PNP Silicon Planar High Voltage Transistors

BF491 BF492 BF493

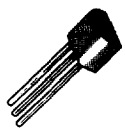
DESCRIPTION

These plastic encapsulated, general purpose transistors are designed for applications requiring high breakdown voltage, low saturation voltages, and low capacitance.

The E-line package is formed by transfer moulding a silicone plastic specially selected to provide a rugged one-piece encapsulation resistant to severe environments and allow the high junction temperature operation normally associated with metal can devices.

E-line encapsulated devices are approved for use in military, industrial and professional equipments.

Alternative lead configurations are available as plug-in replacements of TO-5/39 and TO-18 metal can types, and for surface mounting.



Plastic E-Line
(TO-92 Compatible)

ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	BF491	BF492	BF493	Unit
Collector-base voltage	V_{CBO}	−200	−250	−300	V
Collector-emitter voltage	V_{CEO}	−200	−250	−300	V
Emitter-base voltage	V_{EBO}	−6			V
Continuous collector current	I_C	−500			mA
Power dissipation at $T_{amb} = 25°C$ at $T_{case} = 25°C$	P_{tot}	625 1.5			mW W
Operating and storage temperature range	T_j;T_{stg}	−55 to +175			°C

THERMAL CHARACTERISTICS

Parameter	Symbol	Maximum	Unit
Thermal resistance: Junction to ambient	$R_{th(j\text{-}amb)}$	220	°C/W
Junction to case	$R_{th(j\text{-}case)}$	80	°C/W

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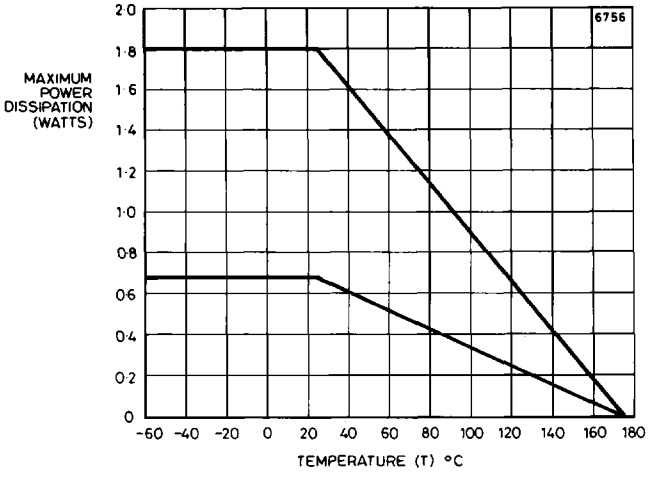
CHARACTERISTICS (at $T_{amb} = 25°C$ unless otherwise stated).

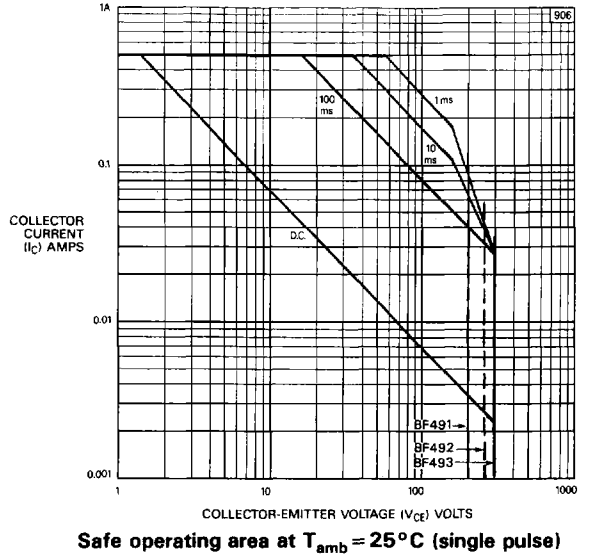
Parameter	Symbol	BF491		BF492		BF493		Unit	Conditions
		Min.	Max.	Min.	Max.	Min.	Max.		
Collector-base breakdown voltage	$V_{(BR)CBO}$	−200	−	−250	−	−300	−	V	$I_C = -100\mu A$ $I_E = 0$
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	−200	−	−250	−	−300	−	V	$I_C = -10mA$ $I_B = 0$*
Emitter-base breakdown voltage	$V_{(BR)EBO}$	−6	−	−6	−	−6	−	V	$I_E = -100\mu A$ $I_C = 0$
Collector cut-off current	I_{CBO}	−	−0.1	−	−	−	−	μA	$V_{CB} = -160V$ $I_E = 0$
		−	−	−	−0.1	−	−0.1	μA	$V_{CB} = -200V$ $I_E = 0$
Emitter cut-off current	I_{EBO}	−	−0.1	−	−	−	−	μA	$V_{BE} = -4V$ $I_C = 0$
		−	−	−	−0.1	−	−0.1	μA	$V_{BE} = -6V$ $I_C = 0$
Static forward current transfer ratio	h_{FE}	25	−	25	−	25	−		$I_C = -1mA$ $V_{CE} = -10V$*
		40	−	40	−	40	−		$I_C = -10mA$ $V_{CE} = -10V$*
Collector-emitter saturation voltage	$V_{CE(sat)}$	−	−2	−	−2	−	−2	V	$I_C = -20mA$ $I_B = -2mA$
Collector-base saturation voltage	$V_{BE(sat)}$	−	−2	−	−2	−	−2	V	$I_C = -20mA$ $I_B = -2mA$
Transition frequency	f_T	50	−	50	−	50	−	MHz	$I_C = -10mA$ $V_{CE} = -20V$ f = 20MHz
Collector-base capacitance	C_{re}	−	1.6	−	1.6	−	1.6	pF	$V_{CE} = -100V$ $I_E = 0$ f = 1MHz

*Measured under pulsed conditions. Pulse width = 300μs. Duty cycle ⩽2%.

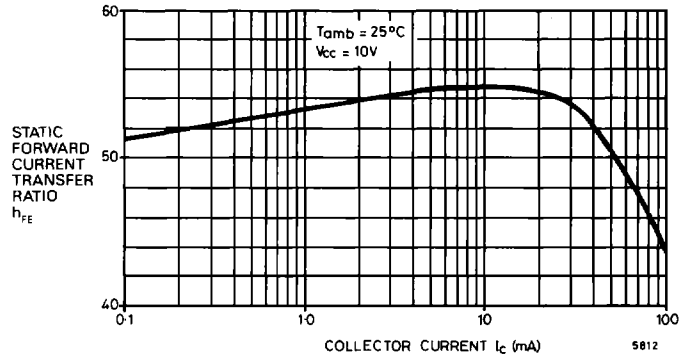
For maximum transient thermal impedance curves, refer to BF391-3 data

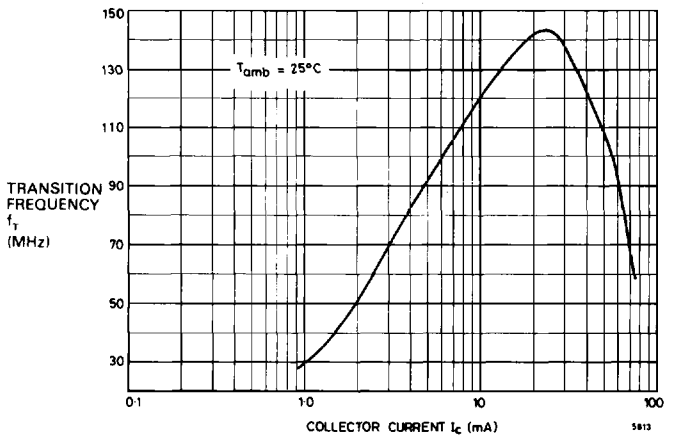


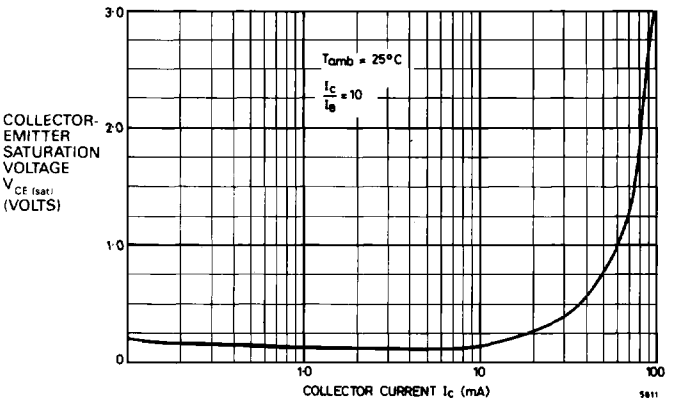
Dissipation derating curve



Safe operating area at $T_{amb} = 25°C$ (single pulse)







Typical characteristics