ADVANCED POWER TECHNOLOGY RF®

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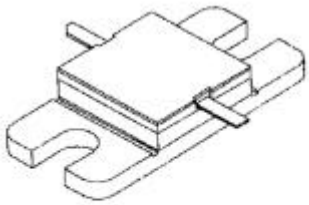
MS2176

RF AND MICROWAVE TRANSISTORS UHF PULSED APPLICATIONS

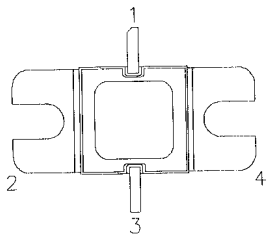


.400 x .400 2LFL (M106)
hermetically sealed

Features

- **350 WATTS @ 10µSEC PULSE WIDTH, 10% DUTY CYCLE**
- **300 WATTS @ 250µSEC PULSE WIDTH 10% DUTY CYCLE**
- **9.5 DB MIN. GAIN**
- **REFRACTORY GOLD METALLIZATION**
- **EMITTER BALLASTING AND LOW THERMAL RESISTANCE FOR RELIABILITY AND RUGGEDNESS**
- **INFINITE VSWR CAPABILITY AT SPECIFIED OPERATING CONDITIONS**

PIN CONNECTION



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

DESCRIPTION:

The MS2176 is a gold metallized silicon NPN pulse power transistor designed for applications requiring high peak power and low duty cycles within the frequency range of 400 – 500 MHz.

ABSOLUTE MAXIMUM RATINGS (Tcase = 25°C)

Symbol	Parameter	Value	Unit
V_{CBO}	Collector-Base Voltage	65	V
V_{CES}	Collector-Emitter Voltage	65	V
V_{EBO}	Emitter-Base Voltage	3.5	V
I_C	Device Current	21.6	A
P_{DISS}	Power Dissipation	875	W
T_J	Junction Temperature	+200	°C
T_{STG}	Storage Temperature	-65 to +150	°C

Thermal Data

$R_{TH(j-c)}$	Junction-Case Thermal Resistance	0.2	°C/W

ELECTRICAL SPECIFICATIONS (Tcase = 25°C)

STATIC

Symbol	Test Conditions		Value			Units
			Min.	Typ.	Max.	
BV_{CBO}	I_C = 50 mA	I_E = 0 mA	65			V
BV_{CES}	I_C = 50 mA	V_{BE} = 0 V	65			V
BV_{CEO}	I_C = 50 mA	I_B = 0 mA	28			V
BV_{EBO}	I_E = 10 mA	I_C = 0 mA	3.5			V
I_{CES}	V_{CE} =30 V	I_E = 0 mA			7.5	mA
h_{FE}	V_{CE} = 5 V	I_C = 5 A	10		100	

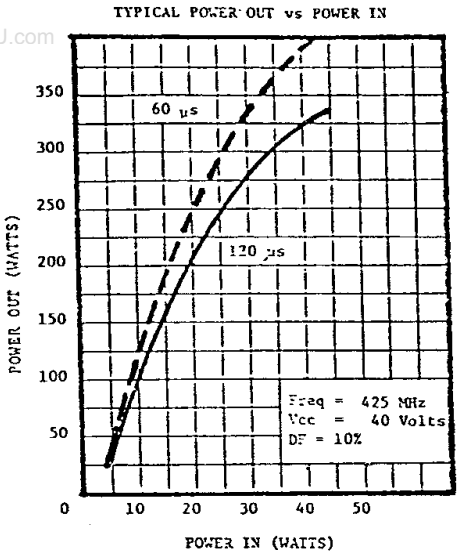
DYNAMIC

Symbol	Test Conditions			Value			Units
				Min.	Typ.	Max.	
P_{OUT}	f = 425 MHz	P_{IN} = 33.5 W	V_{CE} = 40 V	300			W
G_P	f = 425 MHz	P_{IN} = 300 W	V_{CE} = 40 V	9.5			dB
η_C	f = 425 MHz	P_{IN} = 25 W	V_{CE} = 40 V	55			%

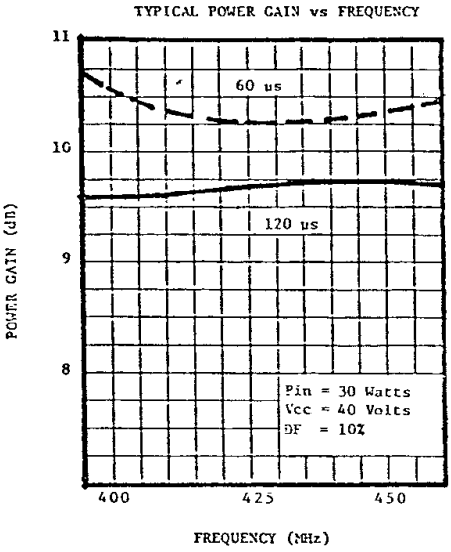
Note: Pulse Width = 250µSec, Duty Cycle = 10%

TYPICAL PERFORMANCE

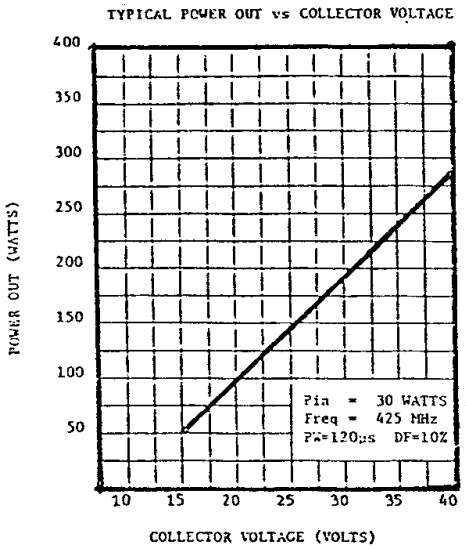
POWER OUTPUT vs POWER INPUT



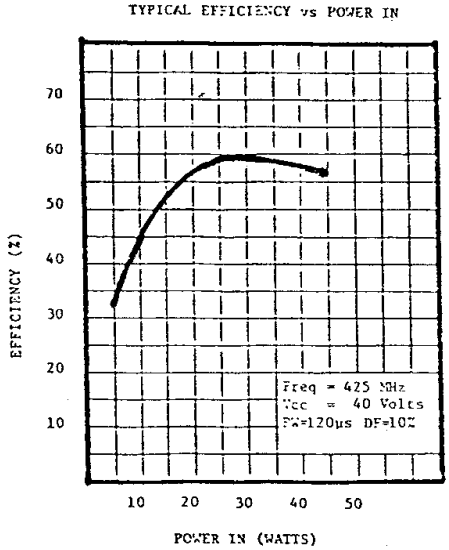
POWER GAIN vs FREQUENCY



POWER OUTPUT vs COLLECTOR VOLTAGE

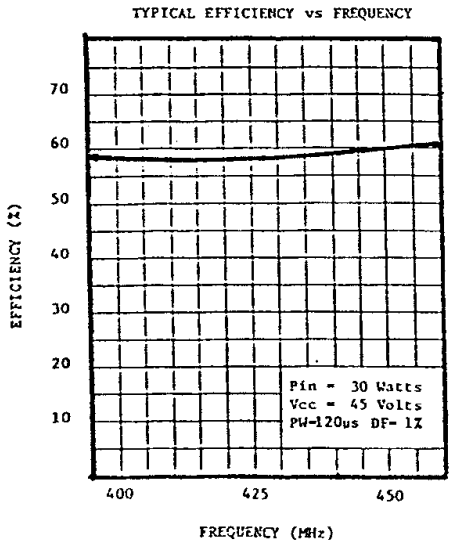


EFFICIENCY vs POWER INPUT

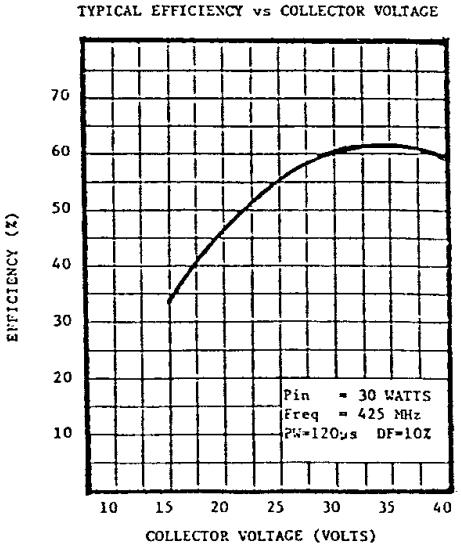


TYPICAL PERFORMANCE (CONTINUED)

EFFICIENCY vs FREQUENCY



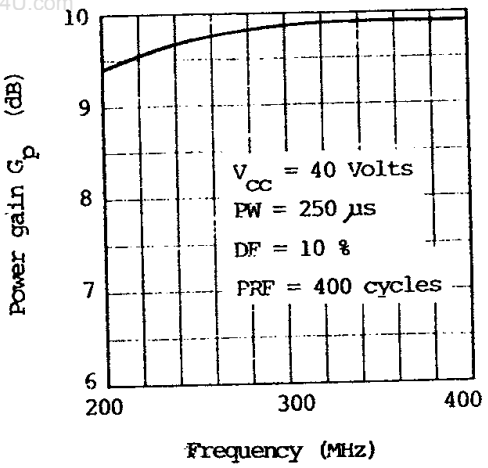
EFFICIENCY vs COLLECTOR VOLTAGE



TYPICAL PERFORMANCE (CONTINUED)

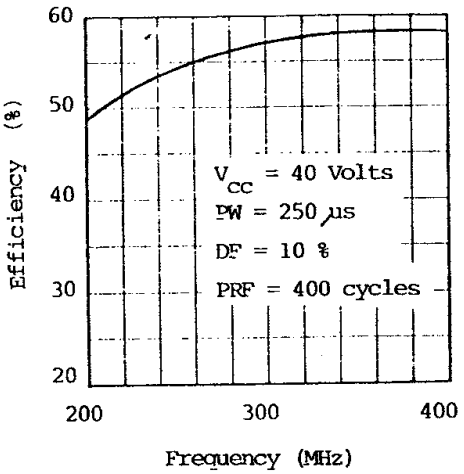
POWER GAIN vs FREQUENCY

TYPICAL POWER GAIN VS FREQUENCY

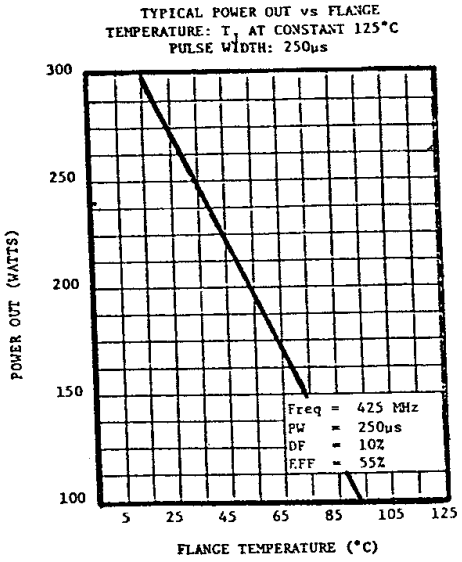


EFFICIENCY vs FREQUENCY

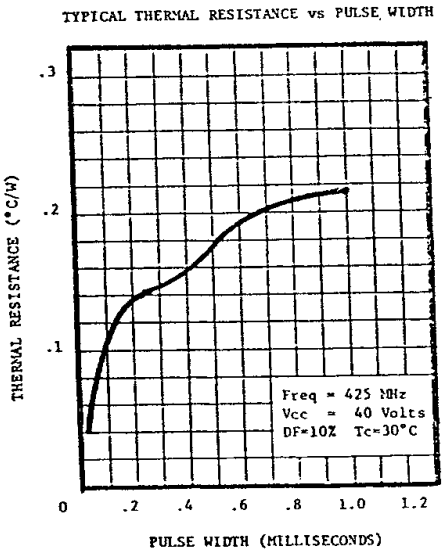
TYPICAL EFFICIENCY VS FREQUENCY



POWER OUTPUT vs FLANGE T_J @ CONSTANT 125°C

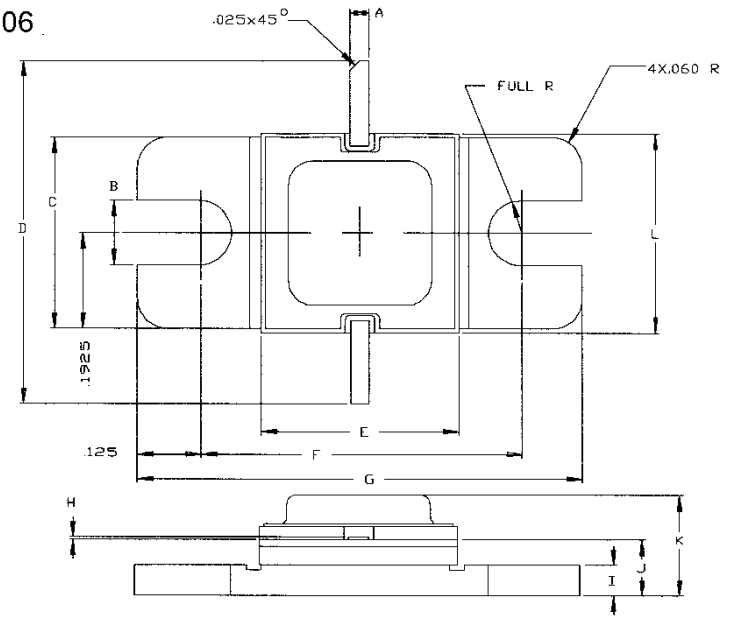


THERMAL RESISTANCE vs PULSE WIDTH



PACKAGE MECHANICAL DATA

Ref.: Dwg. No.12-0106



ADVANCED POWER TECHNOLOGY			CONT'D		
	MINIMUM Inches/mm	MAXIMUM Inches/mm		MINIMUM Inches/mm	MAXIMUM Inches/mm
A	.045/1,14	.055/1,40	K		.230/5,84
B	.125/3,18		L	.392/9,96	.402/10,29
C	.380/9,65	.390/9,91			
D	.710/18,03				
E	.392/9,96	.402/10,29			
F	.645/16,38	.655/16,64			
G	.895/22,73	.905/22,99			
H	.002/0,05	.006/0,15			
I	.055/1,40	.065/1,65			
J	.105/2,67	.125/3,18			