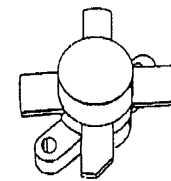


MS1004

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

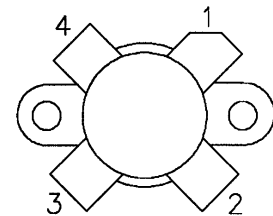


.550 4LFL (M177)
epoxy sealed

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 3. Base
2. Emitter 4. Emitter

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
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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	---

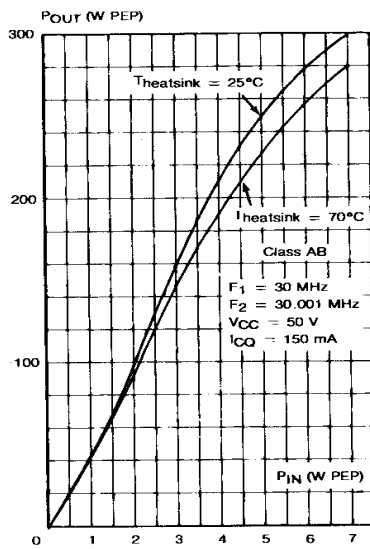
DYNAMIC

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				

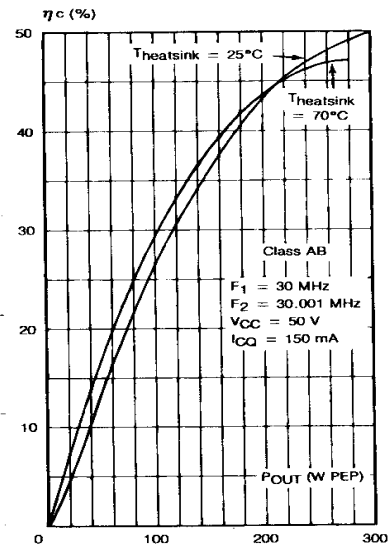
TYPICAL PERFORMANCE

CLASS AB

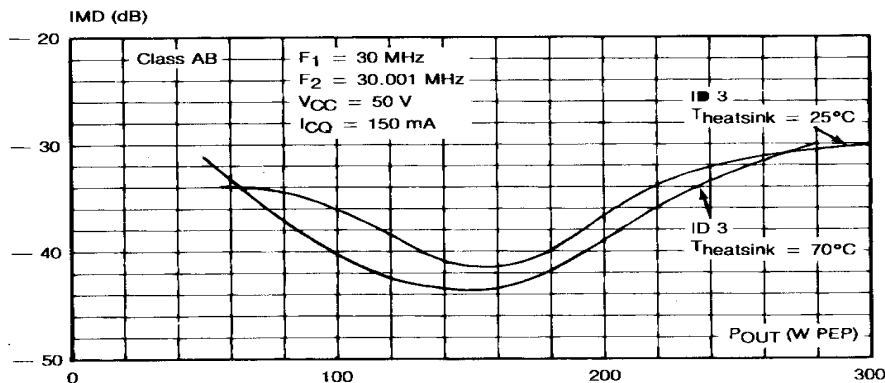
POWER OUTPUT PEP vs POWER INPUT



COLLECTOR EFFICIENCY vs POWER OUTPUT PEP



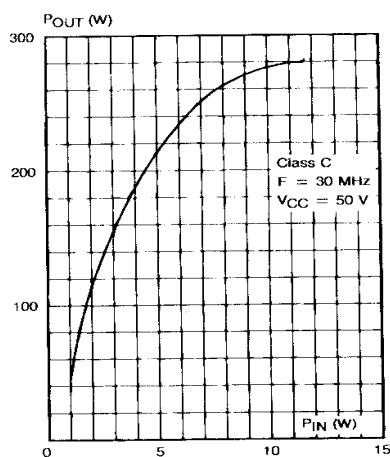
INTERMODULATION DISTORTION vs POWER OUTPUT PEP



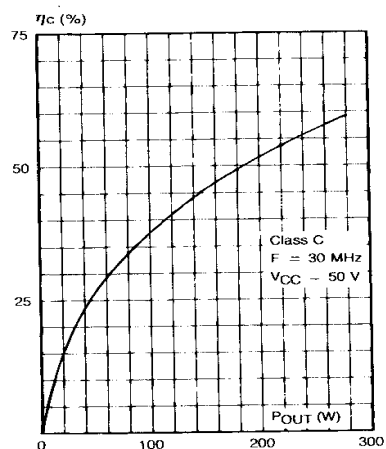
TYPICAL PERFORMANCE

CLASS C F = 30 MHz

POWER OUTPUT vs POWER INPUT

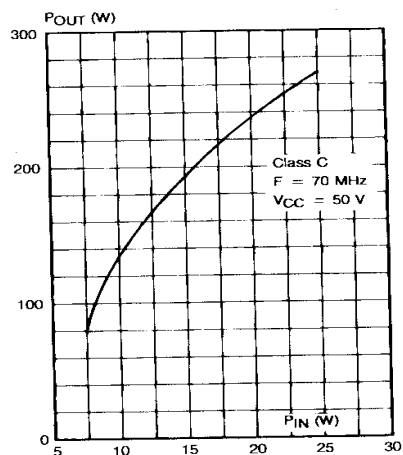


COLLECTOR EFFICIENCY vs POWER OUTPUT

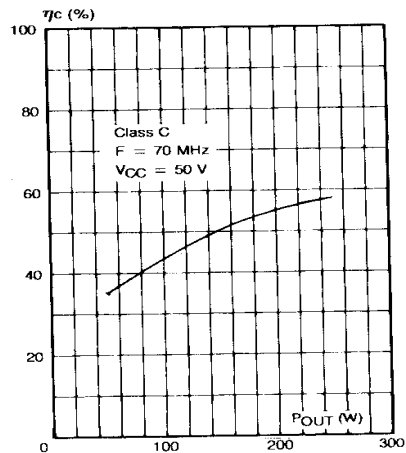


CLASS C F = 70 MHz

POWER OUTPUT vs POWER INPUT

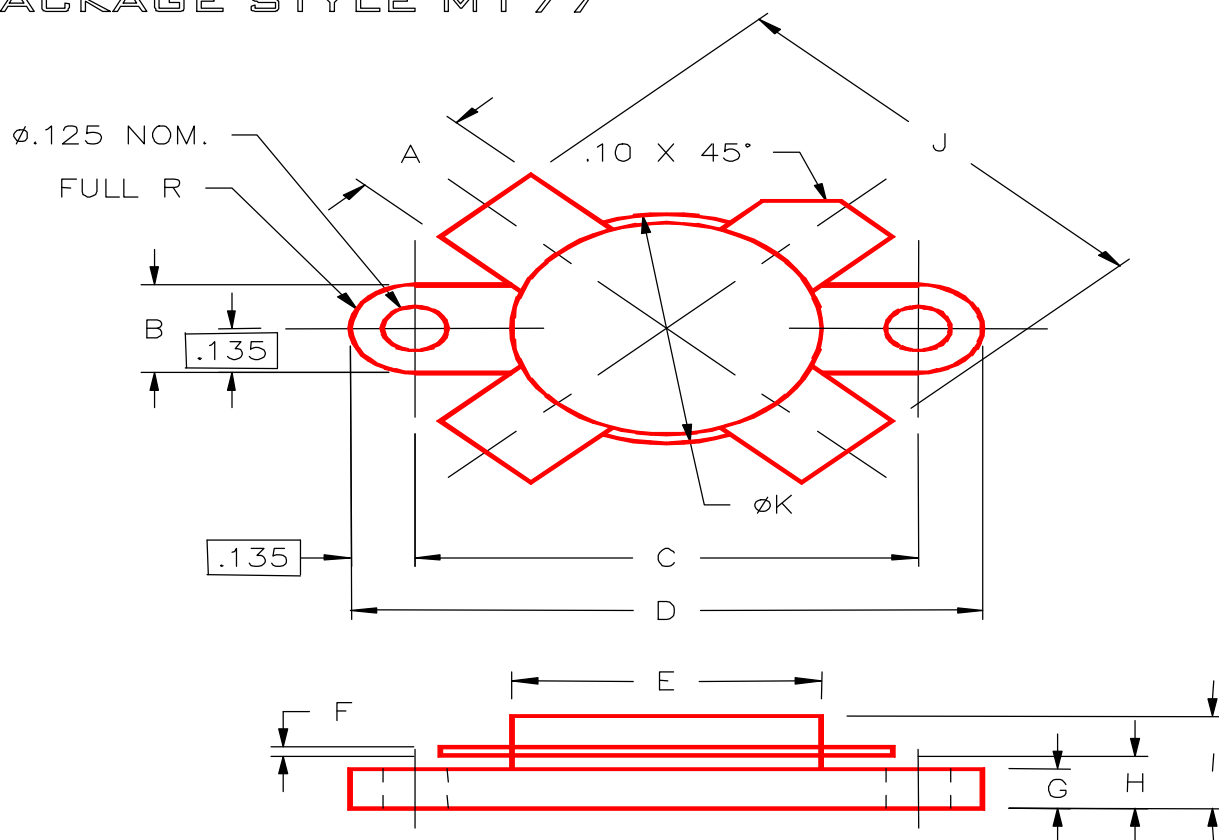


COLLECTOR EFFICIENCY vs POWER OUTPUT



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			