ADVANCED POWER TECHNOLOGY RF®
140 COMMERCE DRIVE
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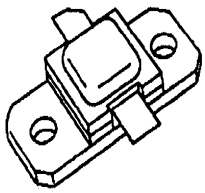
MS2228

RF & MICROWAVE TRANSISTORS
L-BAND RADAR APPLICATIONS



.400 x .400 2LFL M214
hermetically sealed

Features

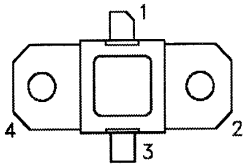
- 1090 MHz
- 50 VOLTS
- P_{OUT} = 75 WATTS
- G_P = 9.2 dB MINIMUM
- 10:1 VSWR CAPABILITY
- COMMON BASE CONFIGURATION

DESCRIPTION:

The MS2228 device is a high power Class C transistor specifically designed for L-Band Avionics transponder/interrogator pulsed output and driver applications.

This device is capable of operation over a wide range of pulse widths, duty cycles, and is capable of withstanding 10:1 output VSWR at rated RF conditions. Internal input and output matching provide optimum performance and product consistency.

PIN CONNECTION



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

ABSOLUTE MAXIMUM RATINGS (Tcase = 25°C)

Symbol	Parameter	Value	Unit
P_{DISS}	Power Dissipation	175	W
I_C	Device Current	5.4	A
V_{CC}	Collector-Supply Voltage	55	V
T_J	Junction Temperature	200	°C
T_{STG}	Storage Temperature	-65 to +200	°C

Thermal Data

$R_{TH(J-C)}$	Thermal Resistance Junction-case*	0.86	°C/W

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ELECTRICAL SPECIFICATIONS (Tcase = 25°C)

STATIC

Symbol	Test Conditions		Value			Unit
			Min.	Typ.	Max.	
BV_{CBO}	I_C = 10 mA	I_E = 0 mA	65	---	---	V
BV_{EBO}	I_E = 4 mA	I_C = 0 mA	3.5	---	---	V
BV_{CER}	I_C = 20 mA	R_{BE} = 10Ω	65	---	---	V
I_{CES}	V_{CE} = 50 V		---	---	6	mA
HFE	V_{CE} = 5 V	I_C = 1 A	10	---	100	---

DYNAMIC

Symbol	Test Conditions			Value			Unit
				Min.	Typ.	Max.	
P_{OUT}	f = 1090 MHz	P_{IN} = 9.4W	V_{CC} = 50V	75	---	---	W
G_P	f = 1090 MHz	P_{IN} = 9.4W	V_{CC} = 50V	9.0	---	---	dB
η_C	f = 1090 MHz	P_{IN} = 9.4W	V_{CC} = 50V	48	---	---	%

Conditions: Pulse Width = 32 µsec Duty Cycle = 2%

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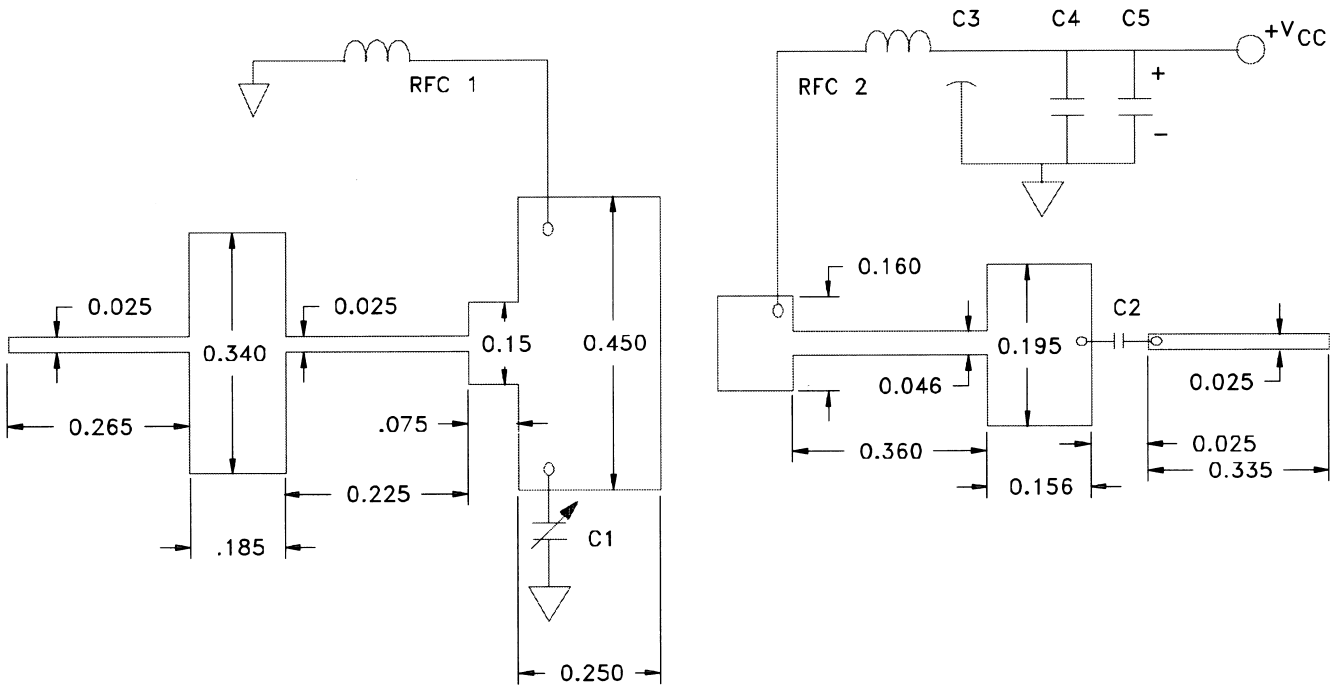
IMPEDANCE DATA

FREQ	$Z_{IN}(\Omega)$	$Z_{CC}(\Omega)$
1030 MHz	7.0 + j3.0	12.5 - j4.5
1090 MHz	11.0 + j1.5	13.0 - j3.0

P_{IN} = 9.0W
V_{CC} = 50V

TEST CIRCUIT



All dimensions are in inches.
Substrate material: .025 thick Al_2O_3

C1 : 0.8—8.0 pF Johanson Gigatrim Capacitor
C2 : 100 pF Chip Capacitor
C3 : 1500 pF Filtercon Feedthru
C4 : 1 µF, Ceramic Capacitor
C5 : 100 µF, Electrolytic Capacitor
RFC 1 : Au Plated Ni Strap
0.280 Long x 0.035 Wide x 0.005 Thick
RFC 2 : #26 Wire, 4 Turn 1/16 I.D.

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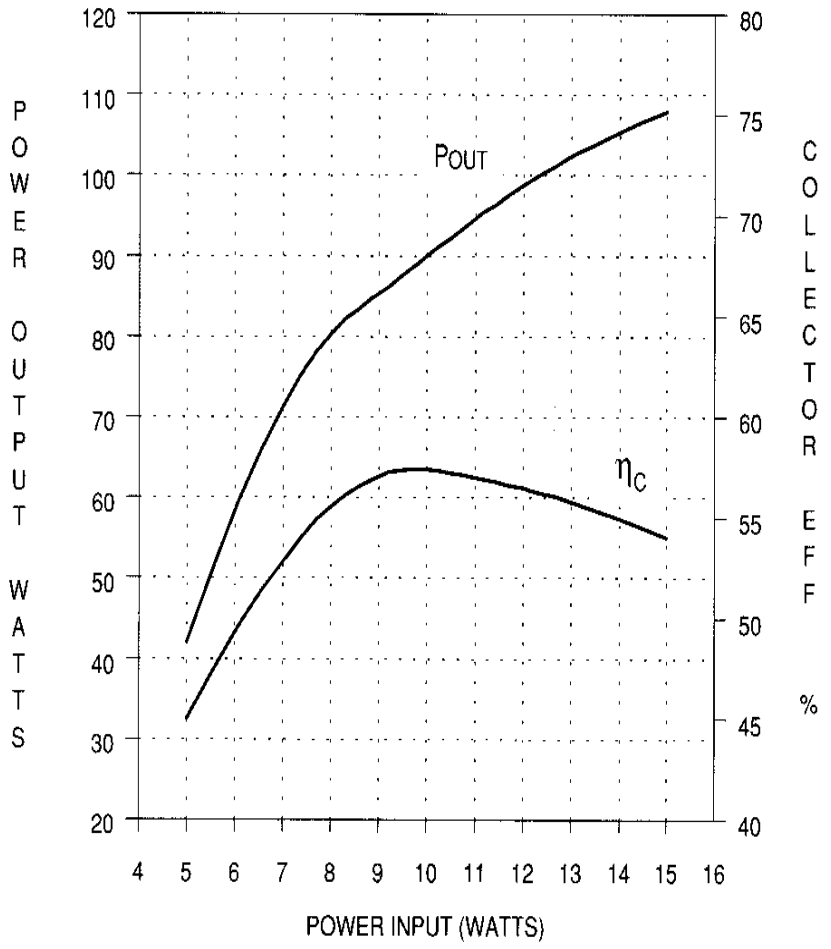
TYPICAL PERFORMANCE

TYPICAL POWER OUTPUT & COLLECTOR EFFICIENCY vs POWER INPUT



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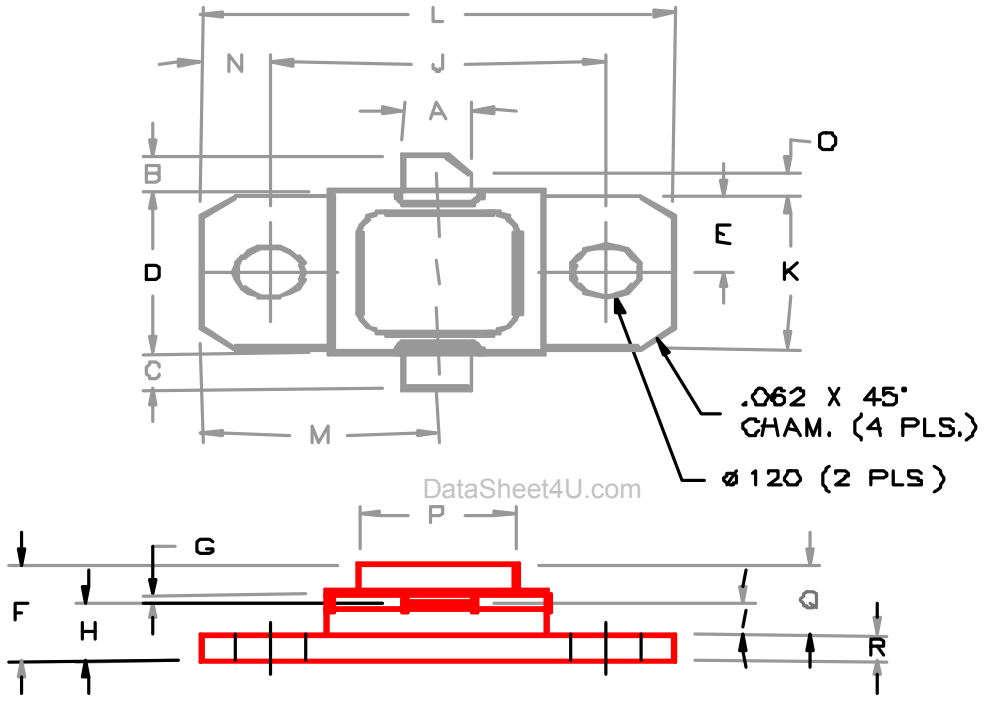
PACKAGE MECHANICAL DATA

PACKAGE STYLE M214



	MINIMUM INCHES/MM	MAXIMUM INCHES/MM		MINIMUM INCHES/MM	MAXIMUM INCHES/MM
A	.140/3,56		J	650/16,51	
B	.110/2,80		K	.386/9,80	
C	.110/2,80		L	.900/22.86	
D	.395/10,03	407/10,34	M	450/11,43	
E	.193/4,90		N	125/3,18	
F		.230/5,84	O	.050/1,27	
G	.003/0,08	006/0,15	P	.405/10,29	
H	.118/3,00	.131/3,33	Q	.170/4,32	
I	.063/1,60		R	.062/1,58	