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ON Semiconductor
BF493SG

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BF493S

High Voltage Transistor

PNP Silicon

ON Semiconductor®

http://onsemi.com

Features

- This is a Pb−Free Device*

MAXIMUM RATINGS

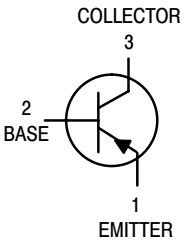
Rating	Symbol	Value	Unit
Collector−Emitter Voltage	V_{CEO}	−350	Vdc
Collector−Base Voltage	V_{CBO}	−350	Vdc
Emitter−Base Voltage	V_{EBO}	−6.0	Vdc
Collector Current − Continuous	I_C	−500	mAdc
Total Device Dissipation @ T_A = 25°C Derate above = 25°C	P_D	625 5.0	mW mW/°C
Total Device Dissipation @ T_C = 25°C Derate above 25°C	P_D	1.5 12	W mW/°C
Operating and Storage Junction Temperature Range	T_J, T_{stg}	−55 to +150	°C

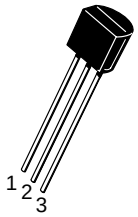
THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction−to−Ambient	$R_{\theta JA}$	200	°C/W
Thermal Resistance, Junction−to−Case	$R_{\theta JC}$	83.3	°C/W

Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

*For additional information on our Pb−Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.

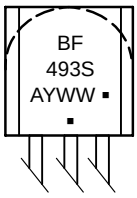




STRAIGHT LEAD
BULK PACK

TO−92
CASE 29
STYLE 1

MARKING DIAGRAM



A = Assembly Location
Y = Year
WW = Work Week
▪ = Pb−Free Package
(Note: Microdot may be in either location)

ORDERING INFORMATION

Device	Package	Shipping
BF493SG	TO−92 (Pb−Free)	5000 Units / Bulk

BF493S

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

Characteristic	Symbol	Min	Max	Unit
OFF CHARACTERISTICS				
Collector−Emitter Breakdown Voltage (Note 1) (I_C = −1.0 mAdc, I_B = 0)	$V_{(BR)CEO}$	−350	−	Vdc
Collector−Base Breakdown Voltage (I_C = −100 μAdc, I_E = 0)	$V_{(BR)CBO}$	−350	−	Vdc
Emitter−Base Breakdown Voltage (I_E = −100 μAdc, I_C = 0)	$V_{(BR)EBO}$	−6.0	−	Vdc
Collector Cutoff Current (V_{CE} = −250 Vdc)	I_{CES}	−	−10	nAdc
Emitter Cutoff Current (V_{EB} = −6.0 Vdc, I_C = 0)	I_{EBO}	−	0.1	μAdc
Collector Cutoff Current (V_{CB} = −250 Vdc, I_E = 0, T_A = 25°C) (V_{CB} = −250 Vdc, I_E = 0, T_A = 100°C)	I_{CBO}	− −	−0.005 −1.0	μAdc
ON CHARACTERISTICS				
DC Current Gain (I_C = −1.0 mAdc, V_{CE} = −10 Vdc) (I_C = −10 mAdc, V_{CE} = −10 Vdc)	h_{FE}	25 40	− −	−
Collector−Emitter Saturation Voltage (I_C = −20 mAdc, I_B = −2.0 mAdc)	$V_{CE(sat)}$	−	−2.0	Vdc
Base−Emitter On Voltage (I_C = −20 mA, I_B = −2.0 mA)	$V_{BE(sat)}$	−	−2.0	Vdc
DYNAMIC CHARACTERISTICS				
Current−Gain − Bandwidth Product (I_C = −10 mAdc, V_{CE} = −20 Vdc, f = 20 MHz)	f_T	50	−	MHz
Common−Emitter Feedback Capacitance (V_{CB} = −100 Vdc, I_E = 0, f = 1.0 MHz)	C_{re}	−	1.6	pF

1. Pulse Test: Pulse Width ≤ 300 μs; Duty Cycle ≤ 2.0%.

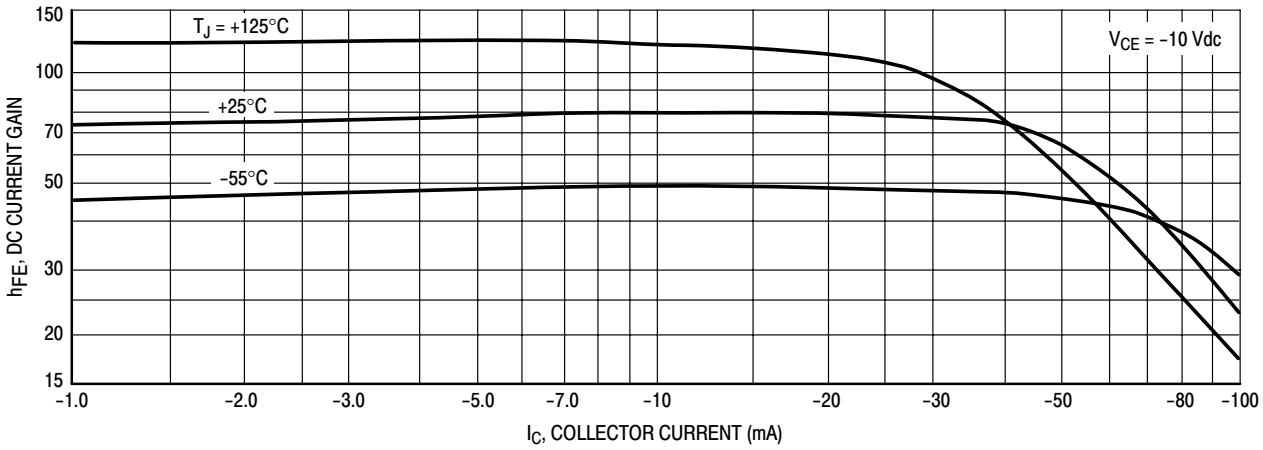


Figure 1. DC Current Gain

BF493S

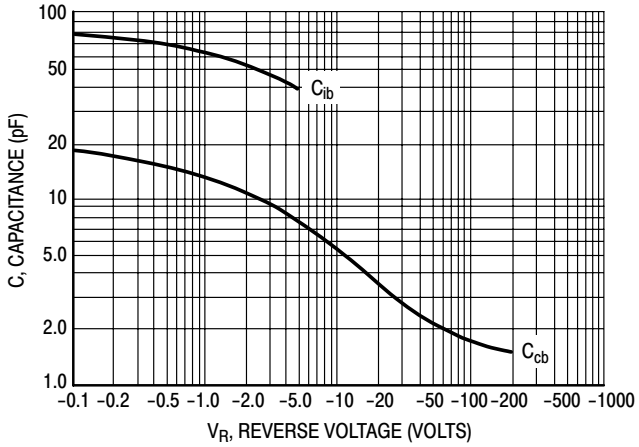


Figure 2. Capacitances

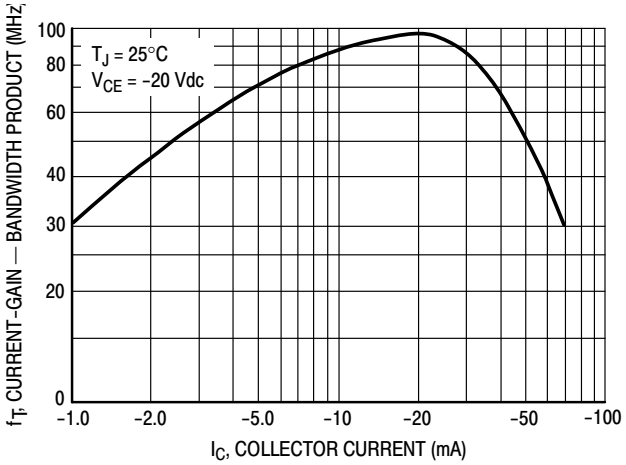


Figure 3. Current−Gain — Bandwidth Product

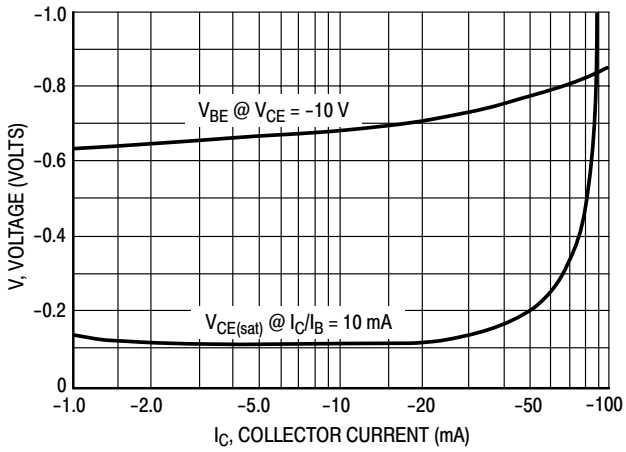


Figure 4. “On” Voltages

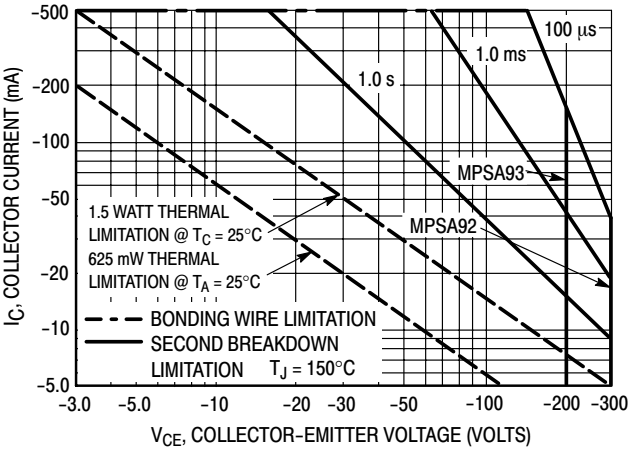
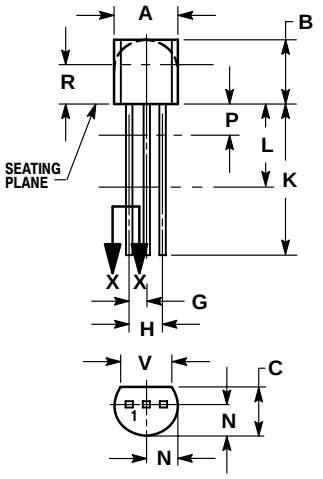


Figure 5. Active Region — Safe Operating Area

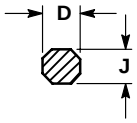
BF493S

PACKAGE DIMENSIONS

TO−92 (TO−226)
CASE 29−11
ISSUE AM



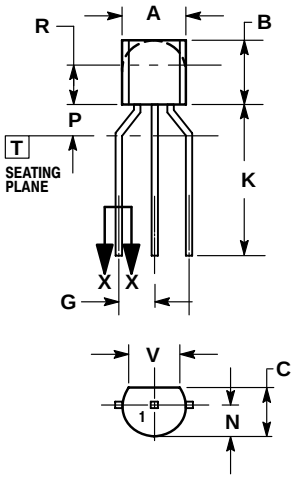
STRAIGHT LEAD
BULK PACK



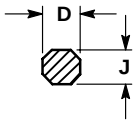
SECTION X−X

NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.
3. CONTOUR OF PACKAGE BEYOND DIMENSION R IS UNCONTROLLED.
4. LEAD DIMENSION IS UNCONTROLLED IN P AND BEYOND DIMENSION K MINIMUM.

	INCHES		MILLIMETERS	
DIM	MIN	MAX	MIN	MAX
A	0.175	0.205	4.45	5.20
B	0.170	0.210	4.32	5.33
C	0.125	0.165	3.18	4.19
D	0.016	0.021	0.407	0.533
G	0.045	0.055	1.15	1.39
H	0.095	0.105	2.42	2.66
J	0.015	0.020	0.39	0.50
K	0.500	---	12.70	---
L	0.250	---	6.35	---
N	0.080	0.105	2.04	2.66
P	---	0.100	---	2.54
R	0.115	---	2.93	---
V	0.135	---	3.43	---



BENT LEAD
TAPE & REEL
AMMO PACK



SECTION X−X

NOTES:
1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 1994.
2. CONTROLLING DIMENSION: MILLIMETERS.
3. CONTOUR OF PACKAGE BEYOND DIMENSION R IS UNCONTROLLED.
4. LEAD DIMENSION IS UNCONTROLLED IN P AND BEYOND DIMENSION K MINIMUM.

	MILLIMETERS	
DIM	MIN	MAX
A	4.45	5.20
B	4.32	5.33
C	3.18	4.19
D	0.40	0.54
G	2.40	2.80
J	0.39	0.50
K	12.70	---
N	2.04	2.66
P	1.50	4.00
R	2.93	---
V	3.43	---

STYLE 1:
PIN 1. EMITTER
2. BASE
3. COLLECTOR

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