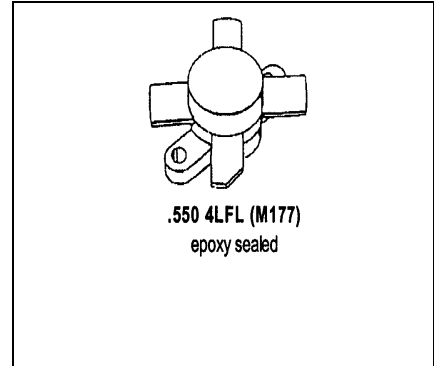


MS1004

RF & MICROWAVE TRANSISTORS
HF SSB APPLICATIONS

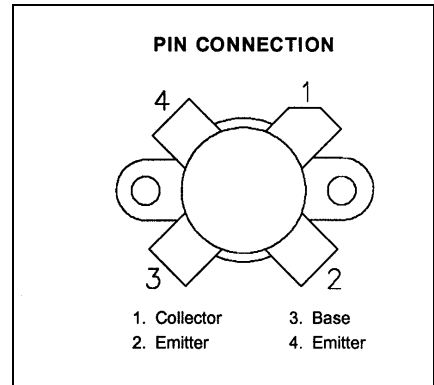
Features

- 30 MHz
- 50 VOLTS
- P_{OUT} = 250 WATTS
- G_P = 14.5 dB MINIMUM
- IMD = -30 dB
- GOLD METALIZATION
- COMMON EMITTER CONFIGURATION



DESCRIPTION:

The MS1004 is a 50V epitaxial silicon NPN planar transistor designed primarily for SSB and VHF communications. This device utilizes emitter ballasting for improved ruggedness and reliability.



ABSOLUTE MAXIMUM RATINGS (T_{case} = 25°C)

Symbol	Parameter	Value	Unit
V _{CBO}	Collector-Base Voltage	110	V
V _{CEO}	Collector-Emitter Voltage	55	V
V _{EBO}	Emitter-Base Voltage	4.0	V
I _C	Device Current	40	A
P _{DISS}	Total Dissipation	330	W
T _J	Junction Temperature	200	°C
T _{STG}	Storage Temperature	-65 to +150	°C

Thermal Data

R _{TH(J-C)}	Thermal Resistance Junction-case	0.4	°C/W
----------------------	----------------------------------	-----	------

ELECTRICAL SPECIFICATIONS (T_{case} = 25°C)
STATIC

Symbol	Test Conditions		Value			Unit
			Min.	Typ.	Max.	
BV_{CES}	I_C = 200 mA	V_{BE} = 0 V	110	---	---	V
BV_{CEO}	I_C = 200 mA	I_B = 0 mA	55	---	---	V
BV_{EBO}	I_E = 20 mA	I_C = 0 mA	4.0	---	---	V
I_{CEO}	V_{CE} = 30 V	I_E = 0 mA	---	---	10	mA
I_{CES}	V_{CE} = 60 V	I_E = 0 mA	---	---	10	mA
h_F	V_{CE} = 6 V	I_C = 10 A	15	---	45	---

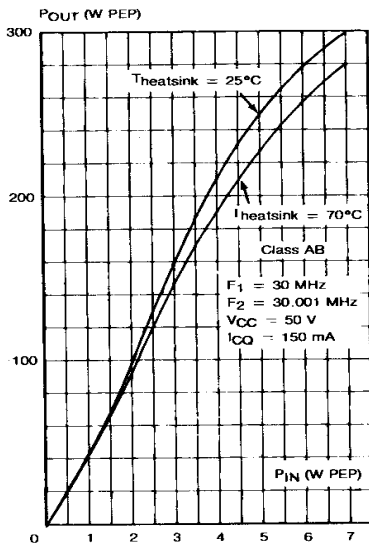
DYNAMIC

Symbol	Test Conditions			Value			Unit
				Min.	Typ.	Max.	
P_{OUT}	f = 30MHz	V_{CC} = 50 V	I_{CQ} = 150 mA	250	---	---	WPEP
G_p	f = 30MHz	V_{CC} = 50 V	I_{CQ} = 150 mA	14.5	---	---	dB
IMD*	f = 30MHz	V_{CC} = 50 V	I_{CQ} = 150 mA	--	---	-30	dBc
η_C	f = 30MHz	V_{CC} = 50 V	I_{CQ} = 150 mA	37	---	---	%
C_{OB}	f = 1 MHz	V_{CB} = 50 V		---	---	360	pf
Condition	f1 = 30.000 MHz	f2 = 30.001 MHz					

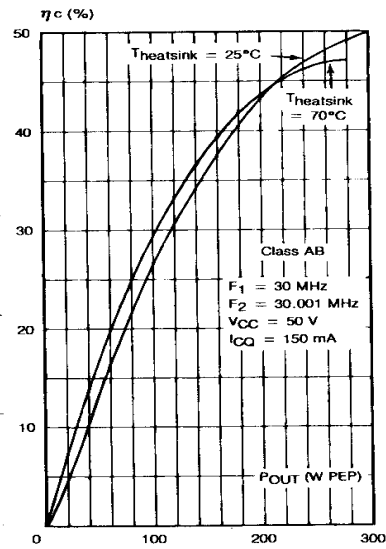
TYPICAL PERFORMANCE

CLASS AB

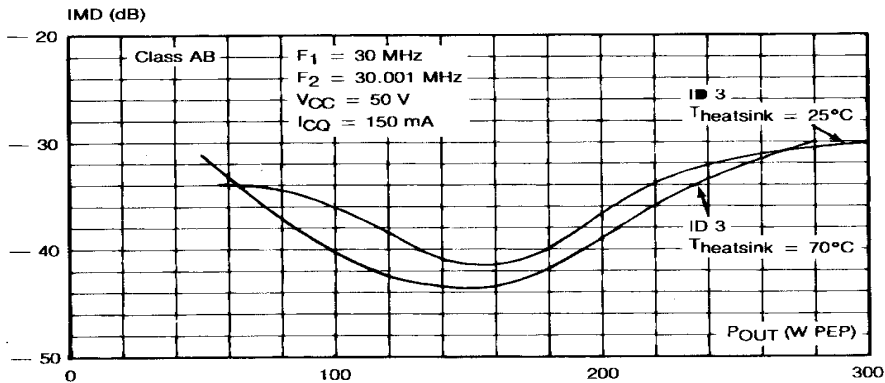
POWER OUTPUT PEP vs POWER INPUT



COLLECTOR EFFICIENCY vs POWER OUTPUT PEP



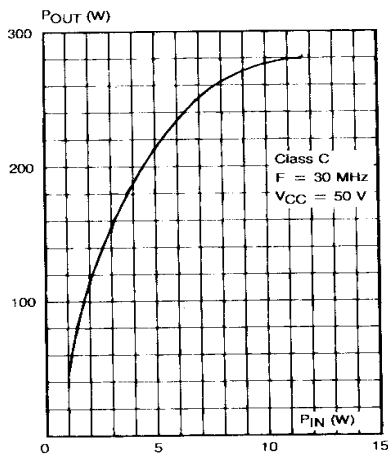
INTERMODULATION DISTORTION vs POWER OUTPUT PEP



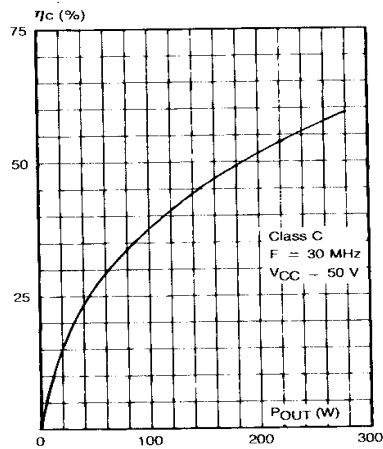
TYPICAL PERFORMANCE

CLASS C F = 30 MHz

POWER OUTPUT vs POWER INPUT

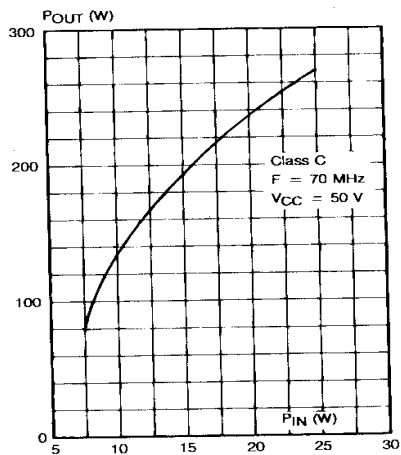


COLLECTOR EFFICIENCY vs POWER OUTPUT

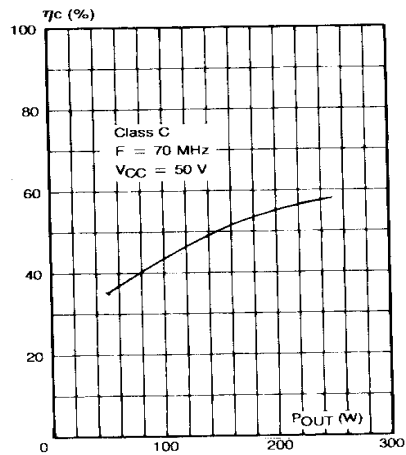


CLASS C F = 70 MHz

POWER OUTPUT vs POWER INPUT



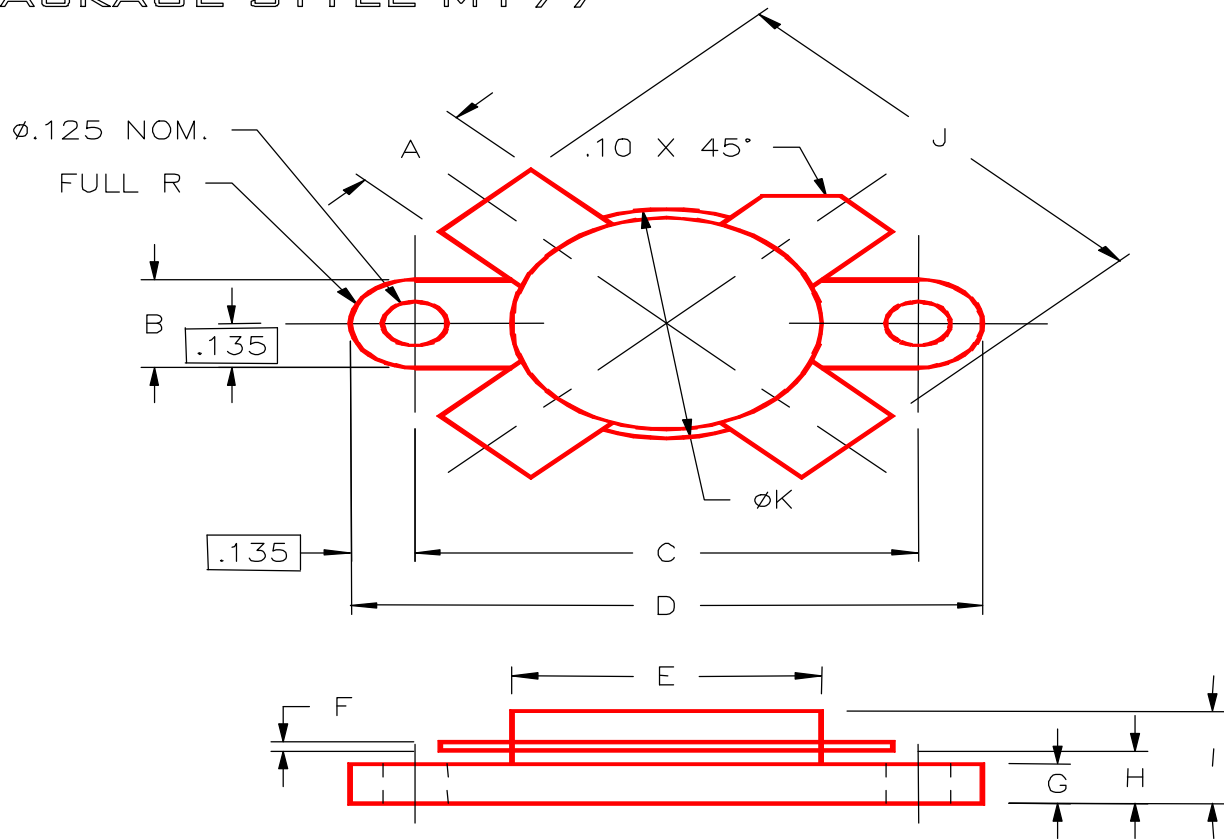
COLLECTOR EFFICIENCY vs POWER OUTPUT



MS1004

PACKAGE MECHANICAL DATA

PACKAGE STYLE M177



	MINIMUM INCHES/MM	MAXIMUM INCHES/MM		MINIMUM INCHES/MM	MAXIMUM INCHES/MM
A	.225/5,72	.235/5,97	I		.280/7,11
B	.265/6,73	.275/6,96	J	1.080/27,43	1.120/28,45
C	.860/21,84	.870/22,10	K	.625/15,88	.635/16,13
D	1.130/28,70	1.140/28,96			
E	.545/13,84	.555/14,10			
F	.003/0,08	.007/0,18			
G	.100/2,54	.118/3,00			
H	.150/3,81	.170/4,32			