

MS2176

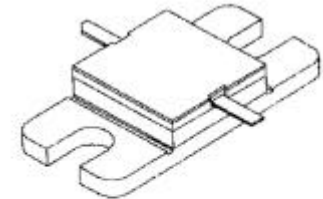
RF AND MICROWAVE TRANSISTORS UHF PULSED APPLICATIONS

Features

- 350 WATTS @ 10 μ SEC PULSE WIDTH, 10% DUTY CYCLE
- 300 WATTS @ 250 μ SEC 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

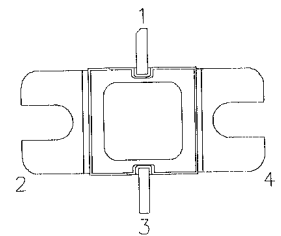
DESCRIPTION:

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.



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

PIN CONNECTION



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

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

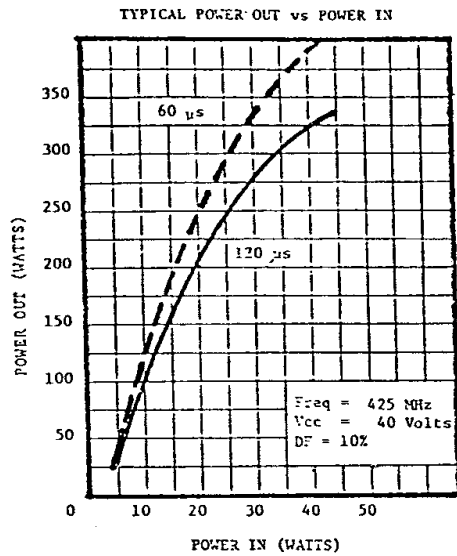
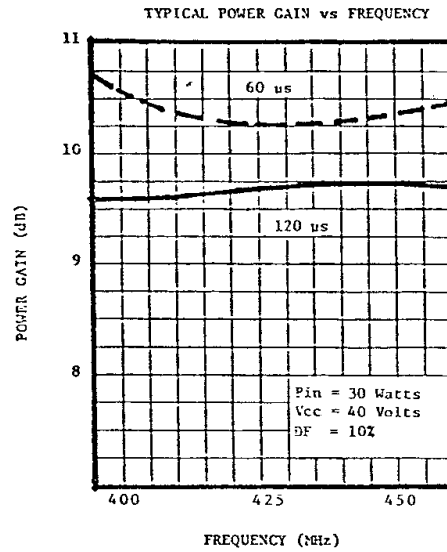
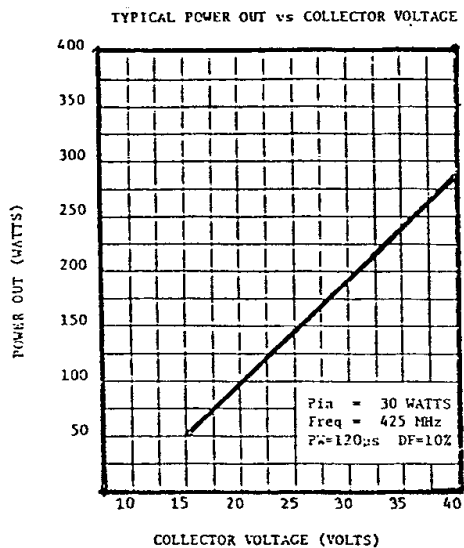
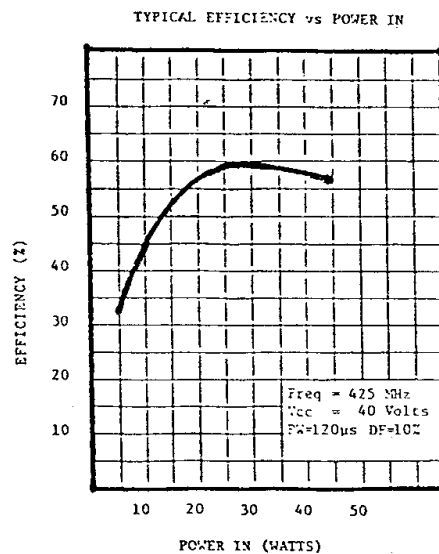
Symbol	Test Conditions	Value			Units
		Min.	Typ.	Max.	
BV_{CBO}	I_C = 50 mA I_E = 0 mA	65			V
BV_{CES}	I_C = 50 mA V_{BE} = 0 V	65			V
BV_{CEO}	I_C = 50 mA I_B = 0 mA	28			V
BV_{EBO}	I_E = 10 mA I_C = 0 mA	3.5			V
I_{CES}	V_{CE} = 30 V I_E = 0 mA			7.5	mA
h_{FE}	V_{CE} = 5 V I_C = 5 A	10		100	

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
ζ_C	f = 425 MHz P_{IN} = 25 W V_{CE} = 40 V	55			%

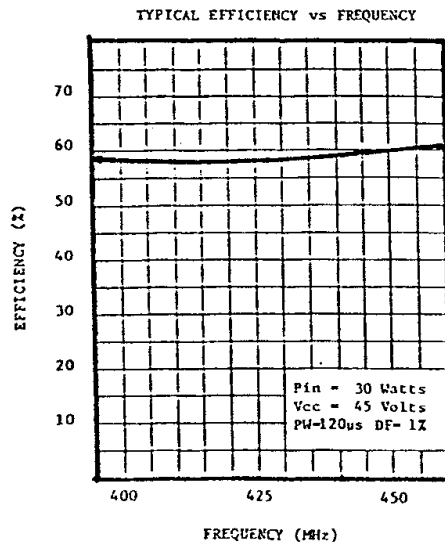
Note: Pulse Width = 250μSec, Duty Cycle = 10%

TYPICAL PERFORMANCE

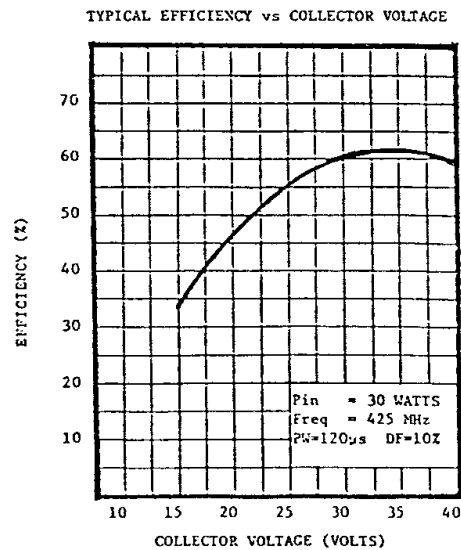
POWER OUTPUT vs POWER INPUT

POWER GAIN vs FREQUENCY

POWER OUTPUT vs COLLECTOR VOLTAGE

EFFICIENCY vs POWER INPUT


TYPICAL PERFORMANCE (CONTINUED)

EFFICIENCY vs FREQUENCY



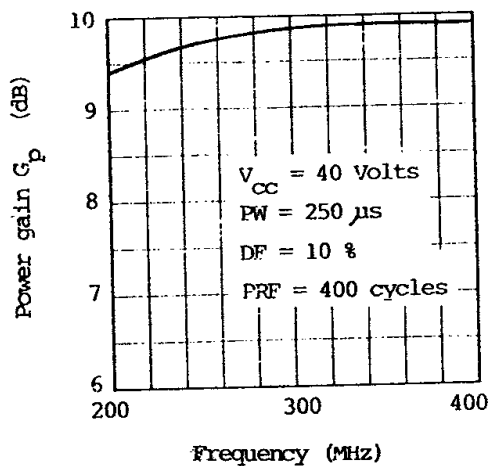
EFFICIENCY vs COLLECTOR VOLTAGE



TYPICAL PERFORMANCE (CONTINUED)

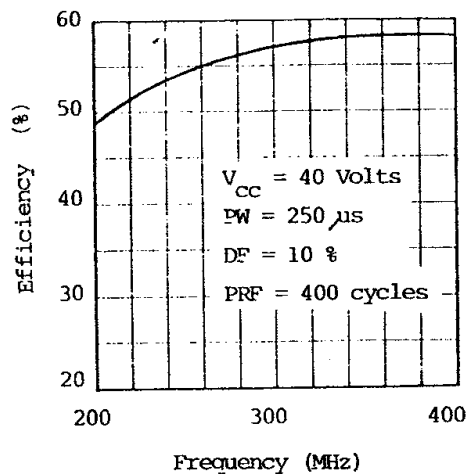
POWER GAIN vs FREQUENCY

TYPICAL POWER GAIN VS FREQUENCY



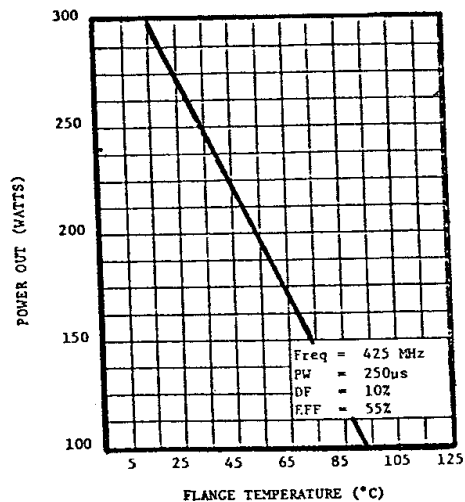
EFFICIENCY vs FREQUENCY

TYPICAL EFFICIENCY VS FREQUENCY



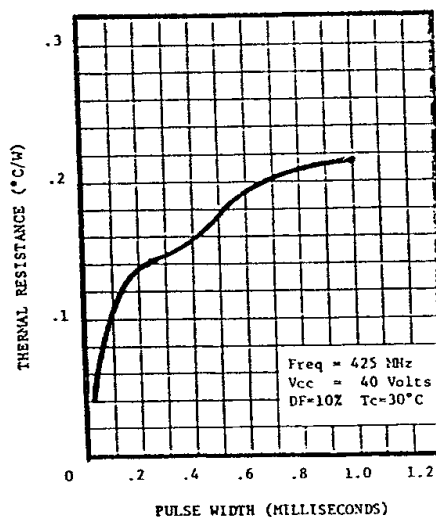
**POWER OUTPUT vs FLANGE
T_J @ CONSTANT 125°C**

TYPICAL POWER OUT vs FLANGE
 TEMPERATURE: T_J AT CONSTANT 125°C
 PULSE WIDTH: 250μs



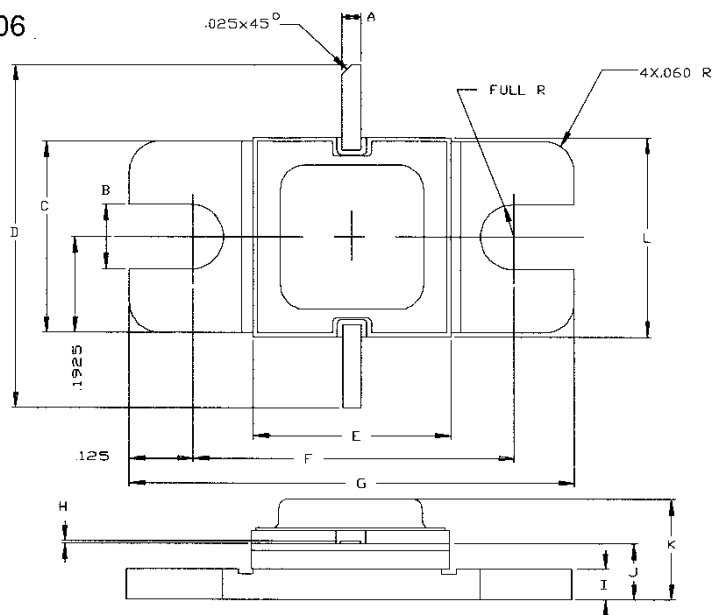
**THERMAL RESISTANCE vs
PULSE WIDTH**

TYPICAL 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			