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BF391
BF392
BF393

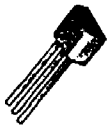
NPN Silicon Planar High Voltage Transistors

DESCRIPTION

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

The E-line package is formed by injection 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.



PLASTIC E-LINE (TO-92)

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

ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	BF391	BF392	BF393	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	6	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 Junction to Case	$R_{th(j\text{-}amb)}$ $R_{th(j\text{-}case)}$	220 80	°C/W °C/W

BF391 Series

CHARACTERISTICS (at 25°C ambient temperature unless otherwise stated).

Parameter		Symbol	Min.	Max.	Unit	Test Conditions
Collector-base breakdown voltage	BF391	$V_{(BR)CBO}$	200	–	V	$I_C = 100\mu A$, $I_E = 0$
	BF392		250	–	V	
	BF393		300	–	V	
Collector-emitter breakdown voltage	BF391	$V_{(BR)CEO}$	200	–	V	$I_C = 10mA$, $I_B = 0$*
	BF392		250	–	V	
	BF393		300	–	V	
Emitter-base breakdown voltage	BF391	$V_{(BR)EBO}$	6.0	–	V	$I_E = 100\mu A$, $I_C = 0$
	BF392		6.0	–	V	
	BF393		6.0	–	V	
Collector cut-off current	BF391	I_{CBO}	–	0.1	μA	$V_{CB} = 160V$, $I_E = 0$
	BF392		–	0.1	μA	$V_{CB} = 200V$, $I_E = 0$
	BF393		–	0.1	μA	$V_{CB} = 200V$, $I_E = 0$
Emitter cut-off current	BF391	I_{EBO}	–	0.1	μA	$V_{BE} = 4V$, $I_C = 0$
	BF392		–	0.1	μA	$V_{BE} = 6V$, $I_C = 0$
	BF393		–	0.1	μA	$V_{BE} = 6V$, $I_C = 0$
Static forward current transfer ratio	All types	h_{FE}	25	–		$I_C = 1mA$, $V_{CE} = 10V$*
	All types		40	–		$I_C = 10mA$, $V_{CE} = 10V$*
Collector-emitter saturation voltage		$V_{CE(sat)}$	–	2.0	V	$I_C = 20mA$, $I_B = 2mA$
Collector-base saturation voltage		$V_{BE(sat)}$	–	2.0	V	$I_C = 20mA$, $I_B = 2mA$
Transition frequency		f_T	50	–	MHz	$I_C = 10mA$, $V_{CE} = 20V$ $f = 20MHz$
Collector-base capacitance		C_{re}	–	1.6	pF	$V_{CE} = 60V$, $I_E = 0$ $f = 1MHz$

*Measured under pulsed conditions. Pulse width $= 300\mu s$. Duty cycle $\leq 2\%$.