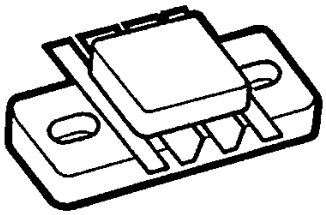
VHF Linear Power Transistor

- Band 3
- For TV Transmitters and Transposers
- High Gain
- Class AB Operation
- Push-Pull Transistor
- Low Thermal Resistance
- All Gold Metalization
- Diffused Ballast Resistors



MRP 7

Electrical Characteristics (T_{case} = 25 °C)

	SYMBOL	CHARACTERISTICS	TEST CONDITIONS	MIN.	TYP.	MAX.	UNIT
DC TEST	BV_{EBO}	Emitter - Base Breakdown Voltage	I_E = 5 mA	3.5			V
	BV_{CEO}	Collector - Emitter Breakdown Voltage	I_C = 50 mA	35			V
	BV_{CER}	Collector - Emitter Breakdown Voltage	I_C = 50 mA R_{BE} = 15 Ohms	60			V
	BV_{CBO}	Collector - Base Breakdown Voltage	I_C = 50 mA	65			V
	H_{FE}	D.C. Current Gain	V_{CE} = 28 V I_C = 0.5 A	20		150	
RF TEST	P_G	Power Gain	V_{CE} = 28V, I_C = 2×2.25A	14			dB
	IMD	Intermodulation, Distortion, 3 Tones	F = 225MHz (−8, −7, −16dB Tones)			−51	dB
	VSWR	Mismatch Tolerance	Pref = 28W			∞	—
	Pout	Output Power Class AB 1dB Gain Compression	V_{CE} = 28V, F = 225MHz I_Q = 2×100mA	100			
	C_{OB}	Collector Base Capacitance each side	V_{CB} = 28 V F = 1 MHz		60		pF
THERMAL	I_C	Maximum Collector Current each side				8	A
	θ_{JC}	D.C. Thermal Resistance Junction Case	T_{case} = 70°C			0.8	°C/W
	T_{STG}	Storage Température		— 65		+150	°C

RF Devices Division, TRW Electronic Components Group, 14520 Aviation Blvd., Lawndale, CA 90260 213.536.0888

LARGE SIGNAL IMPEDANCES

Class AB

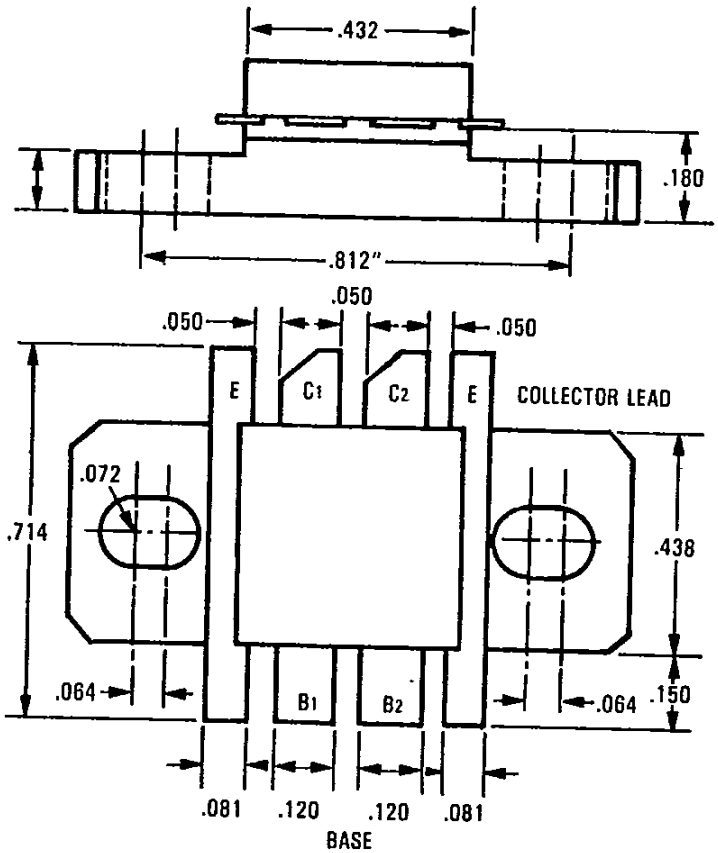
FREQUENCY (MHz)	Z_{In} (Ω)	Z_{Load} (Ω)
170	1.25 + j 0.5	10 + j 10
200	0.9 + j 0.9	9.5 + j 7
230	1 + j 2	6.5 + j 6.5

NOTES : V_{CE} = 28 Volts I_q = 2 × 100 mA P_{out} = 100 W

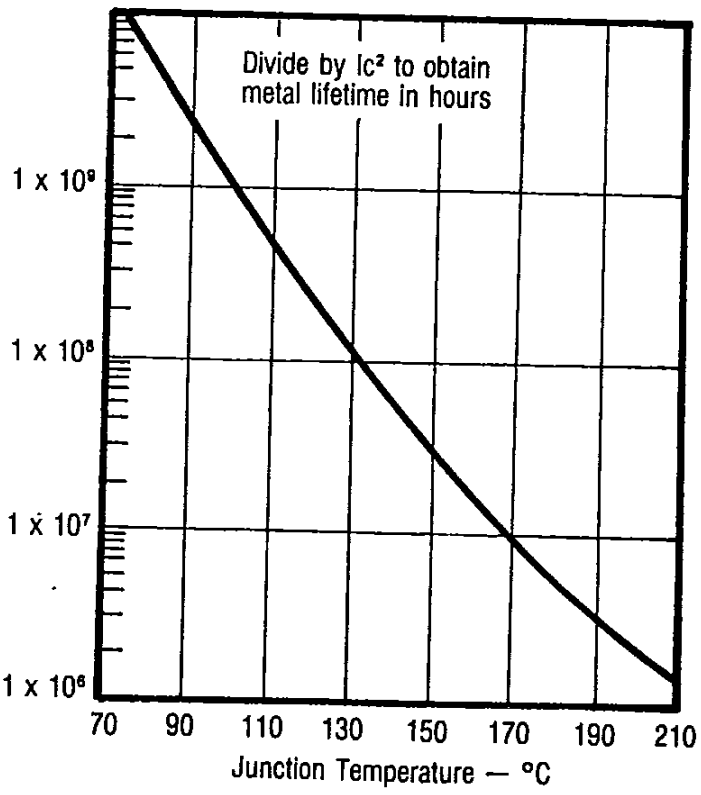
— Z_{In} values to get optimum input return loss

— Z_{Load} values to get optimum output power and efficiency

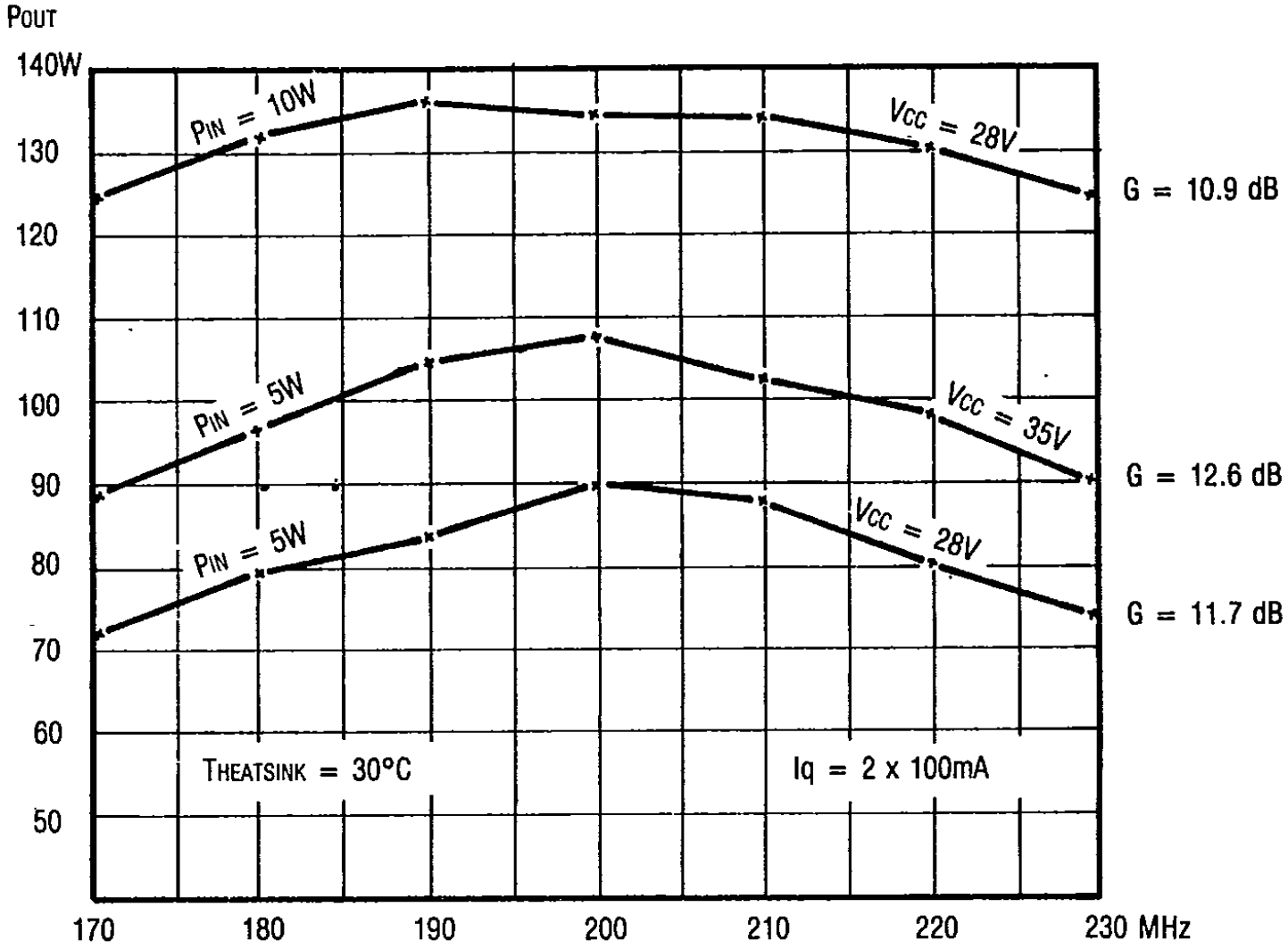
Package Outline



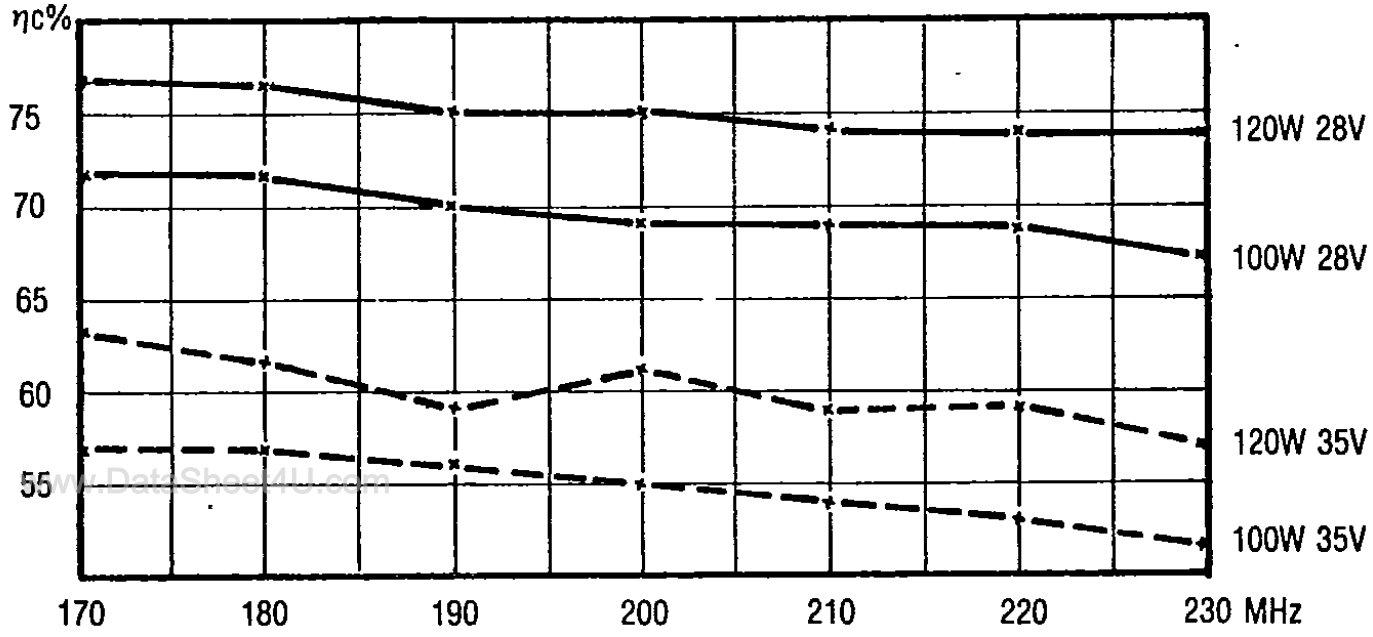
MTTF vs Junction Temperature



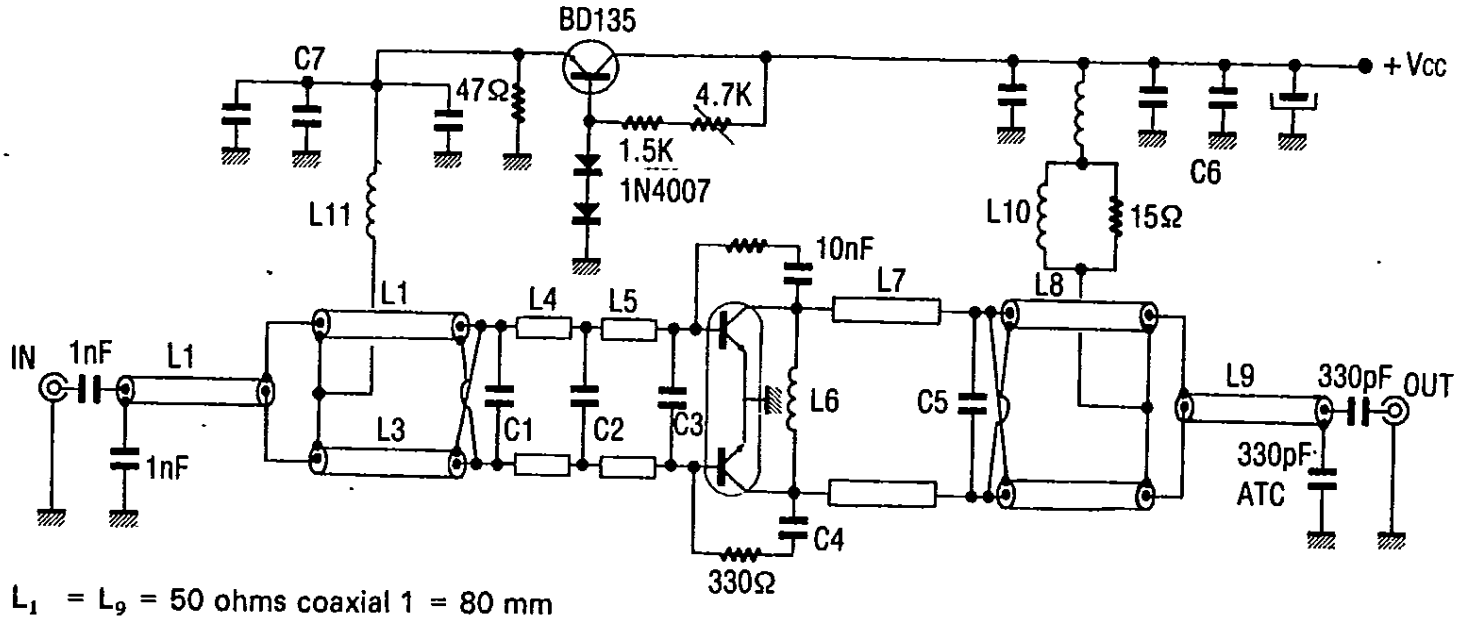
Typical Performances Class AB



Collector Efficiency vs Frequency



170-230 MHz BROADBAND AMPLIFIER CLASS AB

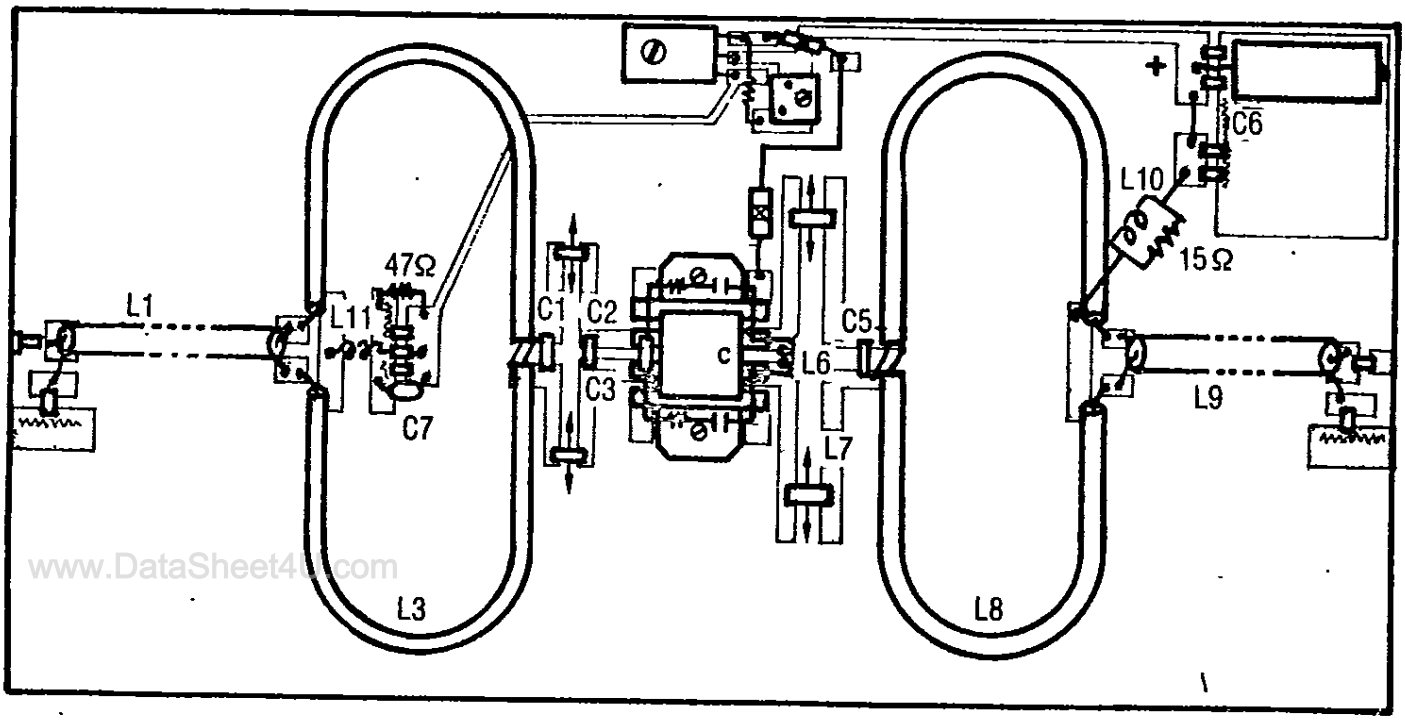


L_1 = L_9 = 50 ohms coaxial 1 = 80 mm
L_2 = L_3 = L_8 = 25 ohms coaxial cable or semi-rigid 1 = 80 mm
L_4 = 40 ohm line 0.025 λ, 225MHz
L_5 = 40 ohm line 0.65 λ, 225MHz
L_6 = 3 turns ID 4 mm wire 1 mm ø leads 5 mm long
L_7 = 40 ohm line 0.035 λ, 225MHz
L_{10} = 11 turns ID 4 mm wire 1 mm ø
L_{11} = .22 μH molded inductor

C_1 = 68 pF ATC 100B
C_2 = 100 pF ATC 100B
C_3 = 220 pF ATC 100B
C_5 = 27 pF + 33 pF ATC 100A
C_6 = C_7 = 1 nF + 10 nF + .1 μF + ELECTROLYTIC

L_4 has to be adjusted for Gain
L_6 and L_7 have to be adjusted for the best lead
Board Material 1/50 inch teflon fiberglass

Components Layout



∿∿∿ denotes grounding foil