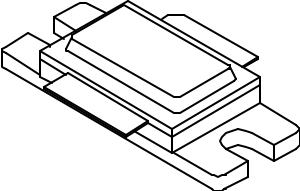


# 1214 – 220M

220 Watts - 40 Volts, 150 $\mu$ s, 10%  
Radar 1200 - 1400 MHz

Final Proof

<p><b>GENERAL DESCRIPTION</b></p> <p>The 1214-220M is an internally matched, COMMON BASE transistor capable of providing 220 Watts of pulsed RF output power at one hundred fifty microseconds pulse width, ten percent duty factor across the band 1200 to 1400 MHz. This hermetically solder-sealed transistor is specifically designed for L-Band radar applications. It utilizes gold metallization and diffused emitter ballasting to provide high reliability and supreme ruggedness.</p>	<p style="text-align: center;"><b>CASE OUTLINE</b> <b>55ST, STYLE 1</b></p> 													
<p><b>ABSOLUTE MAXIMUM RATINGS</b></p> <p>Maximum Power Dissipation @ 25°C <span style="float: right;">700 Watts</span></p> <p><b>Maximum Voltage and Current</b></p> <table style="width: 100%; border: none;"> <tr> <td style="width: 15%;">BVces</td> <td style="width: 55%;">Collector to Emitter Voltage</td> <td style="width: 30%; text-align: right;">70 Volts</td> </tr> <tr> <td>Iebo</td> <td>Emitter to Base Voltage</td> <td style="text-align: right;">5 mA</td> </tr> <tr> <td>Ic</td> <td>Collector Current</td> <td style="text-align: right;">20 Amps</td> </tr> </table> <p><b>Maximum Temperatures</b></p> <table style="width: 100%; border: none;"> <tr> <td style="width: 60%;">Storage Temperature</td> <td style="text-align: right;">- 65 to + 200°C</td> </tr> <tr> <td>Operating Junction Temperature</td> <td style="text-align: right;">+ 200°C</td> </tr> </table>	BVces	Collector to Emitter Voltage	70 Volts	Iebo	Emitter to Base Voltage	5 mA	Ic	Collector Current	20 Amps	Storage Temperature	- 65 to + 200°C	Operating Junction Temperature	+ 200°C	
BVces	Collector to Emitter Voltage	70 Volts												
Iebo	Emitter to Base Voltage	5 mA												
Ic	Collector Current	20 Amps												
Storage Temperature	- 65 to + 200°C													
Operating Junction Temperature	+ 200°C													

## ELECTRICAL CHARACTERISTICS @ 25 °C

SYMBOL	CHARACTERISTICS	TEST CONDITIONS	MIN	TYP	MAX	UNITS
<b>Pout</b>	Power Out ( Note 1)	Vcc=40V, Pin=40W, f = 1.2, 1.3, 1.4 GHz	220		290	Watts
<b>Pg</b>	Power Gain	Vcc=40V, Pin=40W, f = 1.2, 1.3, 1.4 GHz	7.4			dB
$\eta_c$	Collector Efficiency	Vcc=40V, Pin=40W, f = 1.2, 1.3, 1.4 GHz	45	50		%
<b>RI</b>	Input Return loss	Vcc=40V, Pin=40W, f = 1.2, 1.3, 1.4 GHz	9			dB
<b>VSWR<sup>1</sup></b>	Load Mismatch Tolerance	Vcc=40V, Pin=40W, f = 1.2 GHz			3:1	
<b>VSWRs</b>	Load Mismatch - Stability	Vcc=40V, Pin=40W, f = 1.2 GHz			2:1	

 Note 1: Pulse condition of 150 $\mu$ sec, 10%.

<b>BVces</b>	Collector to Emitter Breakdown	Ic = 100 mA	70			Volts
<b>Ices</b>	Collector to Emitter Leakage	Vce = 40 Volts			10	mA
<b>Iebo</b>	Emitter to Base Breakdown	Veb = 3 Volts			5	mA
<b>Hfe</b>	DC Current Gain	Vce = 5 V, Ic = 1 A	10	45		
$\theta_{jc}^1$	Thermal Resistance	Rated Pulse Condition			0.25	°C/W

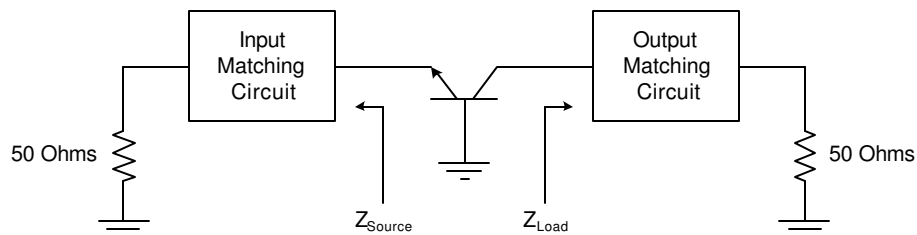
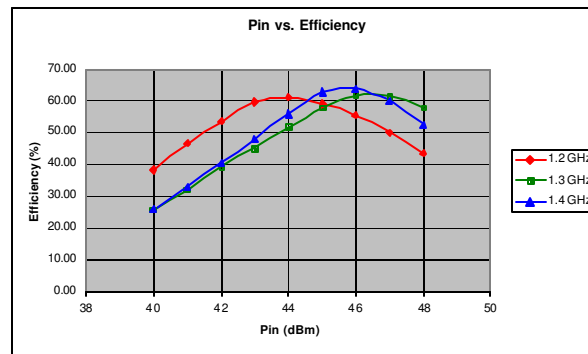
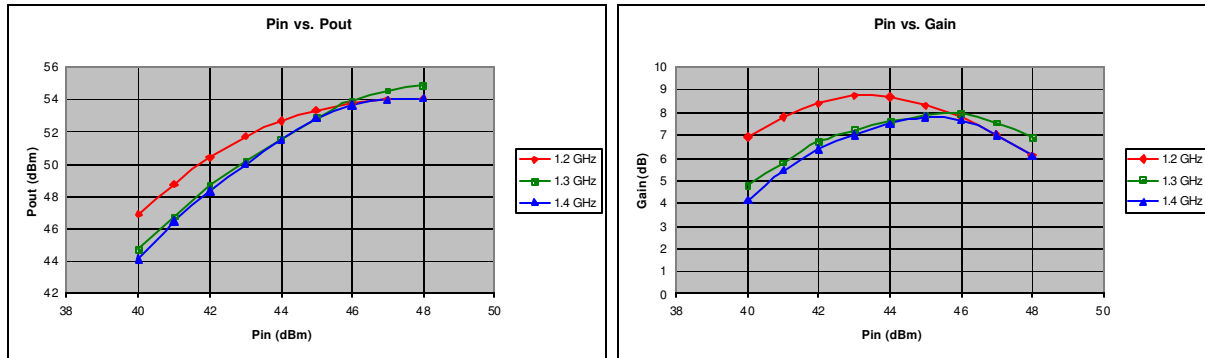
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Issue March 2005

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## Performance Curves



## Impedance Information

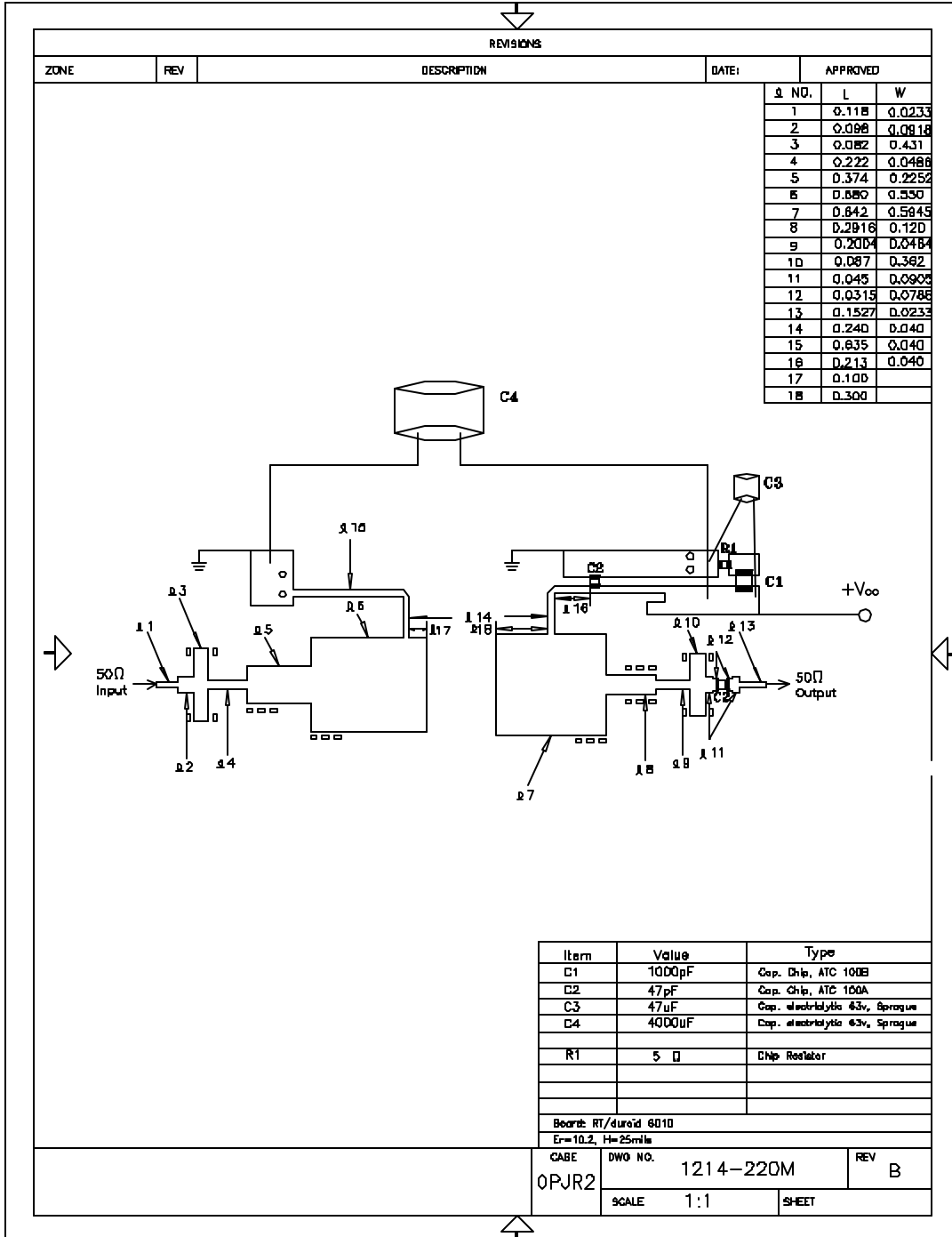
Frequencies (MHz)	$Z_{Source}$ ( $\Omega$ )	$Z_{Load}$ ( $\Omega$ )
1200	$3.6 - j0.93$	$2.96 - j1.86$
1300	$2.7 - j1.27$	$2.25 - j2.03$
1400	$1.86 - j0.83$	$1.51 - j1.66$

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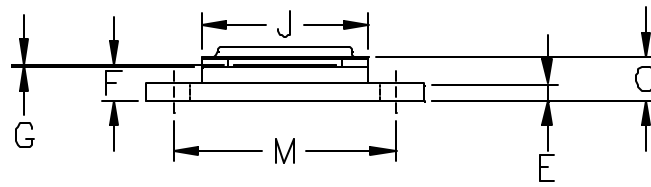
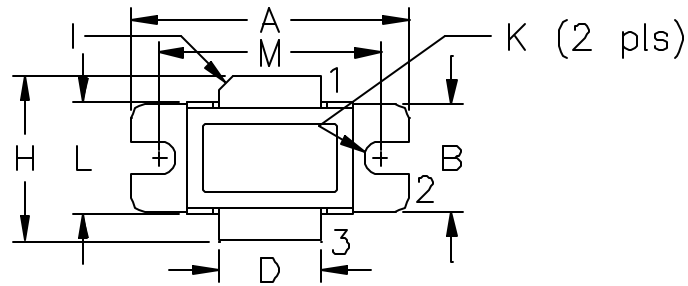
## Test Circuit



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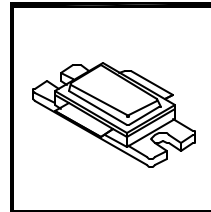
# 1214 - 220M



DIM	MILLIMETER	±TOL	INCHES	±TOL
A	25.40	.25	1.000	.010
B	9.78	.25	.385	.010
C	4.00	.19	.142	.007
D	9.40	.13	.370	.005
E	1.53	.13	.060	.005
F	3.18	.13	.125	.005
G	0.08	+00/-∞	.003	+002/-000
H	19.05	0.51	.750	.020
I	45°	5°	45°	5°
J	15.24	.25	.600	.010
K	3.05 DIA	.13	.120 DIA	.005
L	10.15	.13	.400	.005
M	20.32	.25	.800	.010

**STYLE 1:**  
**PIN 1 = COLLECTOR**  
**2 = BASE**  
**3 = EMITTER**

**STYLE 2:**  
**PIN 1 = COLLECTOR**  
**2 = EMITTER**  
**3 = BASE**



**CHz TECHNOLOGY**  
 RF - MICROWAVE SILICON POWER TRANSISTORS

DWG NO

55ST

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