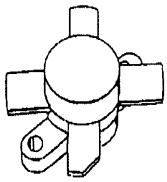
ADVANCED POWER TECHNOLOGY RF®

MS1004

RF & MICROWAVE TRANSISTORS
HF SSB APPLICATIONS



.550 4LFL (M177)
epoxy sealed

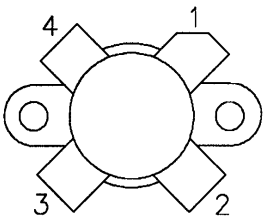
Features

- 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.

PIN CONNECTION



1. Collector
2. Emitter
3. Base
4. Emitter

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

ELECTRICAL SPECIFICATIONS (Tcase = 25 C)

STATIC

Symbol	Test Conditions		Value			
	Mi		n.	Typ.	Max.	Unit
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	---

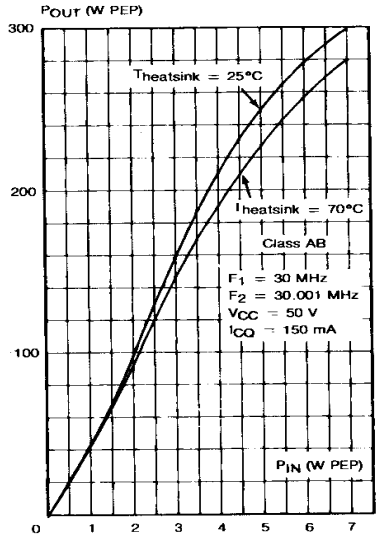
DYNAMIC

Symbol	Test Conditions			Value			
	Mi			n.	Typ.	Max.	Unit
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	dB
c	f = 30MHz	V_{CC} = 50 V	I_{CQ} =150 mA	37	---	---	%
C_{OB}	f = 1 MHz	V_{CB} =50 V		---	---	360	pf
Conditions	f1 = 30.000 MHz	f2 = 30.001 MHz					

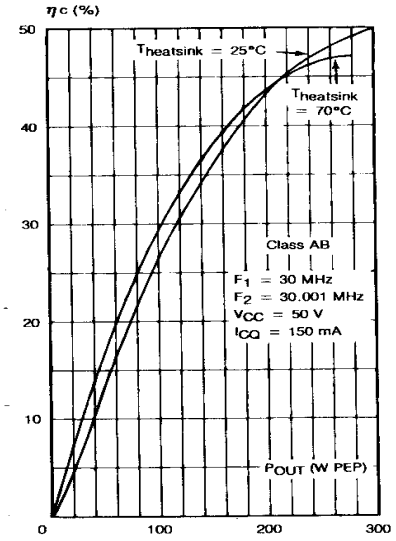
TYPICAL PERFORMANCE

CLASS AB

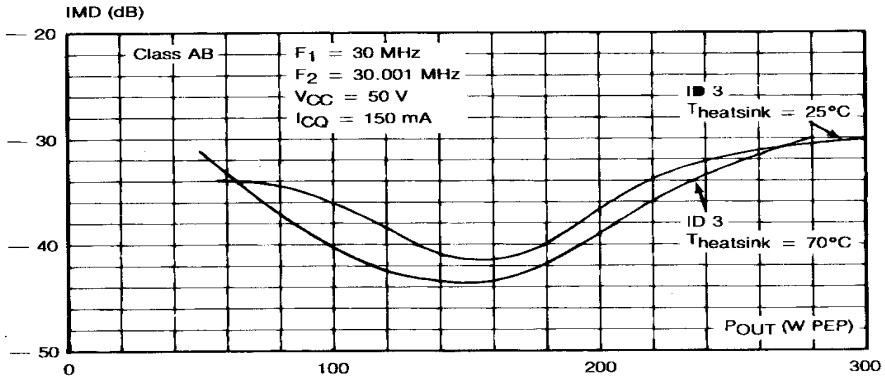
POWER OUTPUT PEP vs POWER INPUT



COLLECTOR EFFICIENCY vs POWER OUTPUT PEP



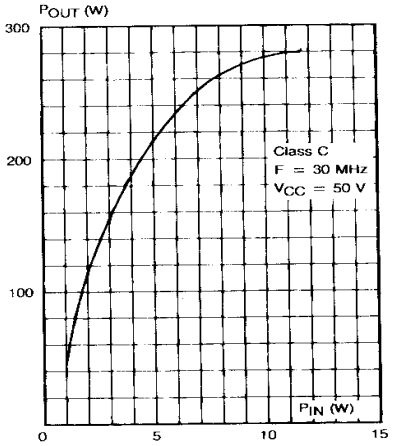
INTERMODULATION DISTORTION vs POWER OUTPUT PEP



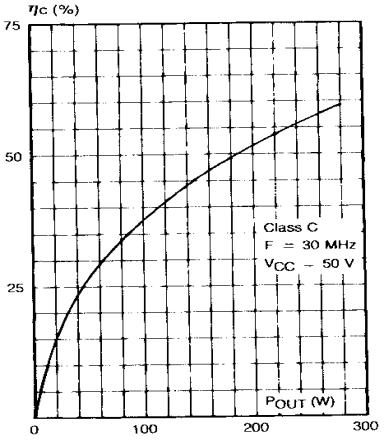
TYPICAL PERFORMANCE

CLASS C F = 30 MHz

POWER OUTPUT vs POWER INPUT

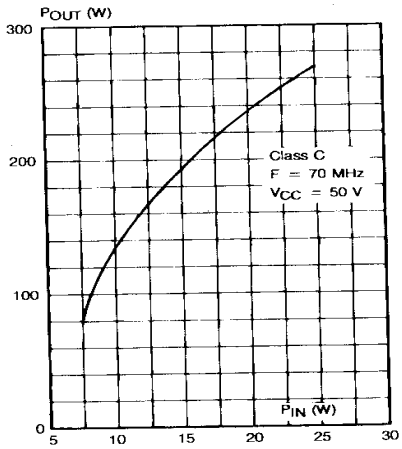


COLLECTOR EFFICIENCY vs POWER OUTPUT

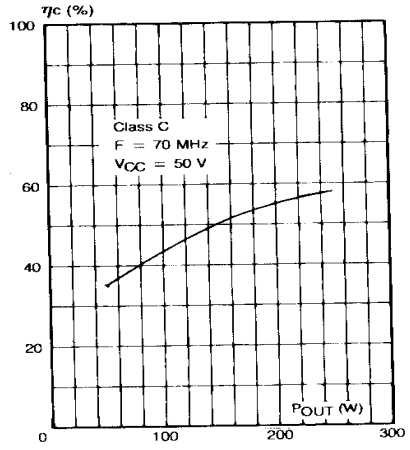


CLASS C F = 70 MHz

POWER OUTPUT vs POWER INPUT



COLLECTOR EFFICIENCY vs POWER OUTPUT

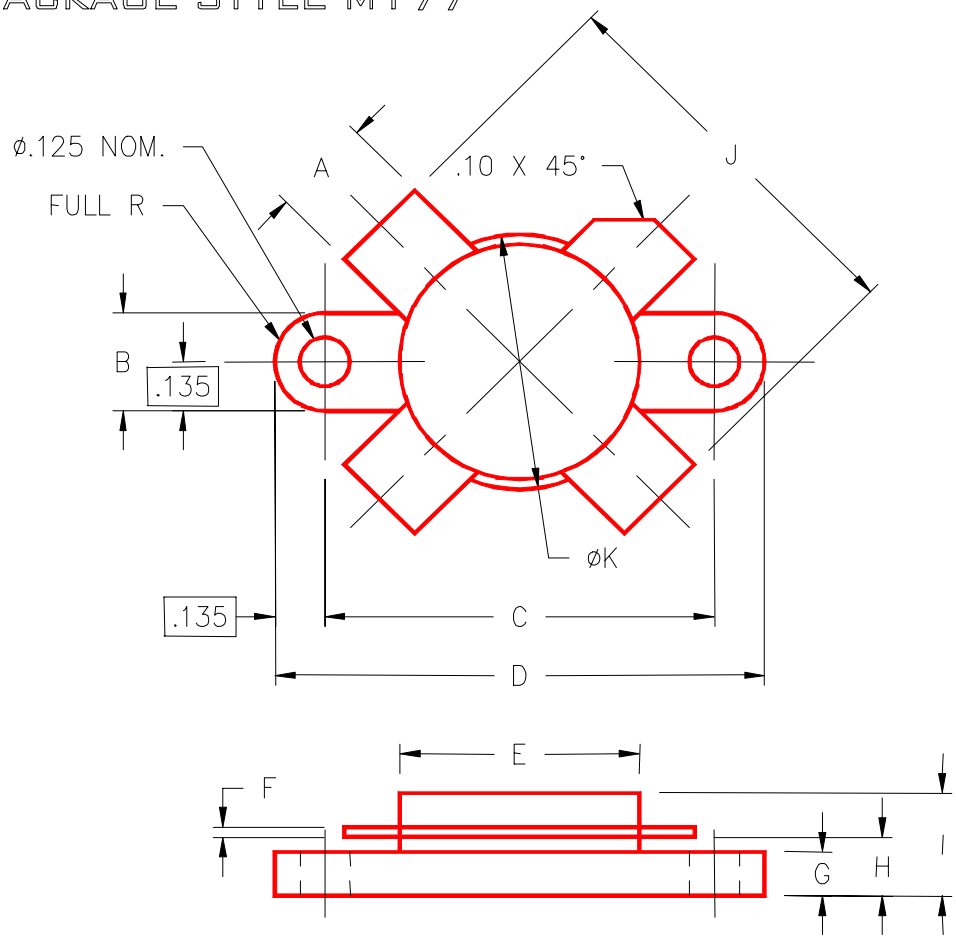


ADVANCED POWER TECHNOLOGY RF®

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			