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# 1214-300M

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

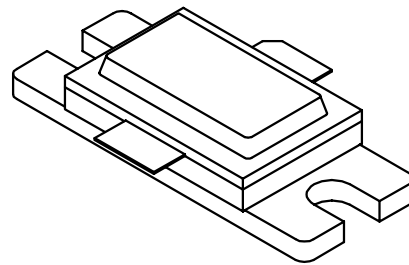
## GENERAL DESCRIPTION

The 1214-300M is an internally matched, COMMON BASE transistor capable of providing 300 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 metalization and NiCr emitter ballasting to provide high reliability and supreme ruggedness.

## ABSOLUTE MAXIMUM RATINGS

Maximum Power Dissipation @ 25°C	600 Watts
<b>Maximum Voltage and Current</b>	
BVces Collector to Emitter Voltage	70 Volts
BVebo Emitter to Base Voltage	3.5 Volts
Ic Collector Current	20 Amps
<b>Maximum Temperatures</b>	
Storage Temperature	- 65 to + 200°C
Operating Junction Temperature	+ 200°C

## CASE OUTLINE 55ST, STYLE 1



## ELECTRICAL CHARACTERISTICS @ 25 °C

SYMBOL	CHARACTERISTICS	TEST CONDITIONS	MIN	TYP	MAX	UNITS
<b>Pout</b>	Power Out	Freq = 1200 – 1400 MHz	300		400	Watts
<b>Pg</b>	Power Gain	Vcc = 40 Volts	8.75			dB
<b><math>\eta_c</math></b>	Collector Efficiency	Pin = 40 Watts	50	55		%
<b>RI</b>	Input Return loss		10.0			dB
<b>VSWR<sup>1</sup></b>	Load Mismatch Tolerance	Pulse Width = 150 $\mu$ s			2:1	
<b>VSWRs</b>	Load Mismatch - Stability	Duty Factor = 10%			1.5:1	

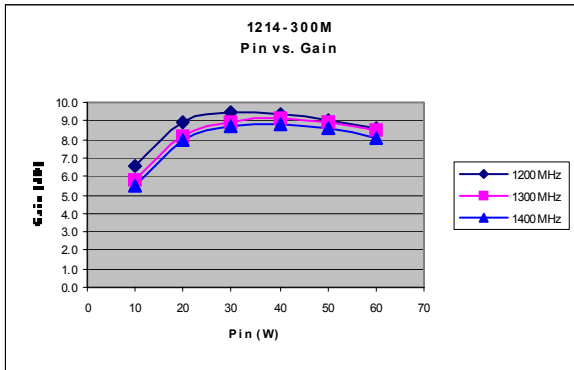
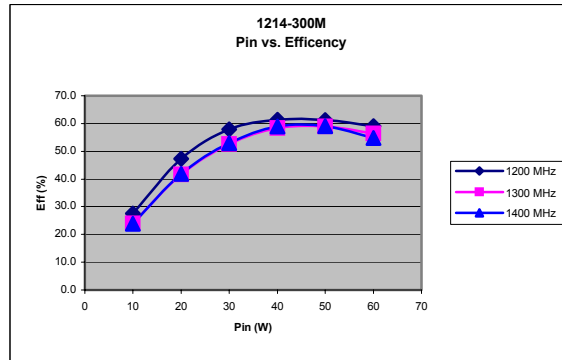
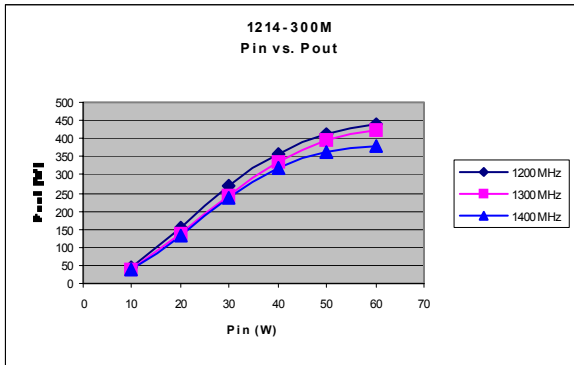
Note 1: Pulse condition of 150 $\mu$ sec, 10%.

<b>Bvces</b>	Collector to Emitter Breakdown	Ic = 80 mA	70			Volts
<b>Ices</b>	Collector to Emitter Leakage	Vce = 40 Volts			10	mA
<b><math>\theta_{jc}</math><sup>1</sup></b>	Thermal Resistance	Rated Pulse Condition			0.29	°C/W

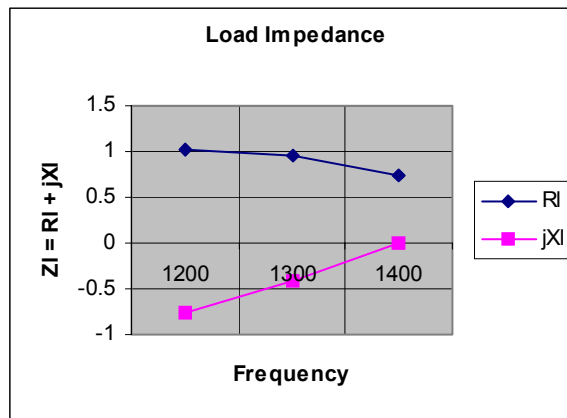
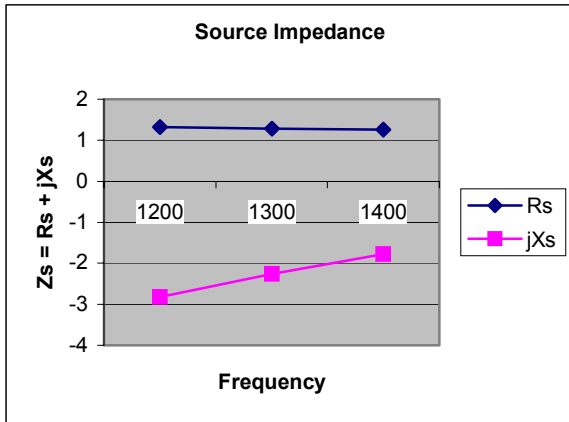


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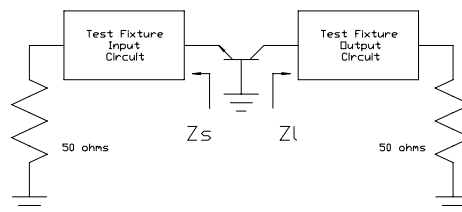
## Performance Curves



## Impedance Information



Freq	Impedance	
	Z <sub>s</sub>	Z <sub>l</sub>
1200	1.32-j2.82	1.03-j0.75
1300	1.28-j2.26	0.95-j0.41
1400	1.26-j1.78	0.75-j0.00



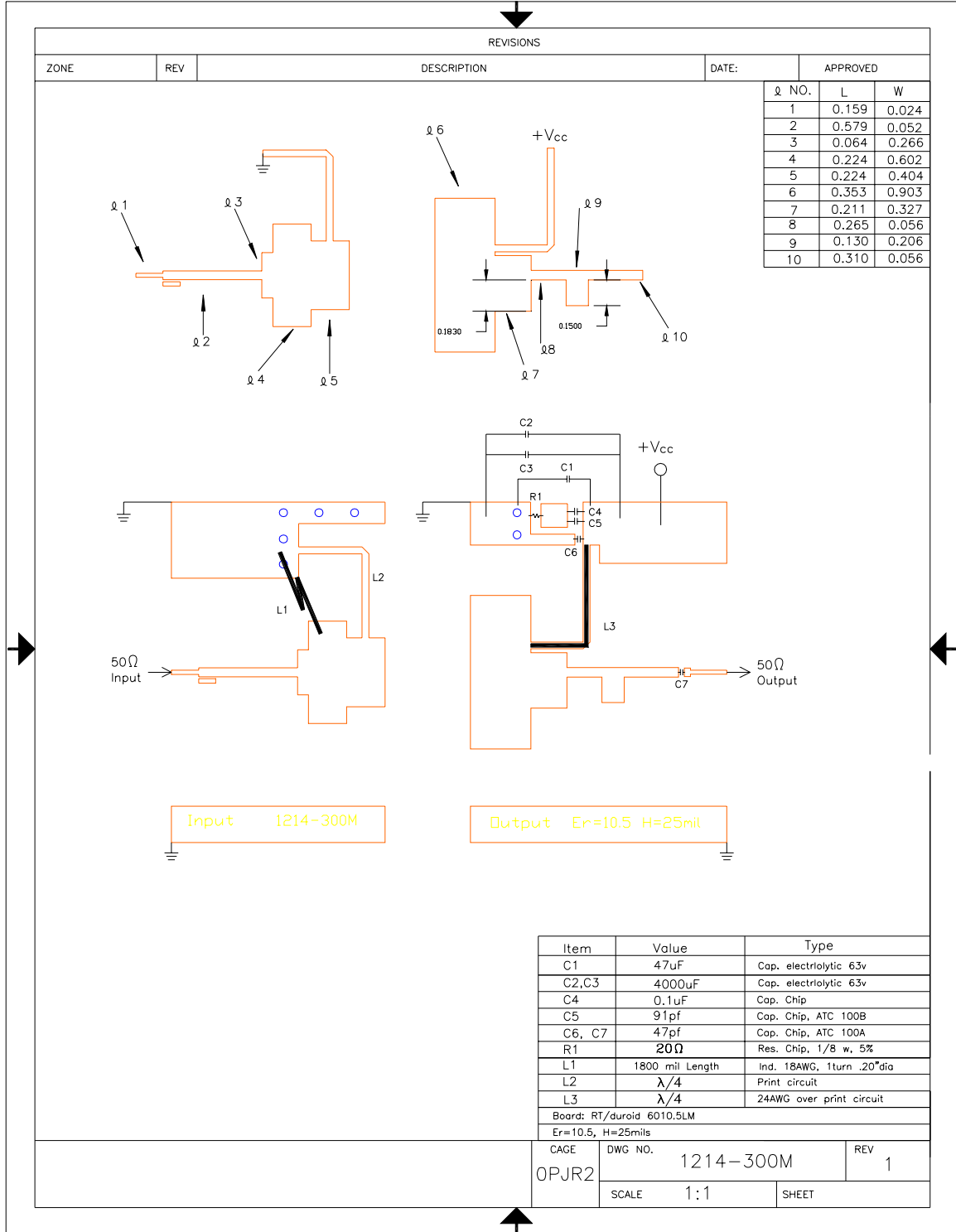
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MSC Corp. 3000 Oakmead Village Drive, Santa Clara, CA 95051-0808 TEL. 408-986-8031 FAX 408-869-2324



# 1214-300M

## BROADBAND TEST CIRCUIT

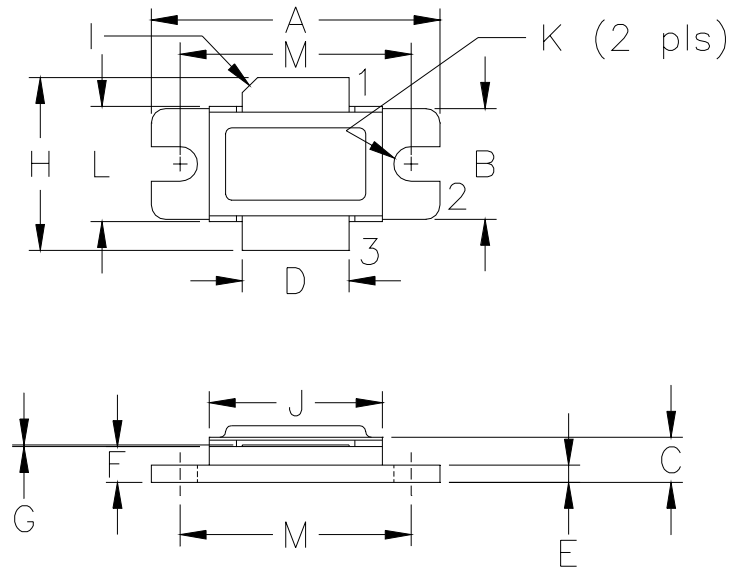


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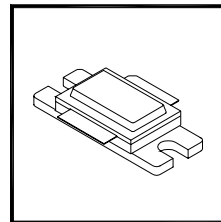
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DIM	MILLIMETER	±TOL	INCHES	±TOL
A	25.40	.25	1.000	.010
B	9.78	.25	.385	.010
C	4.00	.19	.142	.007
D	9.40	.13	.370	.005
E	1.53	.13	.060	.005
F	3.18	.13	.125	.005
G	0.08	+05/-00	.003	+.002/ -.000
H	19.05	0.51	.750	.020
I	45°	5°	45°	5°
J	15.24	.25	.600	.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



DWG NO.

55ST