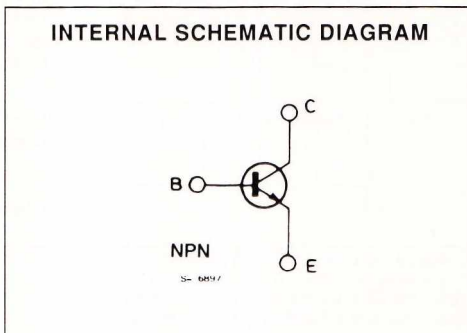
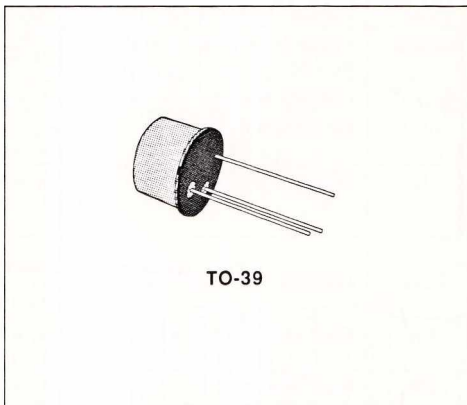


CATV-MATV AMPLIFIERS

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.



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	$I_C = 50\ mA$ $I_C = 150\ mA$	$V_{CE} = 5\ V$ $V_{CE} = 5\ V$	25 25			
f_T	Transition Frequency	$I_C = 150\ mA$ $f = 500\ MHz$	$V_{CE} = 15\ V$ for BFW 16A for BFW 17A		1.2 1.1		GHz GHz
C_{CBO}	Collector-base Capacitance	$I_E = 0$ $f = 1\ MHz$	$V_{CB} = 15\ V$			4	pF
C_{re}	Reverse Capacitance	$I_C = 10\ mA$ $f = 1\ MHz$	$V_{CE} = 15\ V$		1.7		pF
NF	Noise Figure (for BFW 16A only)	$I_C = 30\ mA$ $R_g = 75\ \Omega$	$V_{CE} = 15\ V$ $f = 200\ MHz$			6	dB
G_{pe}	Power Gain (not neutralized)	$I_C = 70\ mA$ $f = 200\ MHz$ for BFW 16A and BFW 17A $f = 800\ MHz$ For BFW 16A only	$V_{CE} = 18\ V$		16 6.5		dB dB
P_0	Output Power	$I_C = 70\ mA$ Channel 9 ⁽¹⁾ Channel 62 ⁽²⁾ For BFW 16A only	$V_{CE} = 18\ V$ for BFW 16A for BFW 17A	130 70	150 90		mW mW mW

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

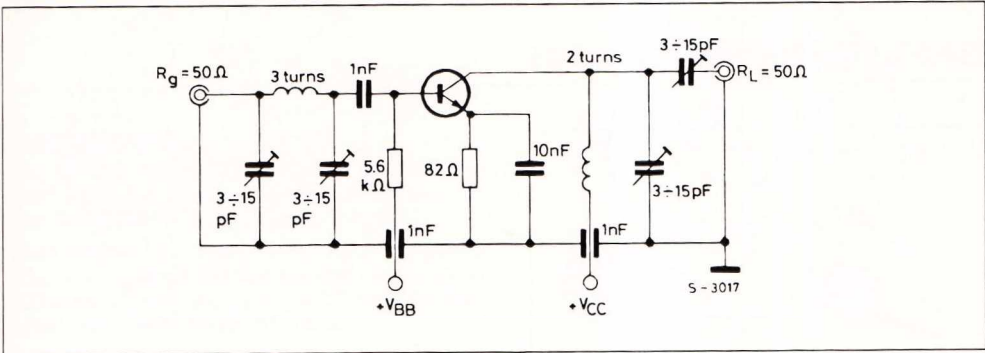
** I_B = value for which $I_C = 110\ mA$ at $V_{CE} = 1\ V$.

(1) $f_p = 202\ MHz$, $f_q = 205\ MHz$, $f_{(2q-p)} = 208\ MHz$.

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

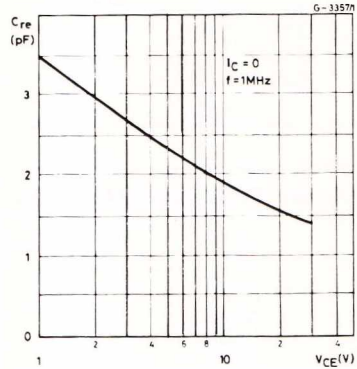
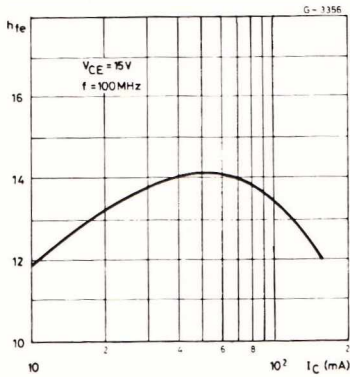
TEST CIRCUIT

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



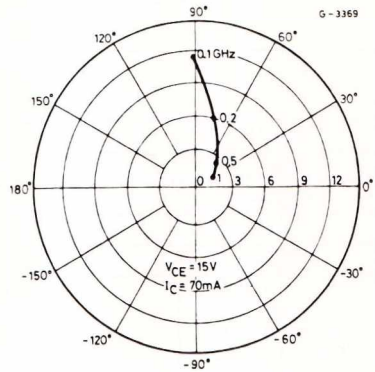
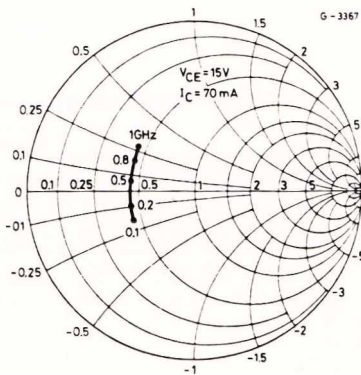
High Frequency Current Gain.

Reverse Capacitance.

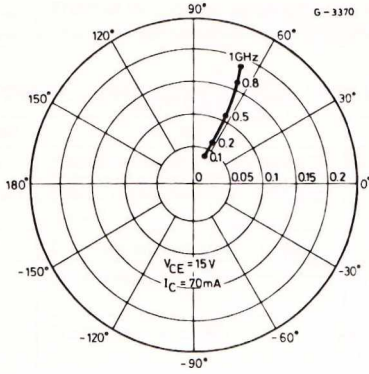


Input Impedance S_{11e} (normalized 50 Ω).

Forward Transfer Coefficient S_{21e} .



Reverse Transfer Coefficient S_{12e} .



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

