GHz TECHNOLOGY
RF·MICROWAVE SILICON POWER TRANSISTORS

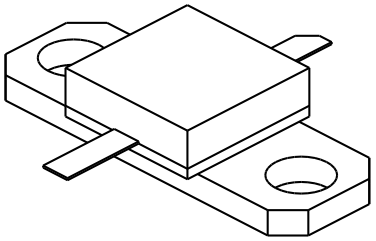
# *1014 - 12*

12 Watt - 28 Volts, Class C
Microwave 1000 - 1400 MHz

## GENERAL DESCRIPTION

The 1014-12 is a COMMON BASE transistor capable of providing 12 Watts of Class C, RF output power over the band 1000-1400 MHz. This transistor is designed for Microwave Broadband Class C amplifier applications. It includes input prematching and utilizes gold metalization and diffused ballasting to provide high reliability and supreme ruggedness.

## CASE OUTLINE
## 55LT, STYLE 1



## ABSOLUTE MAXIMUM RATINGS

Maximum Power Dissipation @ 25°C 39 Watts

**Maximum Voltage and Current**

| | | |
|---|---|---|
| BVces | Collector to Emitter Voltage | 50 Volts |
| BVebo | Emitter to Base Voltage | 3.5 Volts |
| Ic | Collector Current | 5.0 A |

**Maximum Temperatures**

| | |
|---|---|
| Storage Temperature | - 65 to +150°C |
| Operating Junction Temperature | +200°C |

## ELECTRICAL CHARACTERISTICS @ 25 °C

| SYMBOL | CHARACTERISTICS | TEST CONDITIONS | MIN | TYP | MAX | UNITS |
|---|---|---|---|---|---|---|
| **Pout** | Power Out | F = 1000-1400 MHz | 12 | | | Watt |
| **Pin** | Power Input | Vcc = 28 Volts | | | 2.5 | Watt |
| **Pg** | Power Gain | Pin = 2.5 Watts | 6.8 | | | dB |
| $\eta_c$ | Collector Efficiency | As Above | | 40 | | % |
| **$VSWR_1$** | Load Mismatch Tolerance | F = 1.4 GHz, Pin = 2.5 W | | | 30:1 | |

| | | | | | | |
|---|---|---|---|---|---|---|
| **BVces** | Collector to Emitter Breakdown | Ic = 5 mA | 50 | | | Volts |
| **BVebo** | Emitter to Base Breakdown | Ie = 5 mA | 3.5 | | | Volts |
| **Icbo** | Collector to Base Current | Vcb = 28 Volts | | | 3.0 | mA |
| **$h_{FE}$** | Current Gain | Vce = 5 V, Ic = 200mA | 10 | | | |
| **Cob** | Output Capacitance | F =1 MHz, Vcb = 28 V | | 12.0 | | pF |
| $\theta_{jc}$ | Thermal Resistance | | | | 4.5 | °C/W |

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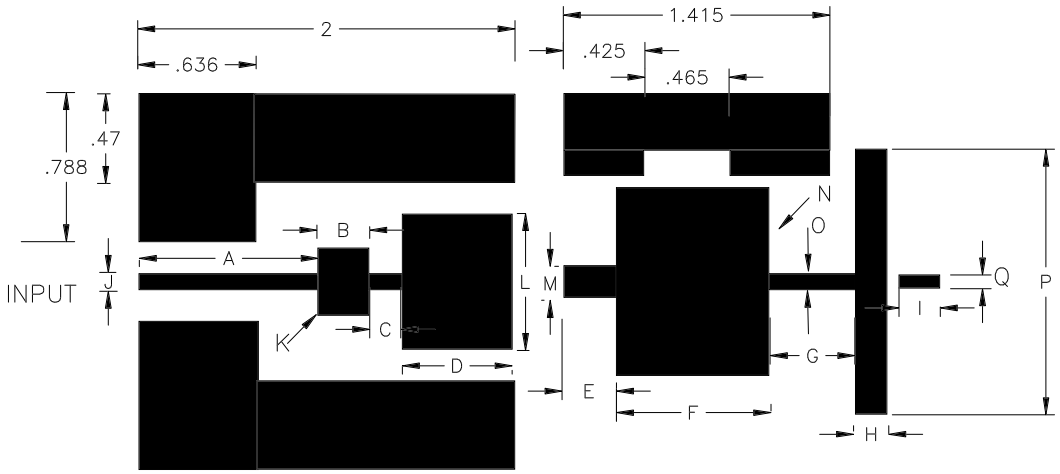
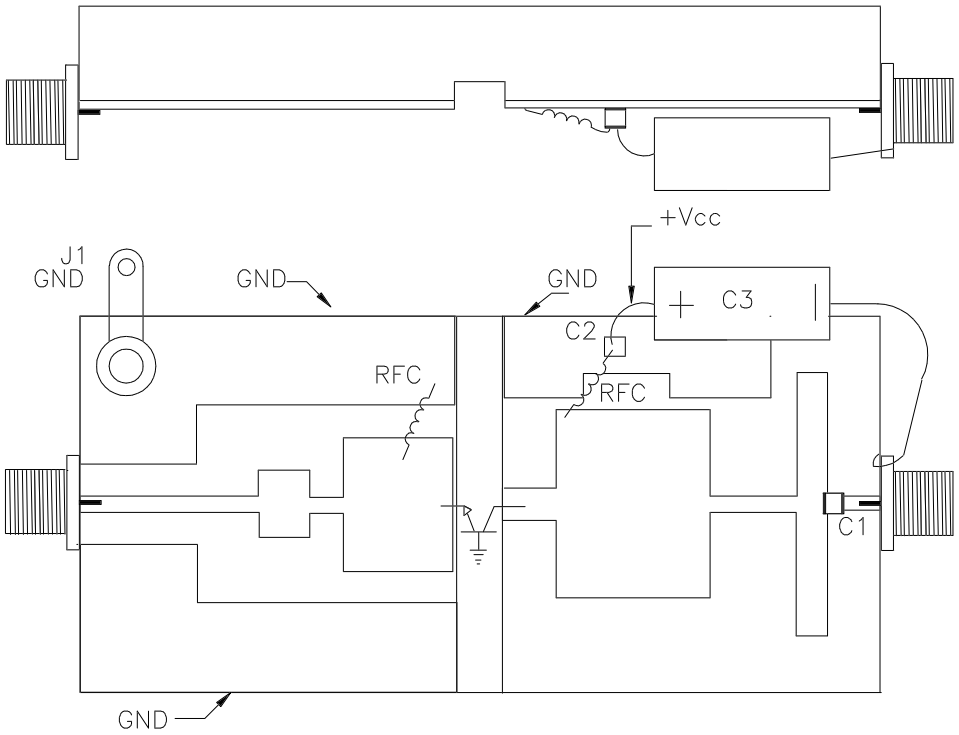
| REVISIONS | | | | |
|---|---|---|---|---|
| ZONE | REV | DESCRIPTION | DATE | APPROVED |




| DIM | INCHES |
|---|---|
| A | .960 |
| B | .270 |
| C | .180 |
| D | .590 |
| E | .280 |
| F | .810 |
| G | .460 |
| H | .168 |
| I | .217 |
| J | .085 |
| K | .360 |
| L | .720 |
| M | .170 |
| N | 1.00 |
| O | .085 |
| P | 1.41 |
| Q | .063 |

# 1014-12 TEST CIRCUIT




DIELECTRIC = 20 MIL THICK DUROID (Hardback) Er = 2.33
C1=150 pF chip
C2=18 pF chip
C3= 50uF, 50v dc, electrolytic
RFC= 6 turns, .1 in dia., #24 ga. enamel wire

| | CAGE | DWG NO. | REV |
|---|---|---|---|
| GHz TECHNOLOGY | 0PJR2 | 1014-12 | 2 |
| | | SCALE 1/1 | SHEET |