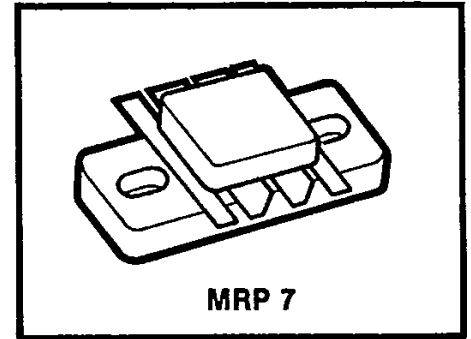


# VHF Linear Power Transistor

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



**Electrical Characteristics (T<sub>case</sub> = 25 °C)**

	SYMBOL	CHARACTERISTICS	TEST CONDITIONS	MIN.	TYP.	MAX.	UNIT
DC TEST	BV <sub>EBO</sub>	Emitter - Base Breakdown Voltage	I <sub>E</sub> = 5 mA	3.5			V
	BV <sub>CEO</sub>	Collector - Emitter Breakdown Voltage	I <sub>C</sub> = 50 mA	35			V
	BV <sub>CER</sub>	Collector - Emitter Breakdown Voltage	I <sub>C</sub> = 50 mA R <sub>BE</sub> = 15 Ohms	60			V
	BV <sub>CBO</sub>	Collector - Base Breakdown Voltage	I <sub>C</sub> = 50 mA	65			V
	H <sub>FE</sub>	D.C. Current Gain	V <sub>CE</sub> = 28 V    I <sub>C</sub> = 0.5 A	20		150	
RF TEST	P <sub>G</sub>	Power Gain	V <sub>CE</sub> = 28V, I <sub>C</sub> = 2 × 2.25A	14			dB
	IMD	Intermodulation, Distortion, 3 Tones	F = 225MHz (-8, -7, -16dB Tones)			-51	dB
	VSWR	Mismatch Tolerance	P <sub>ref</sub> = 28W			∞	-
	P <sub>out</sub>	Output Power Class AB 1dB Gain Compression	V <sub>CE</sub> = 28V, F = 225MHz I <sub>Q</sub> = 2 × 100mA	100			
	C <sub>OB</sub>	Collector Base Capacitance each side	V <sub>CB</sub> = 28 V    F = 1 MHz		60		pF
THERMAL	I <sub>C</sub>	Maximum Collector Current each side				8	A
	θ <sub>JC</sub>	D.C. Thermal Resistance Junction Case	T <sub>case</sub> = 70°C			0.8	°C/W
	T <sub>STG</sub>	Storage Temperature		- 65		+ 150	°C

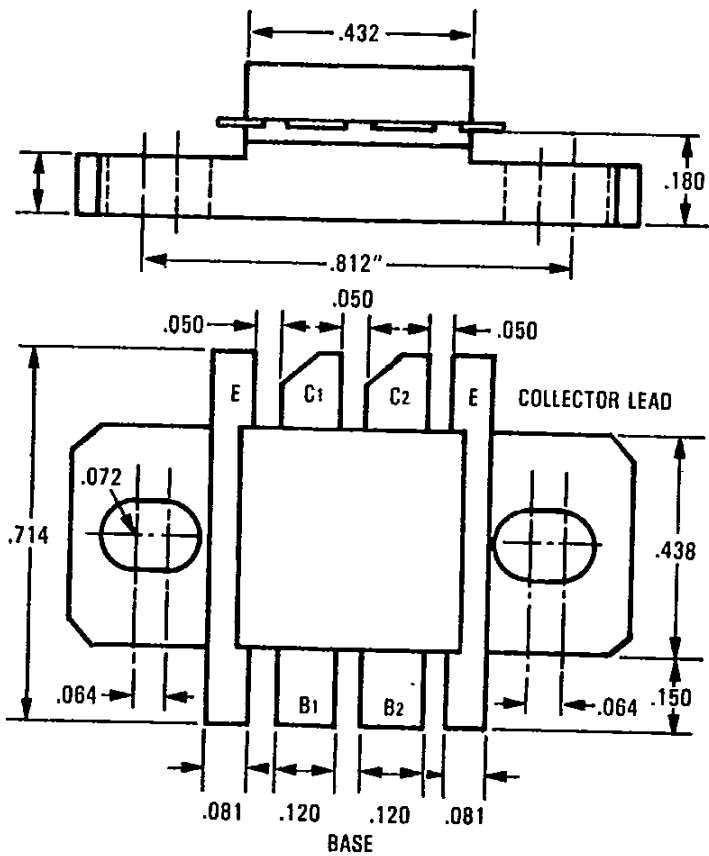
# LARGE SIGNAL IMPEDANCES

## Class AB

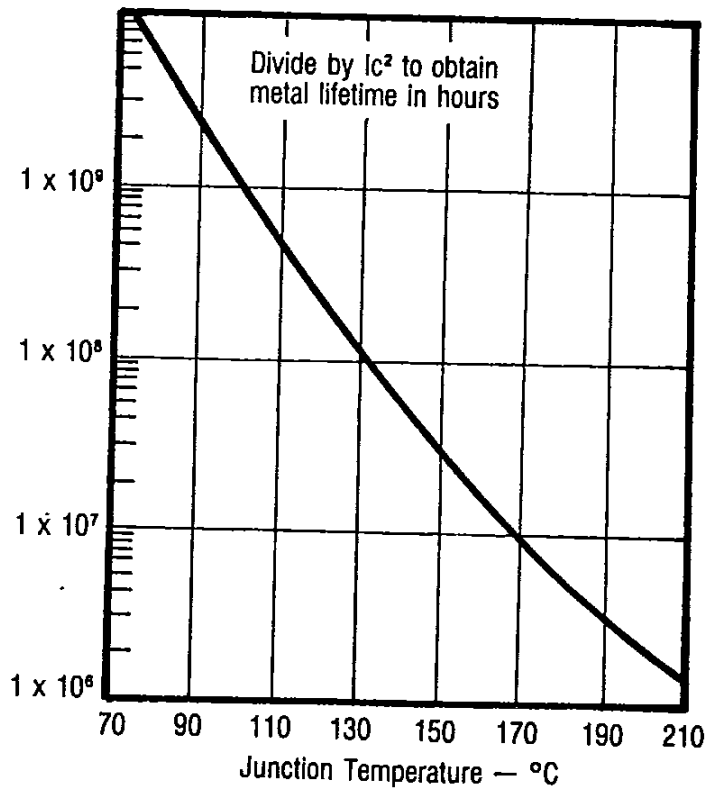
FREQUENCY (MHz)	$Z_{in}$ ( $\Omega$ )	$Z_{Load}$ ( $\Omega$ )
170	$1.25 + j 0.5$	$10 + j 10$
200	$0.9 + j 0.9$	$9.5 + j 7$
230	$1 + j 2$	$6.5 + j 6.5$

NOTES :  $V_{CE} = 28$  Volts       $I_q = 2 \times 100$  mA       $P_{out} = 100$  W  
 —  $Z_{in}$  values to get optimum input return loss  
 —  $Z_{Load}$  values to get optimum output power and efficiency

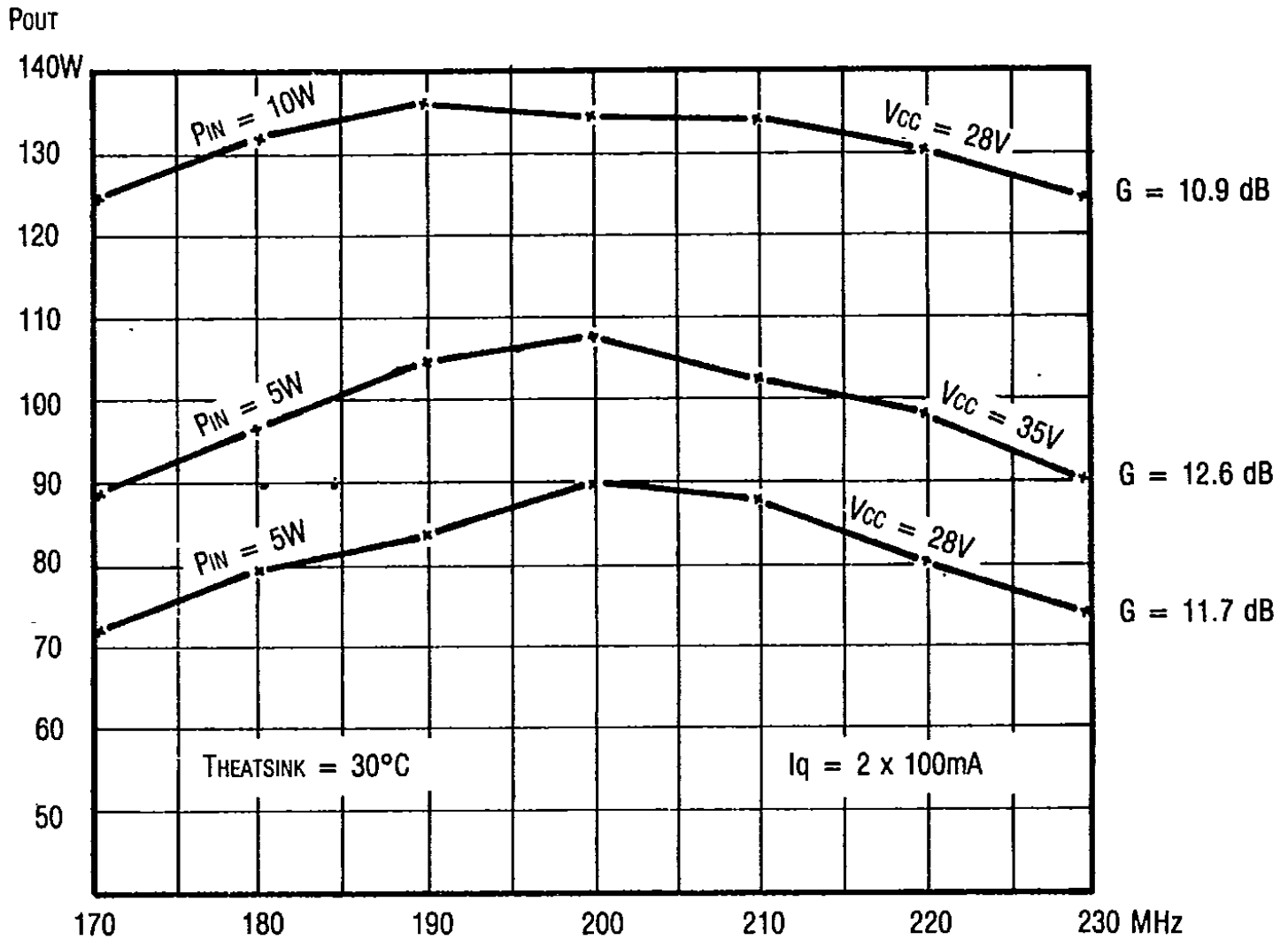
**Package Outline**



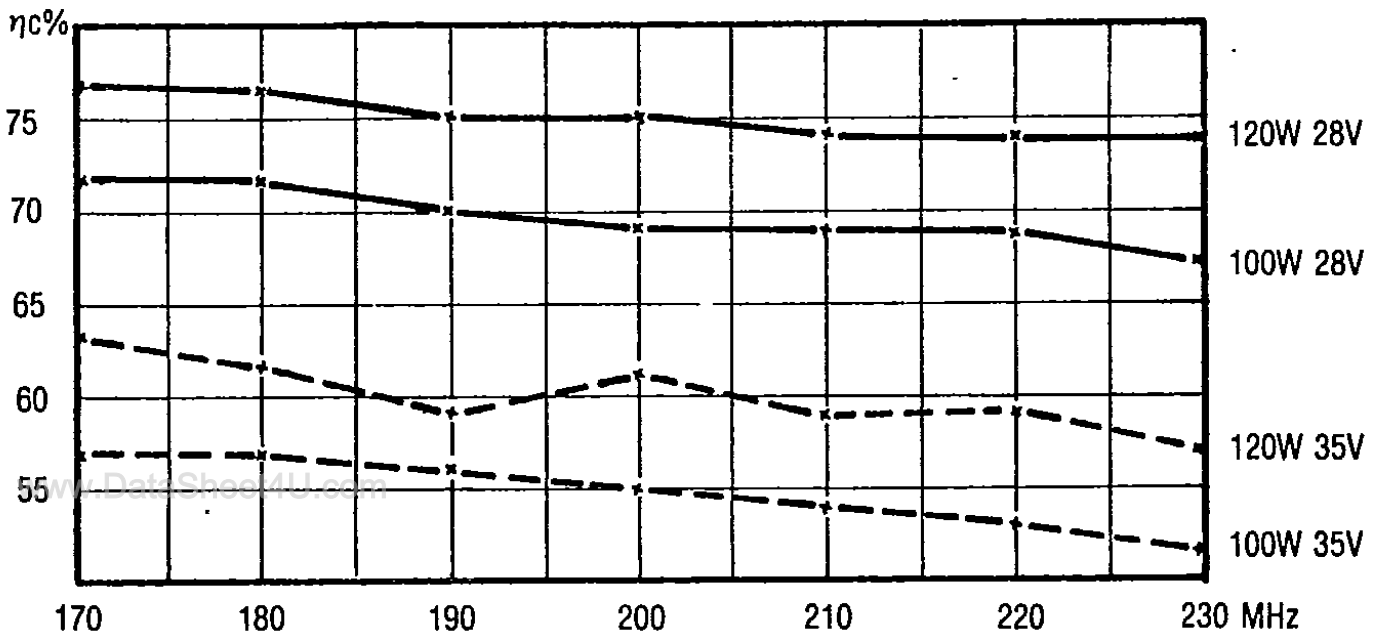
**MTTF vs Junction Temperature**



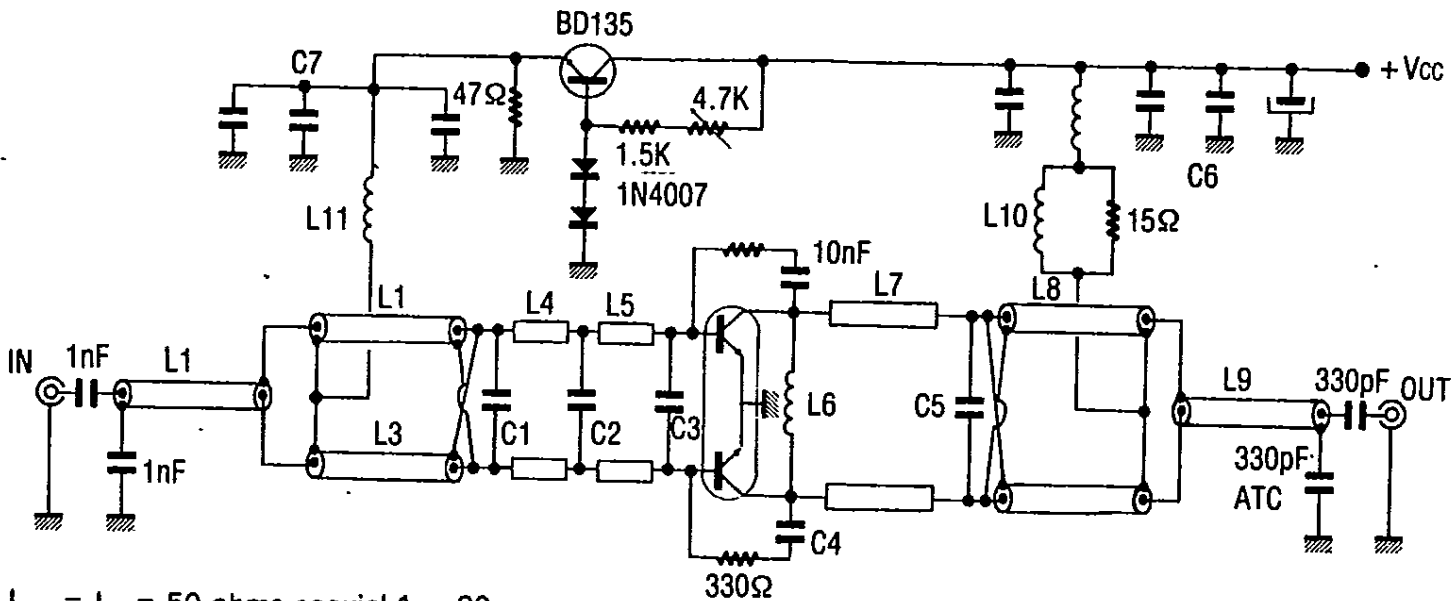
### Typical Performances Class AB



### Collector Efficiency vs Frequency



# 170-230 MHz BROADBAND AMPLIFIER CLASS AB

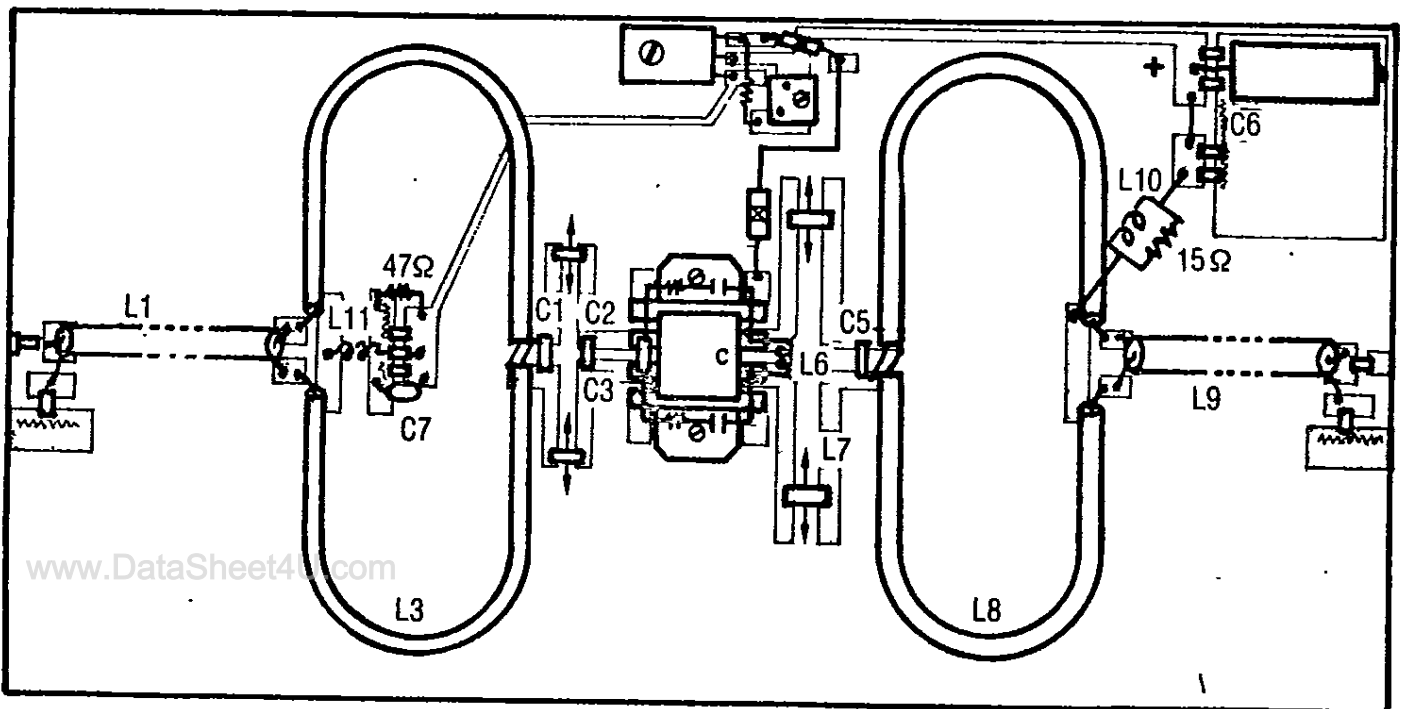


- $L_1 = L_9 = 50$  ohms coaxial  $l = 80$  mm
- $L_2 = L_3 = L_8 = 25$  ohms coaxial cable or semi-rigid  $l = 80$  mm
- $L_4 = 40$  ohm line  $0.025 \lambda$ , 225MHz
- $L_5 = 40$  ohm line  $0.65 \lambda$ , 225MHz
- $L_6 = 3$  turns ID 4 mm wire 1 mm  $\varnothing$  leads 5 mm long
- $L_7 = 40$  ohm line  $0.035 \lambda$ , 225MHz
- $L_{10} = 11$  turns ID 4 mm wire 1 mm  $\varnothing$
- $L_{11} = .22 \mu\text{H}$  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  $\mu\text{F}$  + 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