MICRO ELECTRONICS

PNP SILICON
HIGH VOLTAGE
TRANSISTORS

BF491, BF492, BF493 are PNP silicon planar transistors designed for high voltage video amplifiers in television receivers requiring high breakdown voltage and low capacitance.

EBC

ABSOLUTE MAXIMUM RATINGS

		BF491	BF492	BF493
Collector-Emitter Voltage	V_{CEO}	200V	250V	300V
Collector-Base Voltage	V_{CBO}	200V	250V	300V
Emitter-Base Voltage	V_{EBO}	6V	8V	8V
Collector Current	I_C		500mA	
Total Device Dissipation @ T_A=25°C	P_D		625mW	
Derate Above 25°C			1.2mW/°C	
Total Device Dissipation @ T_C=25°C	P_D		1.5W	
Derate Above 25°C			12mW/°C	
Operating & Storage Junction Temperature Range	Tj,Tstg		-55 to 150°C	

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

PARAMETER	SYMBOL	BF491 MIN	BF491 MAX	BF492 MIN	BF492 MAX	BF493 MIN	BF493 MAX	UNIT	TEST CONDITION
Collector-Base Breakdown Voltage	BV_{CBO}	200		250		300		V	I_C=0.1mA I_E=0
Collector-Emitter Breakdown Voltage	BV_{CEO}*	200		250		300		V	I_C=1mA I_B=0
Emitter-Base Breakdown Voltage	BV_{EBO}	6		8		8		V	I_E=0.1mA I_C=0
Collector Cutoff Current	I_{CBO}		0.1					μA	V_{CB}=160V I_E=0
					0.1		0.1	μA	V_{CB}=200V I_E=0
Emitter Cutoff Current	I_{EBO}		0.1					μA	V_{EB}=4V I_C=0
					0.1		0.1	μA	V_{EB}=6V I_C=0
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$		2		2		2	V	I_C=20mA I_B=2m
Base-Emitter Saturation Voltage	$V_{BE(sat)}$		2		2		2	V	I_C=20mA I_B=2m
D.C. Current Gain	H_{FE}	25		25		25			I_C=1mA V_{CE}=10
		40		40		40			I_C=10mA V_{CE}=10
Current Gain-Bandwidth Product	f_T	50		50		50		MHz	I_C=10mA V_{CE}=20
Feedback Capacitance	Cre		2		2		2	pF	V_{CB}=100V IE=0 f=1MHz

*Pulse Test : Pulse Width ≤300μS, Duty Cycle ≤2%.

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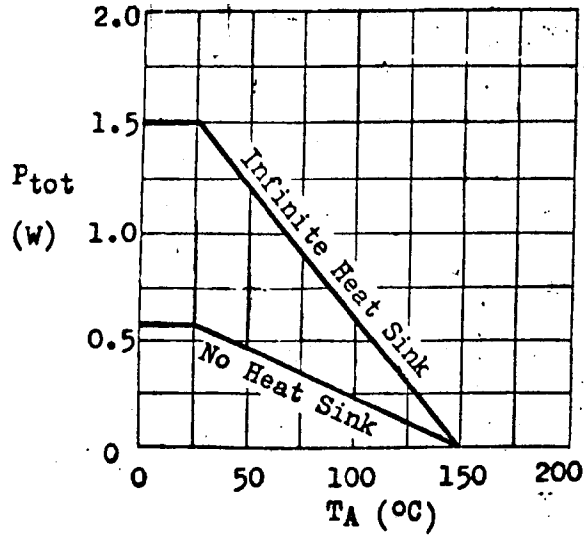
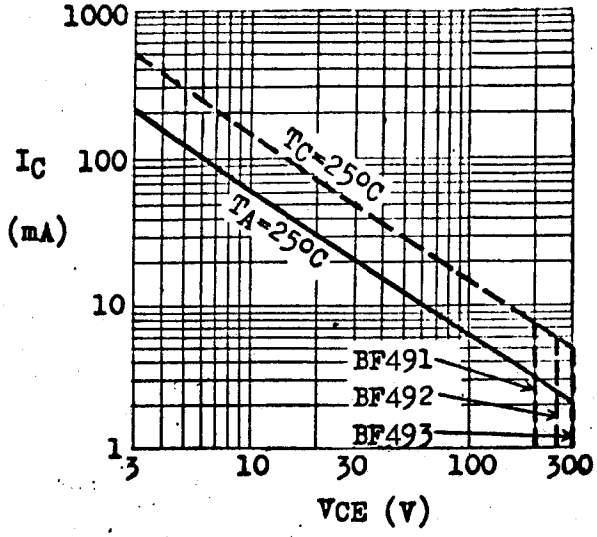
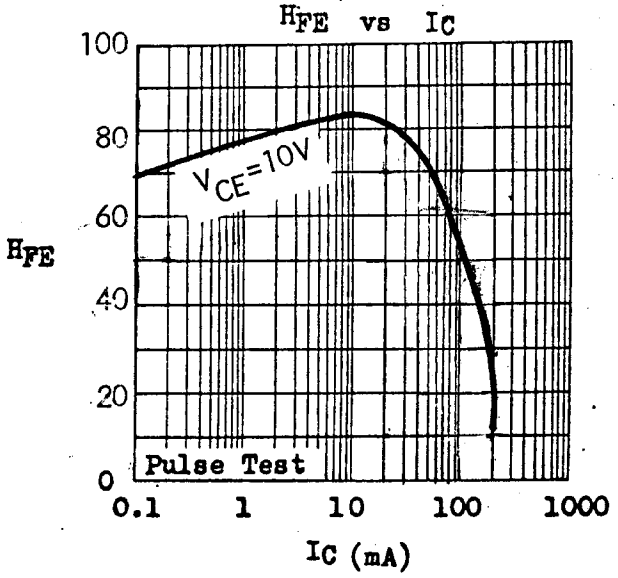
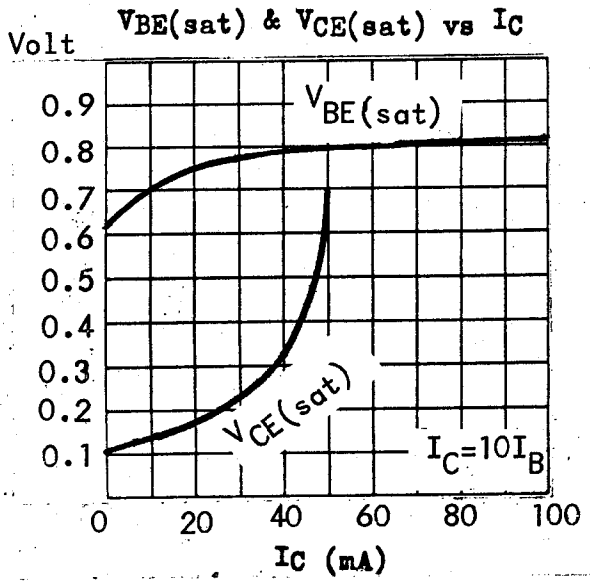
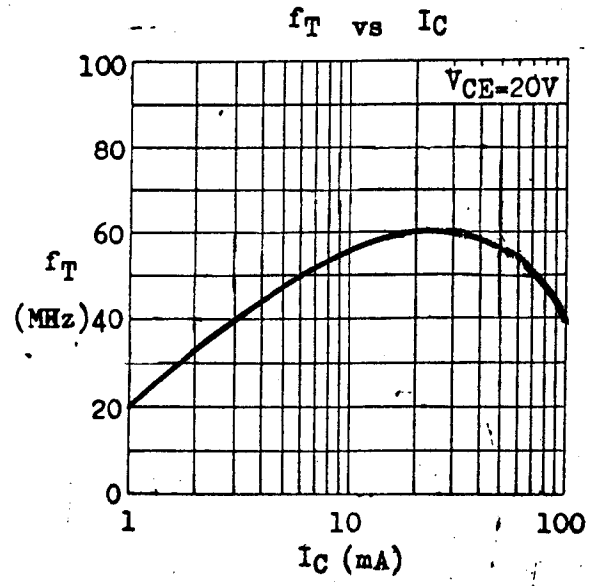
1-2. BmD


2.0
1.5
1.0
0.5
0
Ptot
(W)
Infinite Heat Sink
No Heat Sink
0
50
100
150
200
TA (°C)


1000
100
10
1
IC
(mA)
TC=25°C
TA=25°C
BF491
BF492
BF493
3
10
30
100
300
VCE (V)


HFE vs IC
100
80
60
40
20
0
HFE
VCE=10V
Pulse Test
0.1
1
10
100
1000
IC (mA)


VBE(sat) & VCE(sat) vs IC
Volt
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
VBE(sat)
VCE(sat)
IC=10IB
0
20
40
60
80
100
IC (mA)


fT vs IC
100
80
60
40
20
0
fT
(MHz)
VCE=20V
1
10
100
IC (mA)

2 - 2. BMP