.74	.65	.68	.74	V	I_C=1mA V_{CE}=10V
D.C. Current Gain	H_{FE}	67	115	220	36	67	125		I_C=1mA V_{CE}=10V*
Current Gain-Bandwidth Product	f_T		260			200		MHz	I_C=1mA V_{CE}=10V
Feedback Capacitance	Cre		.85			.85		pF	I_C=1mA V_{CE}=10V f=450KHz
Noise Figure	NF		4			4		dB	I_C=1mA V_{CE}=10V R_G=100Ω f=100MHz
Mixing Noise Figure	NF_c		2					dB	I_C=1mA V_{CE}=10V R_G=830Ω f=1MHz
	NF_c					2.5		dB	I_C=1mA V_{CE}=10V R_G=670Ω f=1MHz

* HFE Grouping :

B : 100-220 C : 72-110 D : 36-80

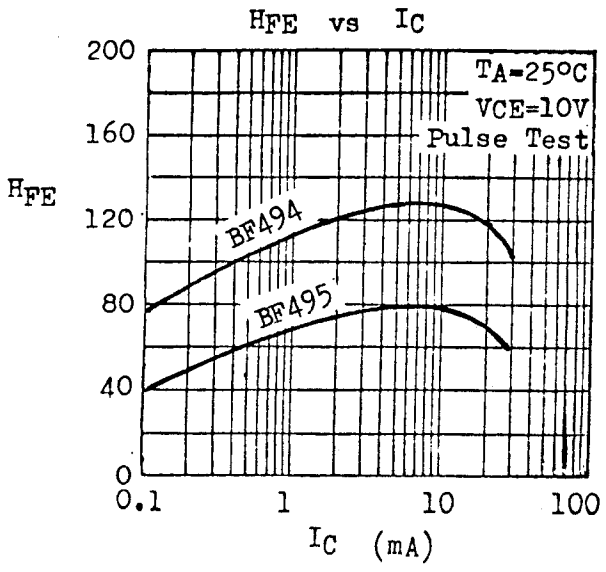
MICRO ELECTRONICS LTD.
38 HUNG TO ROAD, KWUN TONG, HONG KONG. TELEX 43510
KWUN TONG P. O. BOX69477 CABLE ADDRESS "MICROTRON" FAX: 3-4103
TELEPHONE:- 3-430181-6 ~~3-893363~~, ~~3-892423~~

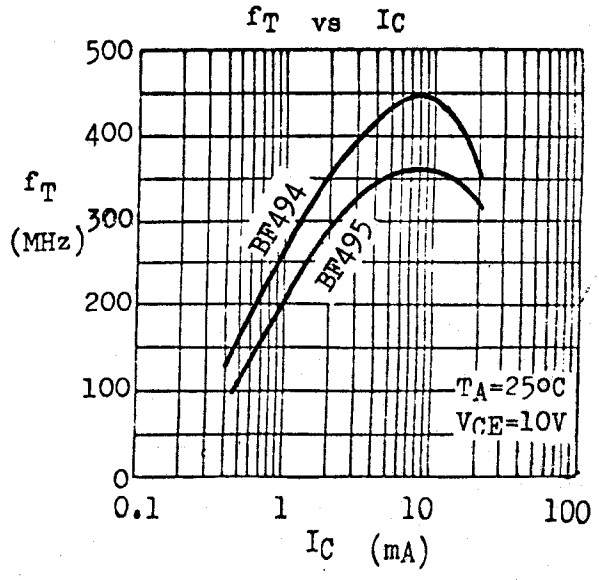
BF494 TYPICAL y-PARAMETERS AT T_A=25°C I_C=1mA V_{CE}=10V

f=450kHz	g_{11}=0.33m℧	$\|y_{12}\|$=2.8μ℧	$\|y_{21}\|$=36m℧	g_{22}=6μ℧
Common Emitter	b_{11}=0.065m℧	$-\theta_{12}$=90°	$-\theta_{21}$=0°	b_{22}=4.5μ℧
	C_{11}=23pF			C_{22}=1.6pF
f=10.7MHz	g_{11}=0.45m℧	$\|y_{12}\|$=65μ℧	$\|y_{21}\|$=36m℧	g_{22}=8.5μ℧
Common Emitter	b_{11}=1.5m℧	$-\theta_{12}$=90°	$-\theta_{21}$=10°	b_{22}=0.11m℧
	C_{11}=22pF			C_{22}=1.6pF
f=100MHz	g_{11}=36m℧	$\|y_{12}\|$=420μ℧	$\|y_{21}\|$=33m℧	g_{22}=22μ℧
Common Base	$-b_{11}$=3m℧	$-\theta_{12}$=88°	$-\theta_{21}$=146°	b_{22}=1.1m℧
	$-C_{11}$=4.8pF			C_{22}=1.75pF

BF495 TYPICAL y-PARAMETERS AT T_A=25°C I_C=1mA V_{CE}=10V

f=450kHz	g_{11}=0.5m℧	$\|y_{12}\|$=2.6μ℧	$\|y_{21}\|$=36m℧	g_{22}=2.7μ℧
Common Emitter	b_{11}=0.1m℧	$-\theta_{12}$=90°	$-\theta_{21}$=0°	b_{22}=4.5μ℧
	C_{11}=32pF			C_{22}=1.6pF
f=10.7MHz	g_{11}=0.6m℧	$\|y_{12}\|$=60μ℧	$\|y_{21}\|$=36m℧	g_{22}=4.5μ℧
Common Emitter	b_{11}=2m℧	$-\theta_{12}$=90°	$-\theta_{21}$=10°	b_{22}=0.11m℧
	C_{11}=30pF			C_{22}=1.6pF
f=100MHz	g_{11}=38m℧	$\|y_{12}\|$=410μ℧	$\|y_{21}\|$=34m℧	g_{22}=12μ℧
Common Base	$-b_{11}$=1m℧	$-\theta_{12}$=85°	$-\theta_{21}$=140°	b_{22}=1.1m℧
	$-C_{11}$=1.6pF			C_{22}=1.75pF





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