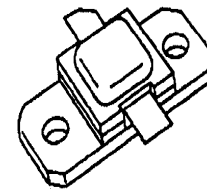


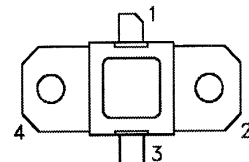
MS2228**RF & MICROWAVE TRANSISTORS
L-BAND RADAR APPLICATIONS****Features**

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

**.400 x .400 2LFL M214**
hermetically sealed**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 CONNECTION1. Collector 3. Emitter
2. Base 4. Base**ABSOLUTE MAXIMUM RATINGS (T_{case} = 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 (T_{case} = 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%

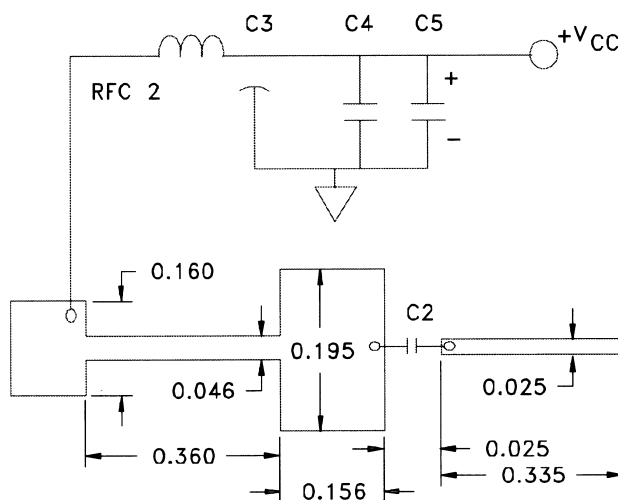
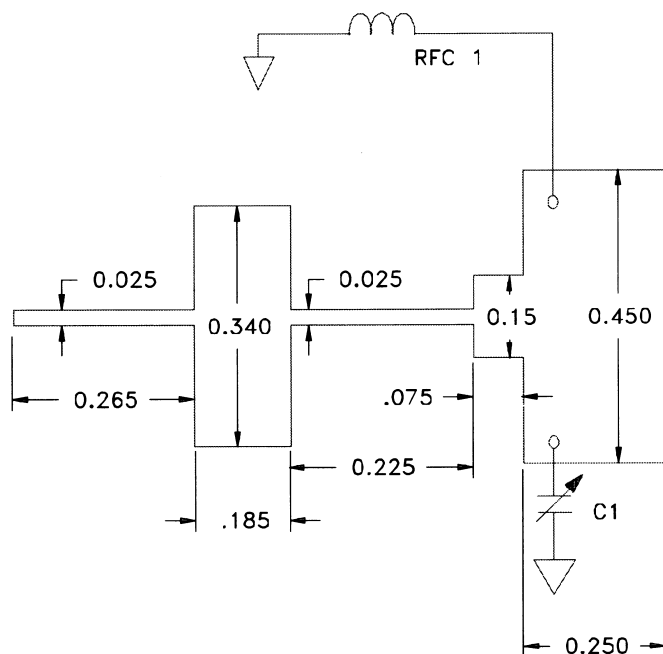
IMPEDANCE DATA

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

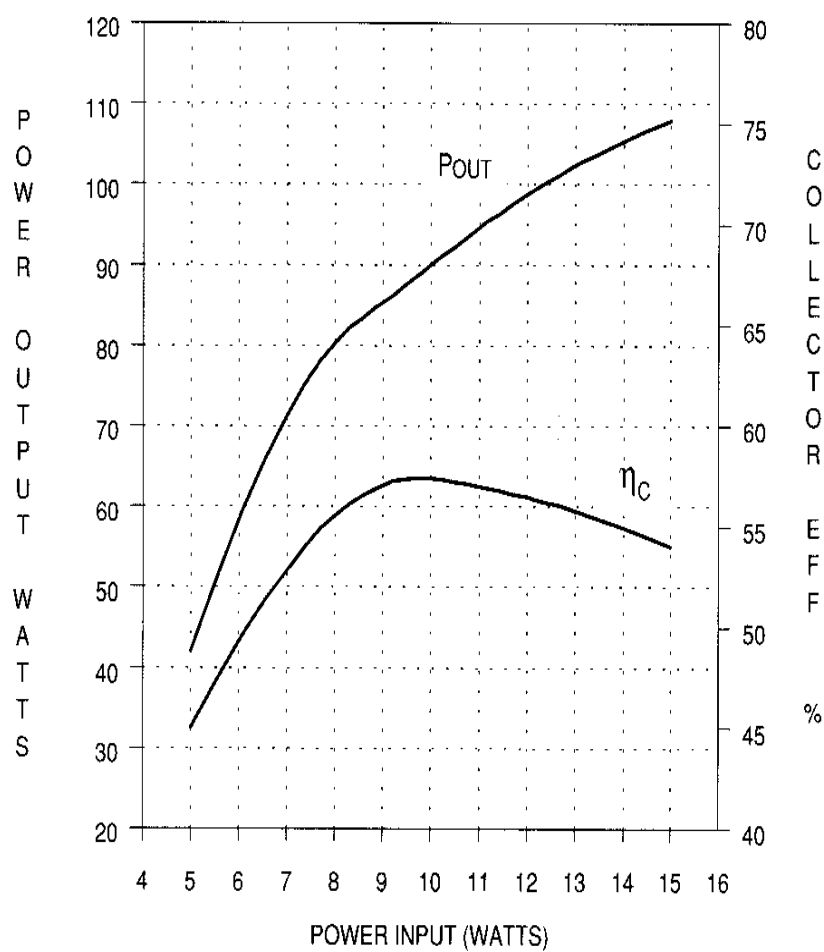
C5 : 100 μF , Electrolytic Capacitor

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.

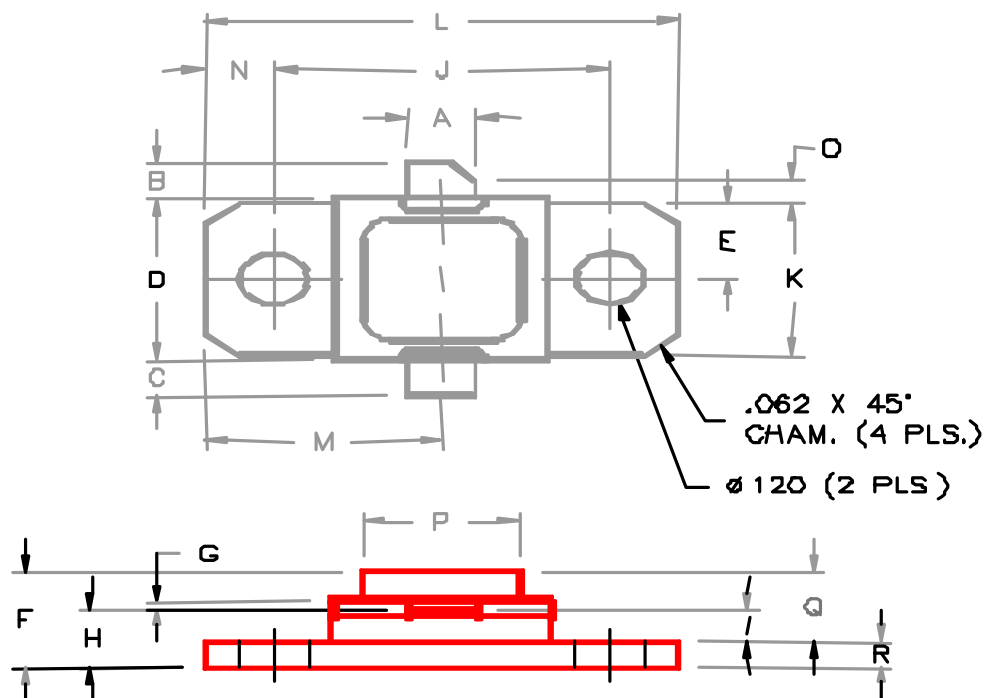
TYPICAL PERFORMANCE

**TYPICAL POWER OUTPUT &
COLLECTOR EFFICIENCY vs
POWER INPUT**



PACKAGE MECHANICAL DATA

PACKAGE STYLE M214



	MINIMUM INCHES/MM	MAXIMUM INCHES/MM		MIN/MUM 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	