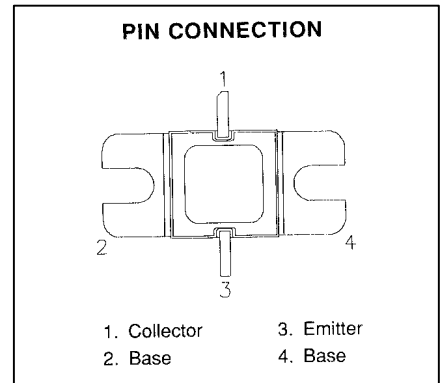
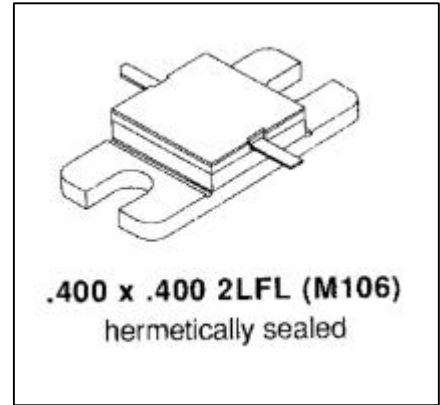


MS2176

**RF AND MICROWAVE TRANSISTORS
UHF PULSED APPLICATIONS**

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



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 (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 |
|----------------------|----------------------------------|-----|------|

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 | |

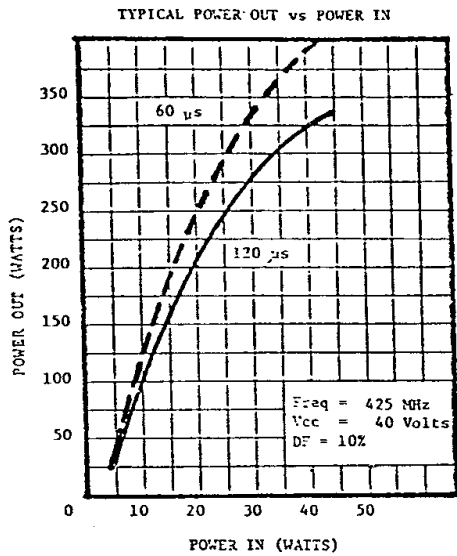
DYNAMIC

| 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 | | | % |

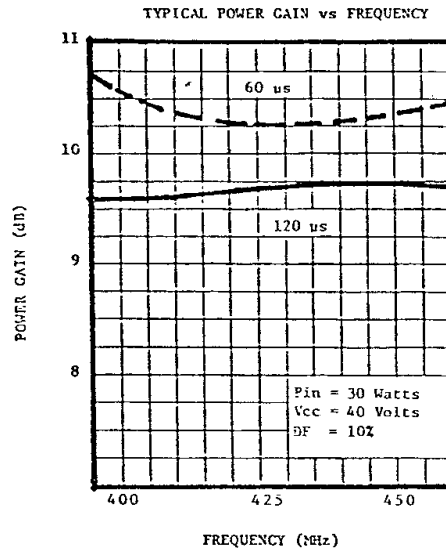
Note: Pulse Width = 250μSec, Duty Cycle = 10%

TYPICAL PERFORMANCE

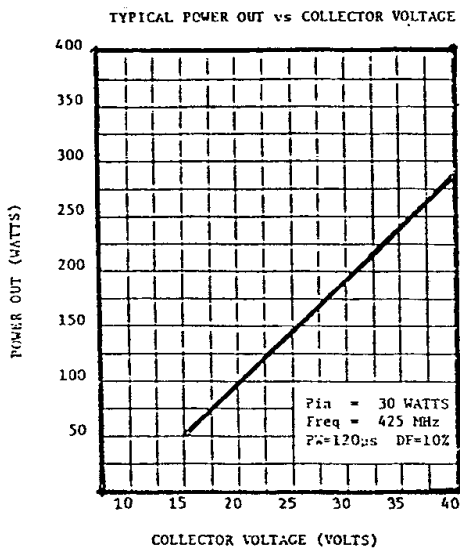
POWER OUTPUT vs POWER INPUT



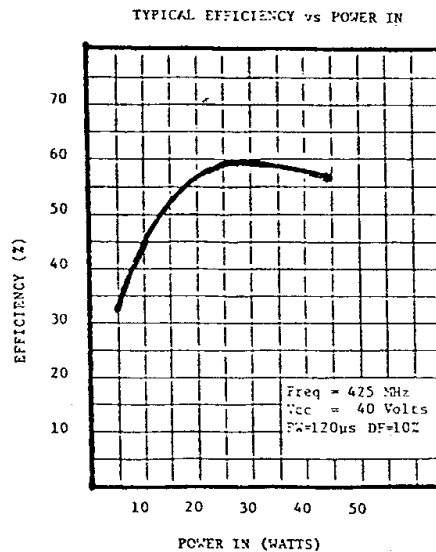
POWER GAIN vs FREQUENCY



POWER OUTPUT vs COLLECTOR VOLTAGE

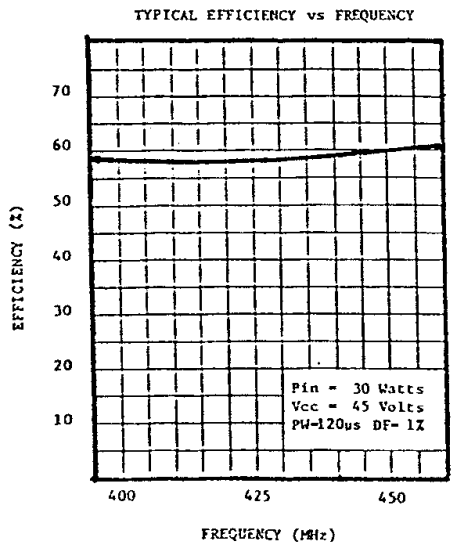


EFFICIENCY vs POWER INPUT

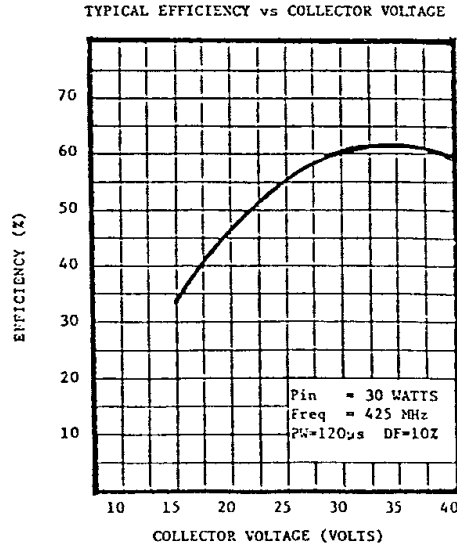


TYPICAL PERFORMANCE (CONTINUED)

EFFICIENCY vs FREQUENCY



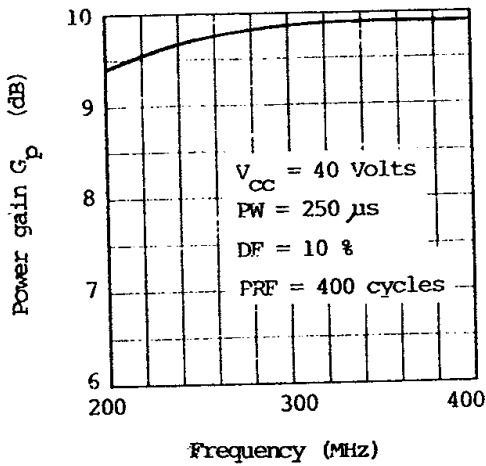
EFFICIENCY vs COLLECTOR VOLTAGE



TYPICAL PERFORMANCE (CONTINUED)

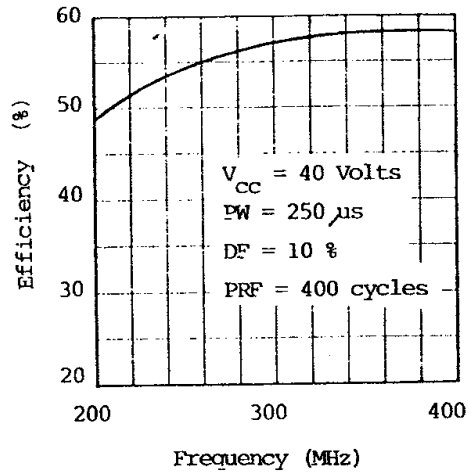
POWER GAIN vs FREQUENCY

TYPICAL POWER GAIN VS FREQUENCY



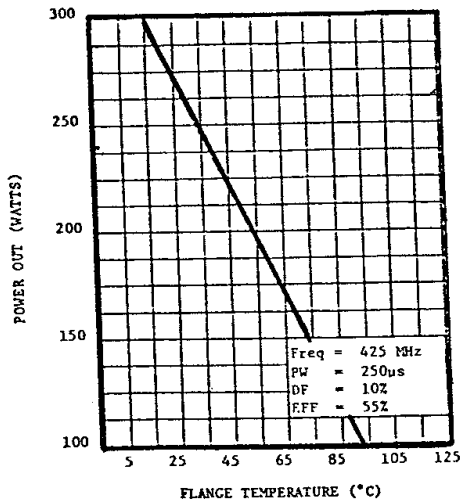
EFFICIENCY vs FREQUENCY

TYPICAL EFFICIENCY VS FREQUENCY



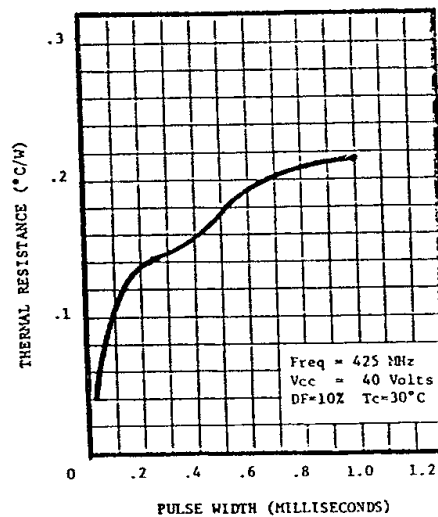
**POWER OUTPUT vs FLANGE
T_J @ CONSTANT 125°C**

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



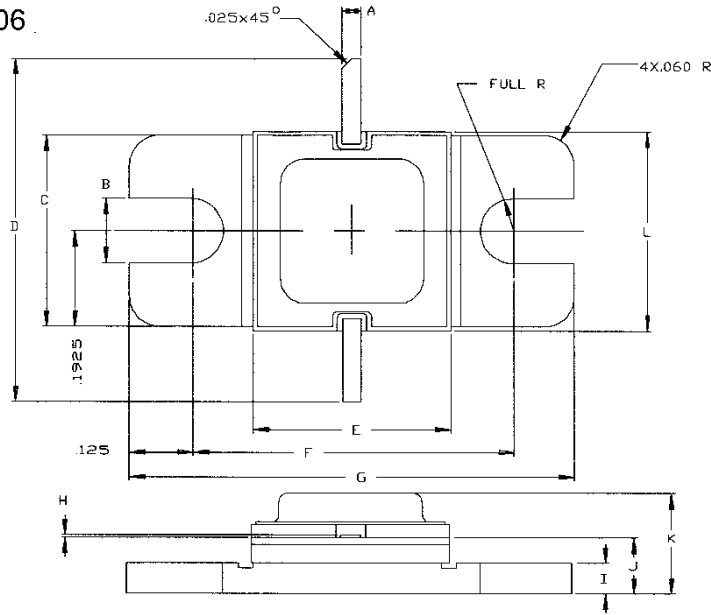
**THERMAL RESISTANCE vs
PULSE WIDTH**

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 | | | |