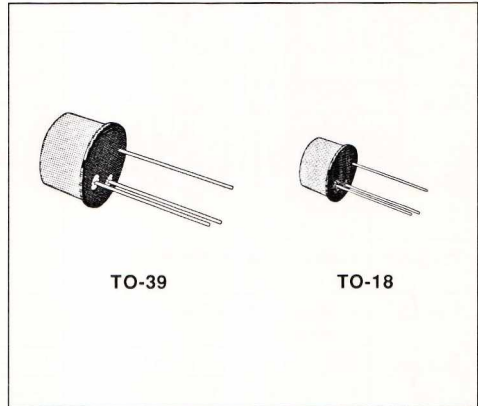


## HIGH VOLTAGE AMPLIFIERS

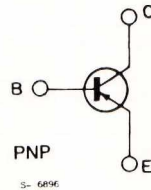
### DESCRIPTION

The BFW43 and BFW44 are silicon planar epitaxial PNP transistors in Jedec TO-18 (BFW43) and Jedec TO-39 (BFW44) metal cases.

Both devices are designed for use in amplifiers where high voltage and high gain are necessary. In particular, they feature a  $V_{CE0}$  of 150 V and are specified over a wide range of currents.



### INTERNAL SCHEMATIC DIAGRAM



### ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
$V_{CBO}$	Collector-Base Voltage ( $I_E = 0$ )	- 150	V
$V_{CEO}$	Collector-Emitter Voltage ( $I_B = 0$ )	- 150	V
$V_{EBO}$	Emitter-Base Voltage ( $I_C = 0$ )	- 6	V
$I_C$	Collector Current	- 100	mA
$P_{tot}$	Total Power Dissipation at $T_{amb} \leq 25^\circ\text{C}$ for <b>BFW 43</b>	0.4	W
	for <b>BFW 44</b>	0.7	W
	at $T_{case} \leq 25^\circ\text{C}$ for <b>BFW 43</b>	1.4	W
	for <b>BFW 44</b>	2.5	W
$T_{stg}, T_j$	Storage and Junction Temperature	- 55 to 200	$^\circ\text{C}$

**THERMAL DATA**

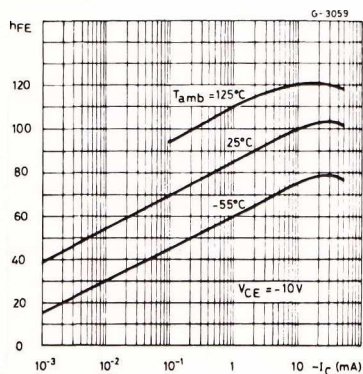
			<b>BFW43</b>	<b>BFW44</b>
$R_{th\ j-case}$	Thermal Resistance Junction-case	Max	125 °C/W	70 °C/W
$R_{th\ j-amb}$	Thermal Resistance Junction-ambient	Max	438 °C/W	250 °C/W

**ELECTRICAL CHARACTERISTICS** ( $T_{amb} = 25\text{ °C}$  unless otherwise specified)

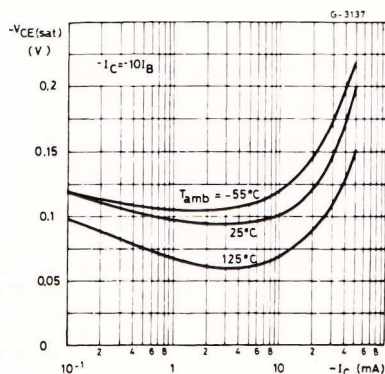
Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
$I_{CBO}$	Collector Cutoff Current ( $I_E = 0$ )	$V_{CB} = -100\text{ V}$ $V_{CB} = -100\text{ V}$ $T_{amb} = 125\text{ °C}$		- 0.2 - 0.03	- 10 - 10	nA μA
$V_{(BR)CBO}$	Collector-base Breakdown Voltage ( $I_E = 0$ )	$I_C = -10\text{ μA}$	- 150			V
$V_{(BR)CEO}^*$	Collector-emitter Breakdown Voltage ( $I_B = 0$ )	$I_C = -2\text{ mA}$	- 150			V
$V_{(BR)EBO}$	Emitter-base Breakdown Voltage ( $I_C = 0$ )	$I_E = -10\text{ μA}$	- 6			V
$V_{CE(sat)}^*$	Collector-emitter Saturation Voltage	$I_C = -10\text{ mA}$ $I_B = -1\text{ mA}$		- 0.1	- 0.5	V
$V_{BE(sat)}^*$	Base-emitter Saturation Voltage	$I_C = -10\text{ mA}$ $I_B = -1\text{ mA}$		- 0.74	- 0.9	V
$h_{FE}^*$	DC Current Gain	$I_C = -1\text{ mA}$ $V_{CE} = -10\text{ V}$ $I_C = -10\text{ mA}$ $V_{CE} = -10\text{ V}$ $I_C = -10\text{ μA}$ $V_{CE} = -10\text{ V}$ $T_{amb} = -55\text{ °C}$	40 40	85 100		
$f_T$	Transition Frequency	$V_{CE} = -10\text{ V}$ $f = 20\text{ MHz}$ $I_C = -1\text{ mA}$ $I_C = -10\text{ mA}$	60	50		MHz MHz
$C_{EBO}$	Emitter-base Capacitance	$I_C = 0$ $f = 1\text{ MHz}$ $V_{EB} = -0.5\text{ V}$		20	25	pF
$C_{CBO}$	Collector-base Capacitance	$I_E = 0$ $f = 1\text{ MHz}$ $V_{CB} = -5\text{ V}$		5	7	pF

\* Pulsed : pulse duration = 300 μs, duty cycle = 1 %.

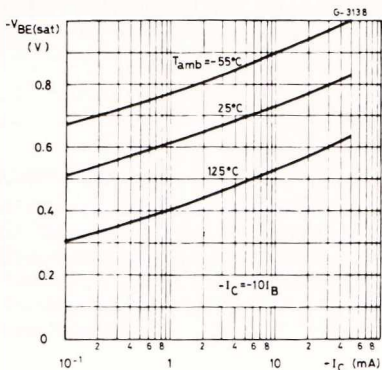
**DC Current Gain.**



**Collector-emitter Saturation Voltage.**



Base-emitter Saturation Voltage.



Transition Frequency.

