

BF 494

BF 495

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 ≤ 75°C)	P _{tot}	300mW derate 4mW/°C above 75°C	
Operating Junction & Storage Temperature	T _j , T _{stg}	-55 to 150°C	

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

PARAMETER	SYMBOL	BF494			BF495			UNIT	TEST CONDITIONS
		MIN	TYP	MAX	MIN	TYP	MAX		
Emitter-Base Breakdown Voltage	V _{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	C _{re}	.85			.85			pF	I _C = 1mA V _{CE} = 10V f = 450KHz
Noise Figure	N _F	4			4			dB	I _C = 1mA V _{CE} = 10V R _G = 100Ω f = 100MHz
Mixing Noise Figure	N _{Fc}	2						dB	I _C = 1mA V _{CE} = 10V R _G = 830Ω f = 1MHz
	N _{Fc}				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.

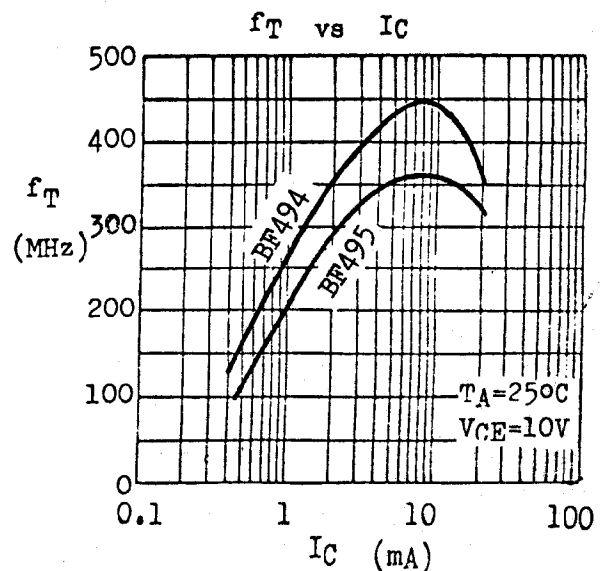
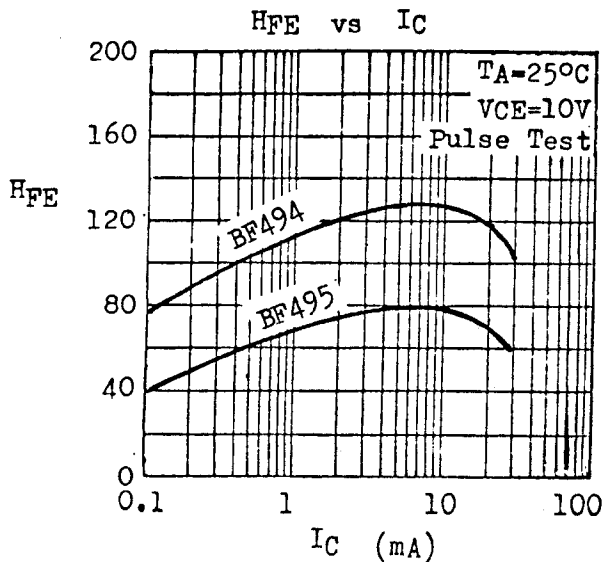
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"MICROTRON" FAX: 3-4103
3-892423

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

BF495 TYPICAL y-PARAMETERS AT $T_A=25^\circ C$ $I_C=1mA$ $V_{CE}=10V$

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



d-2-β_{av}?

2.78.3300A