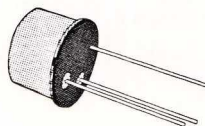


CATV-MATV AMPLIFIERS

DESCRIPTION

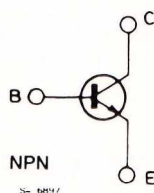
The BFW 16A and BFW 17A are multi-emitter silicon planar epitaxial NPN transistors in Jedec TO-39 metal case, with extremely good intermodulation properties and high power gain. They are primarily intended for final and driver stages in channel-and band-aerial amplifiers with high output power from 40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

THERMAL DATA

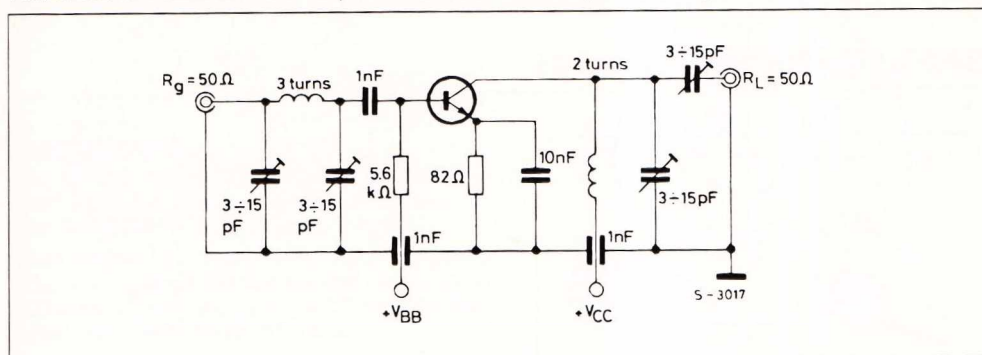
$R_{th\ j-case}$	Thermal Resistance Junction-case	Max	50	$^{\circ}C/W$
$R_{th\ j-amb}$	Thermal Resistance Junction-ambient	Max	250	$^{\circ}C/W$

ELECTRICAL CHARACTERISTICS ($T_{amb} = 25\ ^{\circ}C$ unless otherwise specified)

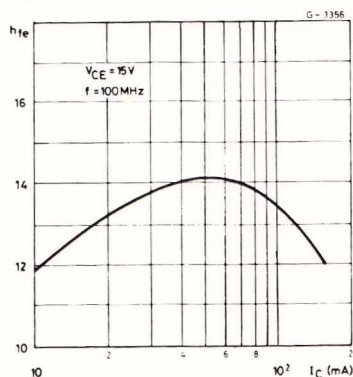
Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I_{CBO}	Collector Cutoff Current ($I_E = 0$)	$V_{CB} = 20\ V$ $T_{amb} = 150\ ^{\circ}C$			20	μA
$V_{(BR)EBO}$	Emitter-base Breakdown Voltage ($I_C = 0$)	$I_E = 100\ \mu A$	3			V
$V_{CEK}^{*/**}$	Collector-emitter Knee Voltage	$I_C = 100\ mA$			0.75	V
h_{FE}^{*}	DC Current Gain	$I_C = 50\ mA$ $V_{CE} = 5\ V$ $I_C = 150\ mA$ $V_{CE} = 5\ V$	25 25			
f_T	Transition Frequency	$I_C = 150\ mA$ $V_{CE} = 15\ V$ $f = 500\ MHz$ for BFW 16A for BFW 17A		1.2 1.1		GHz GHz
C_{CBO}	Collector-base Capacitance	$I_E = 0$ $V_{CB} = 15\ V$ $f = 1\ MHz$			4	pF
C_{re}	Reverse Capacitance	$I_C = 10\ mA$ $V_{CE} = 15\ V$ $f = 1\ MHz$		1.7		pF
NF	Noise Figure (for BFW 16A only)	$I_C = 30\ mA$ $V_{CE} = 15\ V$ $R_g = 75\ \Omega$ $f = 200\ MHz$			6	dB
G_{pe}	Power Gain (not neutralized)	$I_C = 70\ mA$ $V_{CE} = 18\ V$ $f = 200\ MHz$ for BFW 16A and BFW 17A $f = 800\ MHz$ For BFW 16A only		16 6.5		dB dB
P_0	Output Power	$I_C = 70\ mA$ $V_{CE} = 18\ V$ 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 $I_C = 110\ mA$ at $V_{CE} = 1V$.
(1) $f_p = 202\ MHz$, $f_q = 205\ MHz$, $f_{(2q-p)} = 208\ MHz$.
(2) $f_p = 798\ MHz$, $f_q = 802\ MHz$, $f_{(2q-p)} = 806\ MHz$.

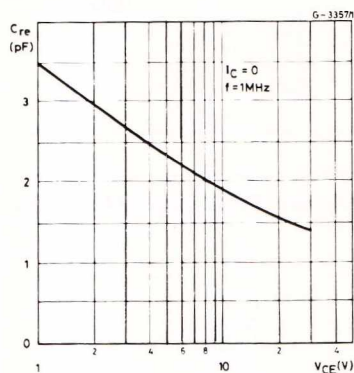
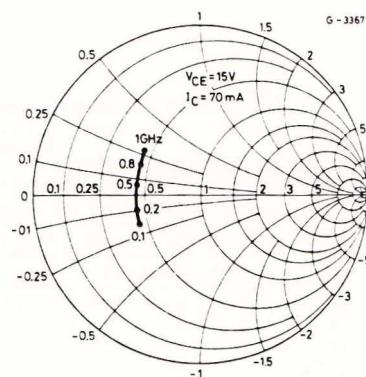
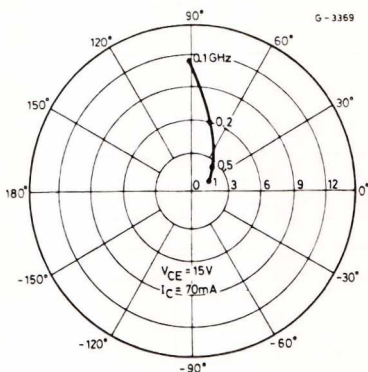
TEST CIRCUIT

Test Circuit for Power Gain and Output Power Measurements ($f = 200 \text{ MHz}$).

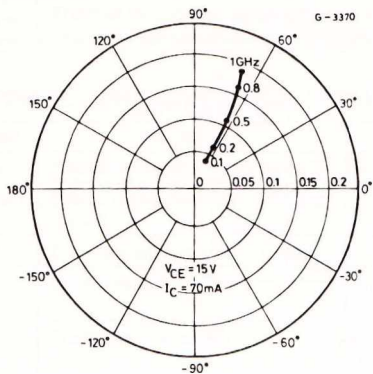
High Frequency Current Gain.



Reverse Capacitance.

Input Impedance S_{11e} (normalized 50 Ω).Forward Transfer Coefficient S_{21e} .

Reverse Transfer Coefficient S_{12e} .



Output Impedance S_{22e} (normalized 50 Ω).

