SGS-THOMSON MICROELECTRONICS

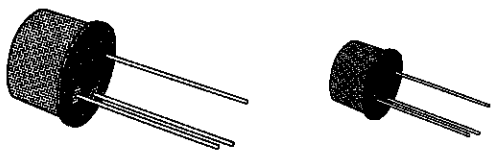
BFW43
BFW44

HIGH VOLTAGE AMPLIFIERS

DESCRIPTION

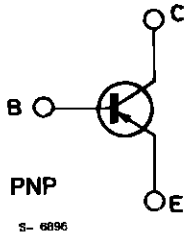
The BFW43 and BFW44 are silicon planar epitaxial PNP transistors in Jedec TO-18 (BFW43) and Jedec TO-39 (BFW44) metal cases.

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



TO-39 TO-18

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 $T_{amb} \leq 25$ °C		
	for **BFW 43**	0.4	W
	for **BFW 44**	0.7	W
	at $T_{case} \leq 25$ °C		
	for **BFW 43**	1.4	W
	for **BFW 44**	2.5	W
T_{stg}, T_j	Storage and Junction Temperature	– 55 to 200	°C

THERMAL DATA

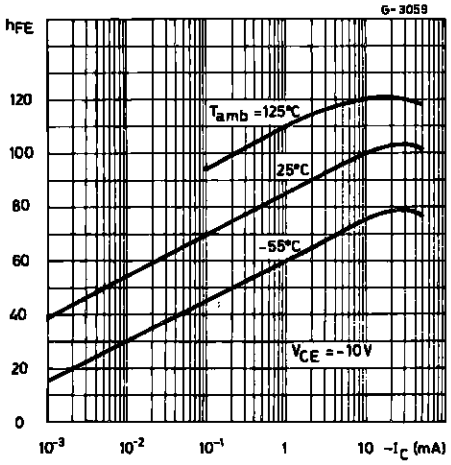
			BFW 43	BFW 44
$R_{th\ j\text{-}case}$	Thermal Resistance Junction-case	Max	125 °C/W	70 °C/W
$R_{th\ j\text{-}amb}$	Thermal Resistance Junction-ambient	Max	438 °C/W	250 °C/W

ELECTRICAL CHARACTERISTICS (T_{amb} = 25 °C unless otherwise specified)

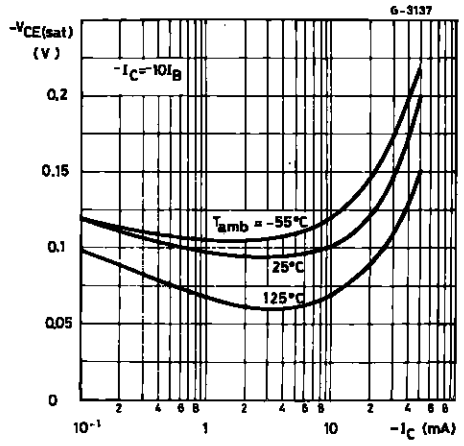
Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I_{CBO}	Collector Cutoff Current (I_E = 0)	V_{CB} = – 100 V V_{CB} = – 100 V T_{amb} = 125 °C		– 0.2 – 0.03	– 10 – 10	nA µA
$V_{(BR)CBO}$	Collector-base Breakdown Voltage (I_E = 0)	I_C = – 10 µA	– 150			V
$V_{(BR)CEO}$*	Collector-emitter Breakdown Voltage (I_B = 0)	I_C = – 2 mA	– 150			V
$V_{(BR)EBO}$	Emitter-base Breakdown Voltage (I_C = 0)	I_E = – 10 µA	– 6			V
$V_{CE(sat)}$*	Collector-emitter Saturation Voltage	I_C = – 10 mA I_B = – 1 mA		– 0.1	– 0.5	V
$V_{BE(sat)}$*	Base-emitter Saturation Voltage	I_C = – 10 mA I_B = – 1 mA		– 0.74	– 0.9	V
h_{FE}*	DC Current Gain	I_C = – 1 mA V_{CE} = – 10 V I_C = – 10 mA V_{CE} = – 10 V I_C = – 10 µA V_{CE} = – 10 V T_{amb} = – 55 °C	40 40	85 100 30		
f_T	Transition Frequency	V_{CE} = – 10 V f = 20 MHz I_C = – 1 mA I_C = – 10 mA	 60	 50 		 MHz MHz
C_{EBO}	Emitter-base Capacitance	I_C = 0 V_{EB} = – 0.5 V f = 1 MHz		 20	 25	 pF
C_{CBO}	Collector-base Capacitance	I_E = 0 V_{CB} = – 5 V f = 1 MHz		 5	 7	 pF

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

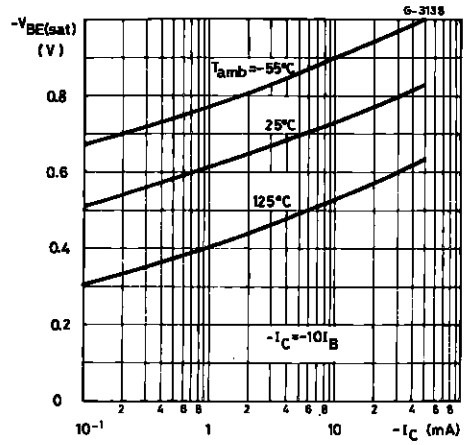
DC Current Gain.



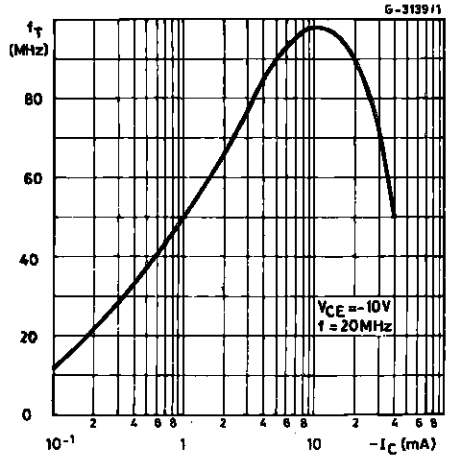
Collector-emitter Saturation Voltage.



Base-emitter Saturation Voltage.

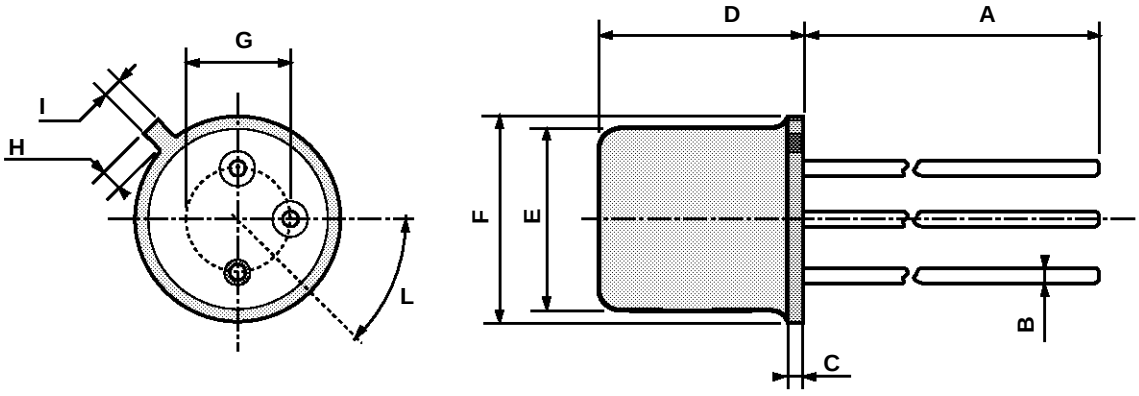


Transition Frequency.



TO-18 MECHANICAL DATA

DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A		12.7			0.500	
B			0.49			0.019
D			5.3			0.208
E			4.9			0.193
F			5.8			0.228
G	2.54			0.100		
H			1.2			0.047
I			1.16			0.045
L	45^o			45^o		



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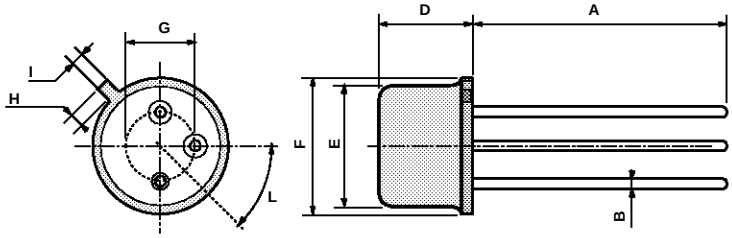
TO39 MECHANICAL DATA

DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A	12.7			0.500		
B			0.49			0.019
D			6.6			0.260
E			8.5			0.334
F			9.4			0.370
G	5.08			0.200		
H			1.2			0.047
I			0.9			0.035
L	45^{o} (typ.)					



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