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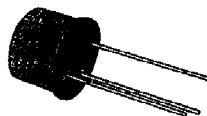
BFW16A BFW17A

CATV-MATV AMPLIFIERS

DESCRIPTION

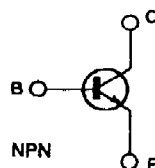
The BFW 16A and BFW 17A are multi-emitter silicon planar epitaxial NPN transistors in Jedec TO-39 metal case, with extremely good intermodulation properties and high power gain. They are primarily intended for final and driver stages in channel and band-aerial amplifiers with high output power from 40 to 860 MHz.

Another possible application is as the final stage of the wide band vertical amplifier in high speed oscilloscopes.



TO-39

INTERNAL SCHEMATIC DIAGRAM



ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
V_{CBO}	Collector-base Voltage ($I_E = 0$)	40	V
V_{CER}	Collector-emitter Voltage ($R_{BE} \leq 50 \Omega$)	40	V
V_{CEO}	Collector-emitter Voltage ($I_B = 0$)	25	V
V_{EBO}	Emitter-base Voltage ($I_C = 0$)	3	V
I_C	Collector Current	150	mA
I_{CM}	Collector Peak Current	300	mA
P_{tot}	Total Power Dissipation at $T_{amb} \leq 25^\circ C$ at $T_{case} \leq 125^\circ C$	0.7 1.5	W W
T_{stg}, T_J	Storage and Junction Temperature	- 65 to 200	$^\circ C$

NJ Semi-Conductors reserves the right to change test conditions, parameters limits and package dimensions without notice information furnished by NJ Semi-Conductors is believed to be both accurate and reliable at the time of going to press. However NJ Semi-Conductors assumes no responsibility for any errors or omissions discovered in its use. NJ Semi-Conductors encourages customers to verify that datasheets are current before placing orders.



Quality Semi-Conductors

THERMAL DATA

$R_{th\ j-case}$	Thermal Resistance Junction-case	Max	50	°C/W
$R_{th\ j-amb}$	Thermal Resistance Junction-ambient	Max	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 ($I_E = 0$)	$V_{CB} = 20\text{ V}$ $T_{amb} = 150\text{ °C}$			20	μA
$V_{(BR)EBO}$	Emitter-base Breakdown Voltage ($I_C = 0$)	$I_E = 100\text{ }\mu\text{A}$	3			V
$V_{CEK}^{*/**}$	Collector-emitter Knee Voltage	$I_C = 100\text{ mA}$			0.75	V
h_{FE}^*	DC Current Gain	$I_C = 50\text{ mA}$ $V_{CE} = 5\text{ V}$ $I_C = 150\text{ mA}$ $V_{CE} = 5\text{ V}$	25 25			
f_T	Transition Frequency	$I_C = 150\text{ mA}$ $V_{CE} = 15\text{ V}$ $f = 500\text{ MHz}$ for BFW 16A for BFW 17A		1.2 1.1		GHz GHz
C_{CBO}	Collector-base Capacitance	$I_E = 0$ $V_{CB} = 15\text{ V}$ $f = 1\text{ MHz}$			4	pF
C_{re}	Reverse Capacitance	$I_C = 10\text{ mA}$ $V_{CE} = 15\text{ V}$ $f = 1\text{ MHz}$		1.7		pF
NF	Noise Figure (for BFW 16A only)	$I_C = 30\text{ mA}$ $V_{CE} = 15\text{ V}$ $R_g = 75\text{ }\Omega$ $f = 200\text{ MHz}$			6	dB
G_{pe}	Power Gain (not neutralized)	$I_C = 70\text{ mA}$ $V_{CE} = 18\text{ V}$ $f = 200\text{ MHz}$ for BFW 16A and BFW 17A $f = 800\text{ MHz}$ For BFW 16A only		16 6.5		dB dB
P_0	Output Power	$I_C = 70\text{ mA}$ $V_{CE} = 18\text{ V}$ Channel 9 ⁽¹⁾ for BFW 16A for BFW 17A Channel 62 ⁽²⁾ For BFW 16A only	130 70	150 90		mW mW mW

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

** I_B = value for which $I_C = 110\text{ mA}$ at $V_{CE} = 1\text{ V}$.

(1) $f_p = 202\text{ MHz}$, $f_q = 205\text{ MHz}$, $f_{(q-p)} = 208\text{ MHz}$.

(2) $f_p = 798\text{ MHz}$, $f_q = 802\text{ MHz}$, $f_{(q-p)} = 806\text{ MHz}$.