



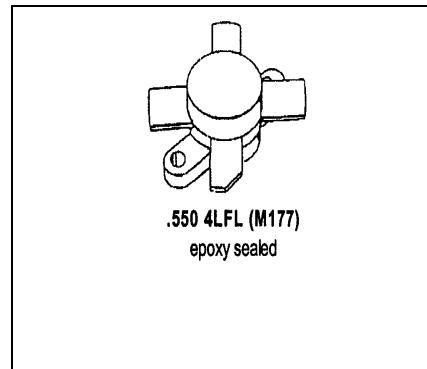
140 COMMERCE DRIVE
MONTGOMERYVILLE, PA
18936-1013
PHONE: (215) 631-9840
FAX: (215) 631-9855

MS1004

RF & MICROWAVE TRANSISTORS HF SSB APPLICATIONS

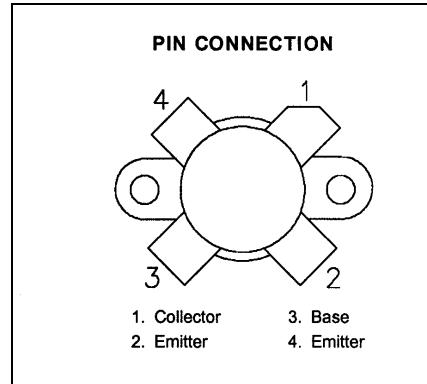
Features

- 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 (Tcase = 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
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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 _{FE}	V _{CE} = 6 V I _C = 10 A	15	---	45	---

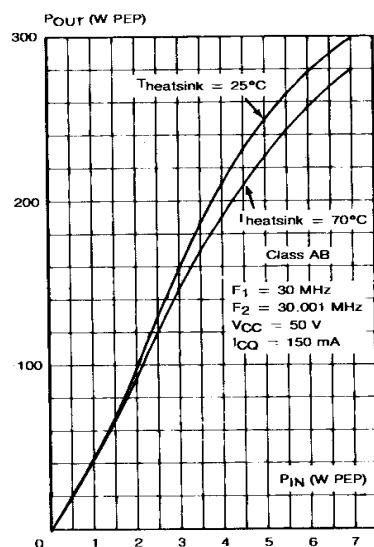
DYNAMIC

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				

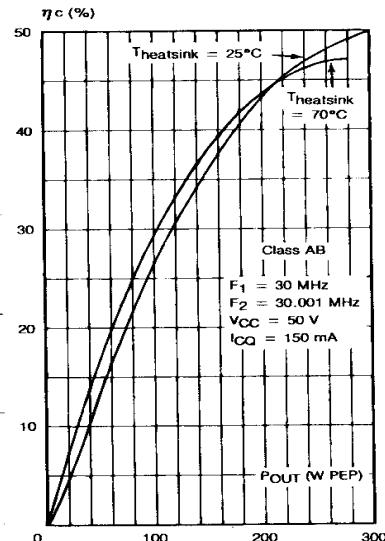
TYPICAL PERFORMANCE

CLASS AB

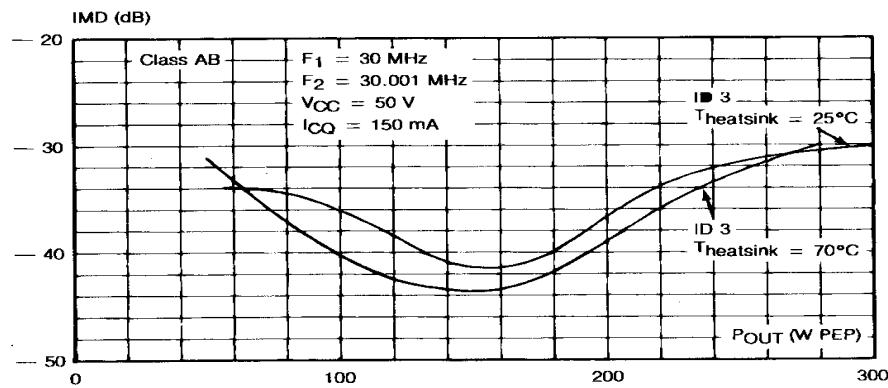
POWER OUTPUT PEP vs POWER INPUT



COLLECTOR EFFICIENCY vs POWER OUTPUT PEP



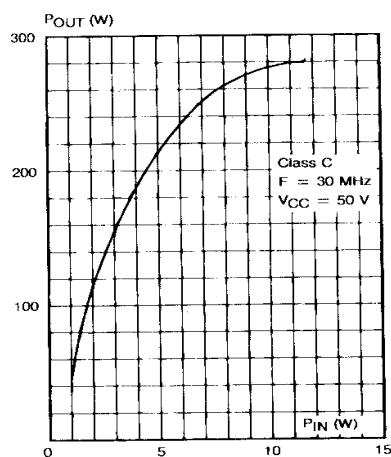
INTERMODULATION DISTORTION vs POWER OUTPUT PEP



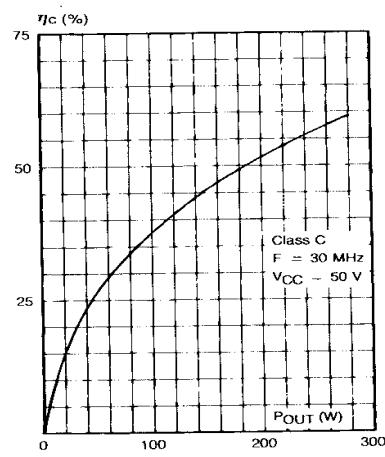
TYPICAL PERFORMANCE

CLASS C F = 30 MHz

POWER OUTPUT vs POWER INPUT

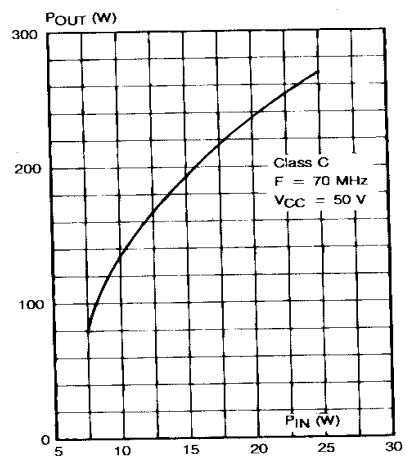


COLLECTOR EFFICIENCY vs POWER OUTPUT

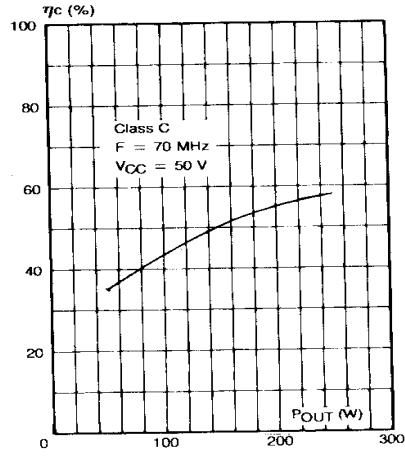


CLASS C F = 70 MHz

POWER OUTPUT vs POWER INPUT

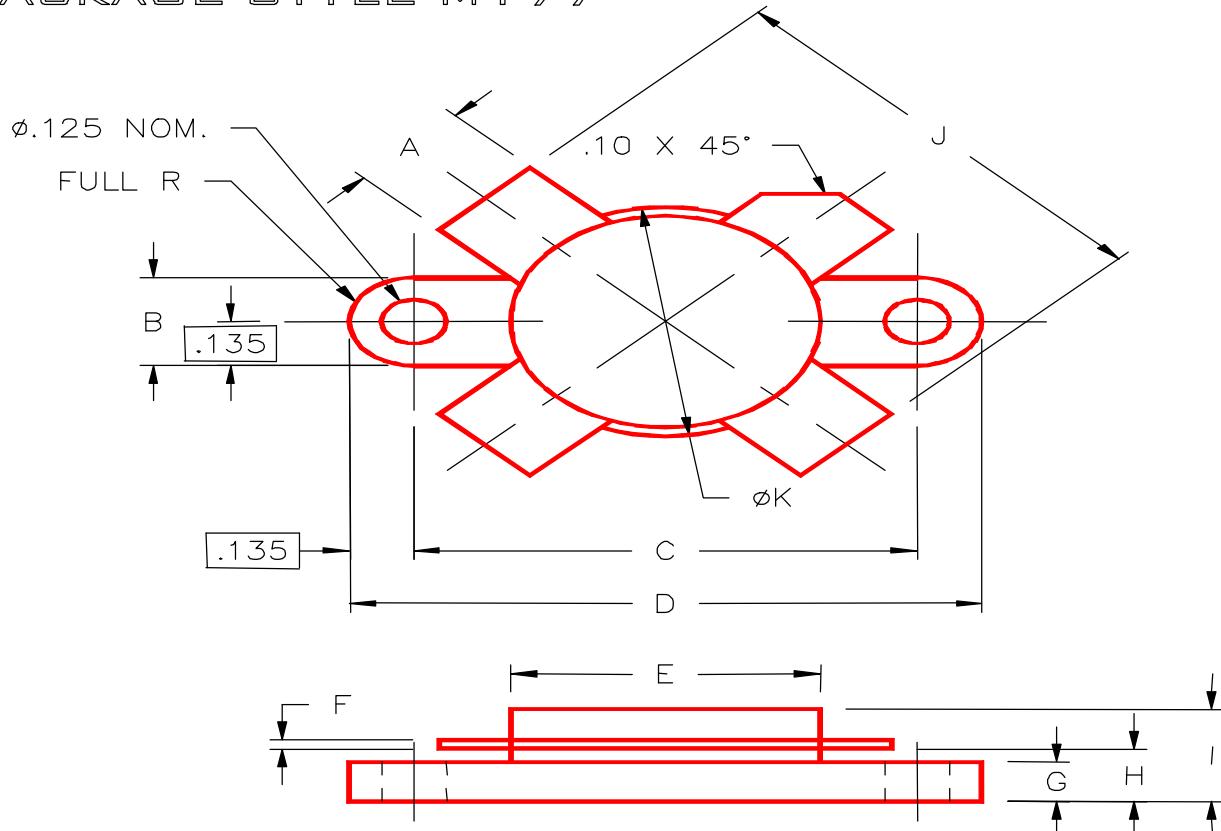


COLLECTOR EFFICIENCY vs POWER OUTPUT



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			