



# 1214-300V

300 Watts - 50 Volts, 330 $\mu$ s, 10%  
Radar 1200 - 1400 MHz

## GENERAL DESCRIPTION

The 1214-300V is an internally matched, COMMON BASE transistor capable of providing 300 Watts of pulsed RF output power at three hundred thirty 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.

## ABSOLUTE MAXIMUM RATINGS

Maximum Power Dissipation @ 25°C 420 Watts

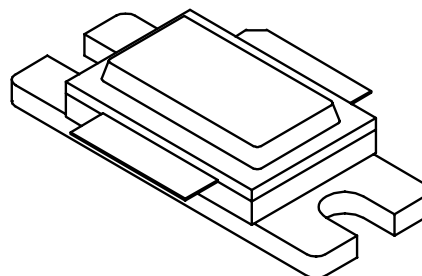
### Maximum Voltage and Current

BVces	Collector to Emitter Voltage	75 Volts
BVebo	Emitter to Base Voltage	3.0 Volts
Ic	Collector Current	20 Amps

### Maximum Temperatures

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

## CASE OUTLINE 55ST, STYLE 1



## RF ELECTRICAL CHARACTERISTICS @ 25 °C

SYMBOL	CHARACTERISTICS	TEST CONDITIONS	MIN	TYP	MAX	UNITS
Pout	Power Out	Freq = 1200 – 1400 MHz	300		410	Watts
Pg	Power Gain	Vcc = 50 Volts	8.75			dB
$\eta_c$	Collector Efficiency	Pin = 40 Watts	50	55		%
RI	Input Return loss		10			dB
Droop	Droop	Pulse Width = 330 $\mu$ S			0.5	dB
Flatness	Flatness	Duty Factor = 10%			1.0	dB
VSWR-S	Load Mismatch Stability				1.5:1	
VSWR-T	Load Mismatch Tolerance				2.5:1	

Note: test @ 1.2, 1.3, and 1.4 GHz.

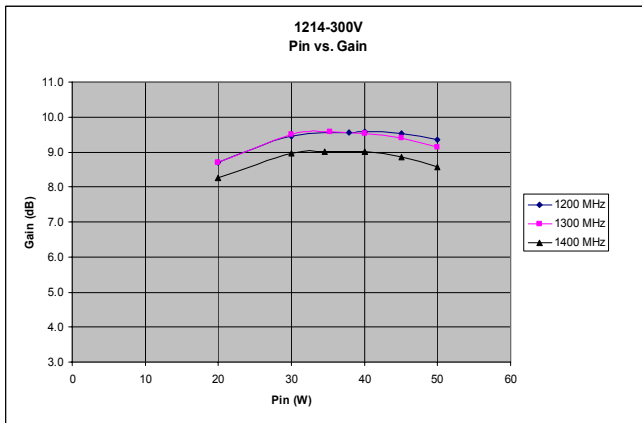
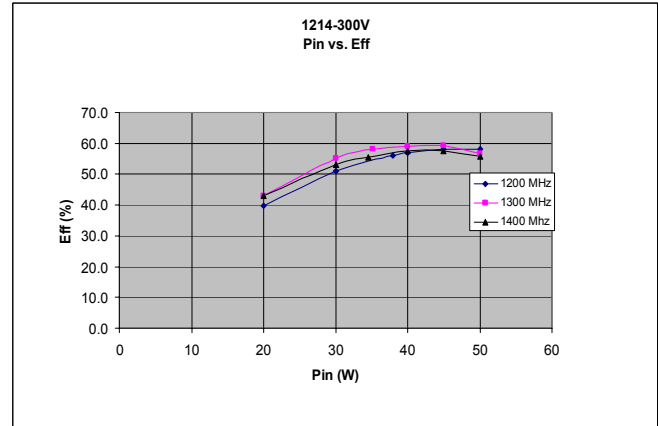
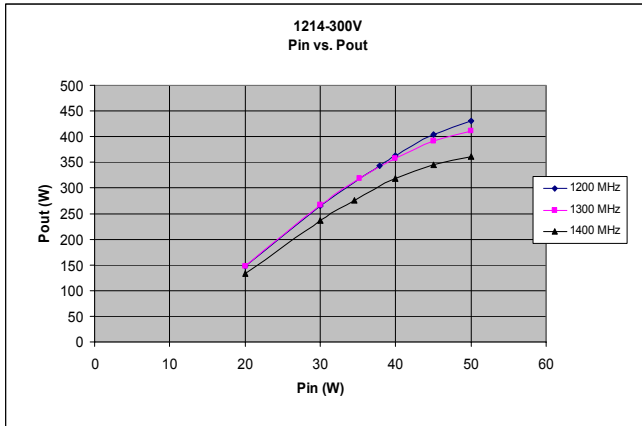
## FUNCTIONAL CHARACTERISTICS @ 25°C

Bvces	Collector to Emitter Breakdown	Ic = 100 mA	75			Volts
Ices	Collector to Emitter Leakage	Vce = 50 Volts			10	mA
$\theta_{jc}^1$	Thermal Resistance	Rated Pulse Condition			0.29	°C/W



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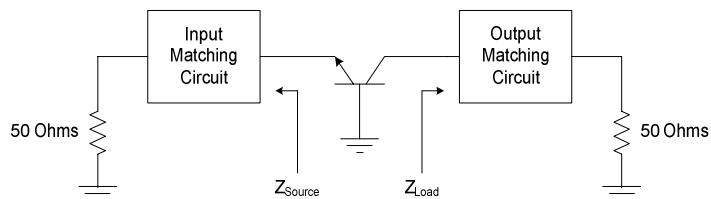
## Typical Performance Curves:



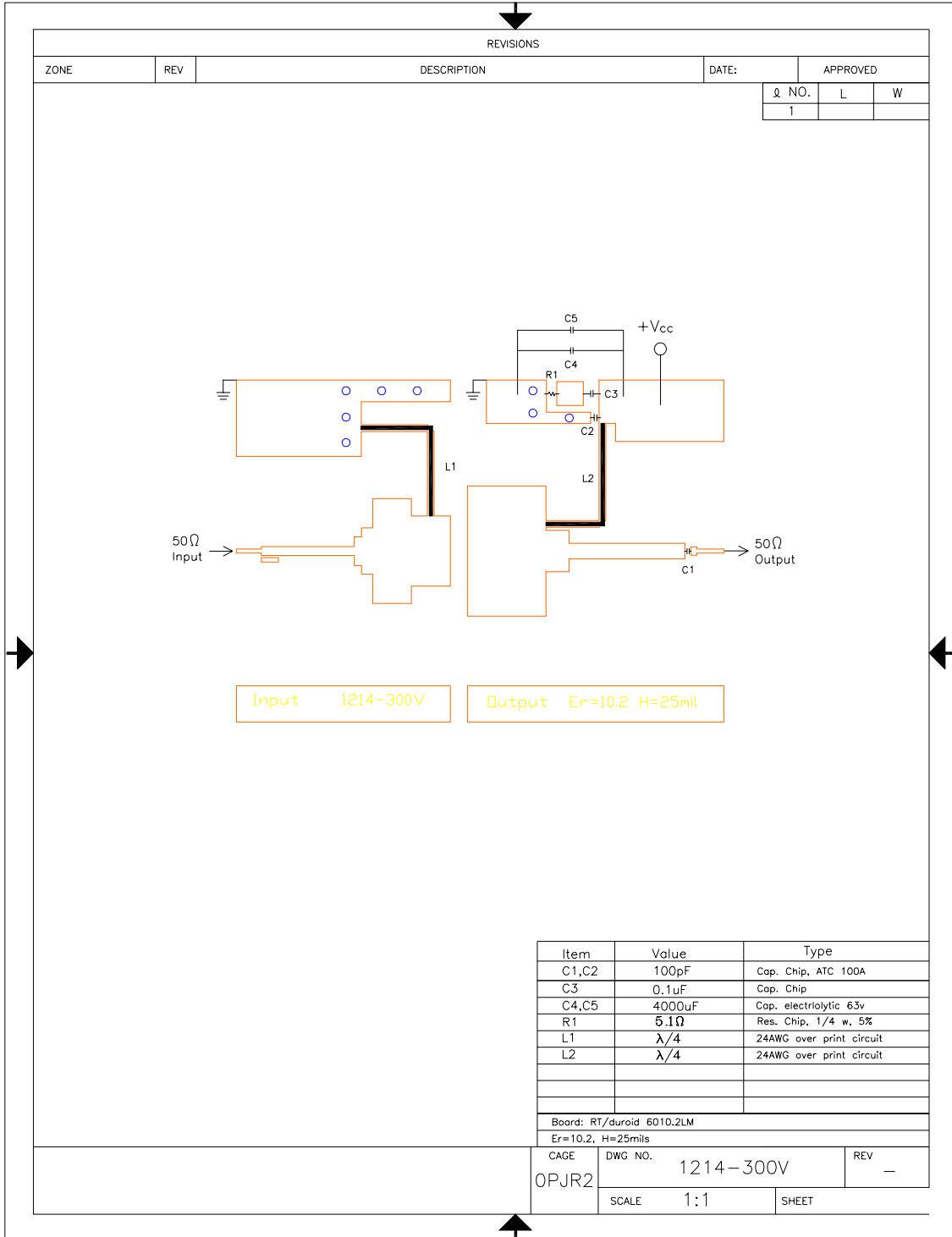
## Impedance Information

Impedance		
Freq	Zs	Zl
1200	1.28-j2	4.24-j9.03
1300	1.27-j1.41	2.1-j3.4
1400	1.29-j0.87	1.86-j2.56

Board Material RT 6010.2 LM 25 Mil

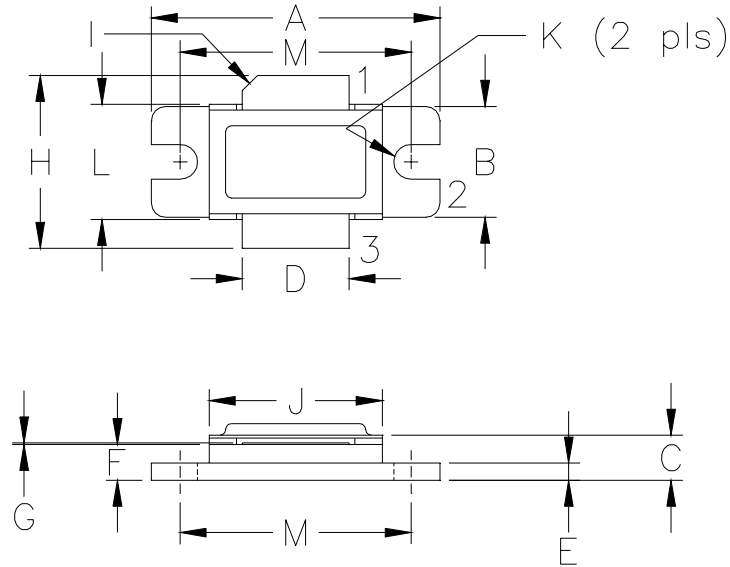


## BROADBAND TEST CIRCUIT





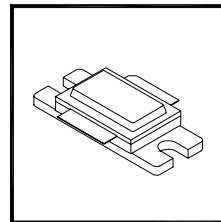
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DIM	MILLIMETER	±TOL	INCHES	±TOL
A	25.40	.25	1.000	.010
B	9.78	.25	.385	.010
C	4.00	.19	.142	.007
D	9.40	.13	.370	.005
E	1.53	.13	.060	.005
F	3.18	.13	.125	.005
G	0.08	$^{+.05}/_{-.00}$	.003	$^{+.002}/_{-.000}$
H	19.05	0.51	.750	.020
I	45°	5°	45°	5°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



**GHz TECHNOLOGY**  
 RF — MICROWAVE SILICON POWER TRANSISTORS

DWG NO.

55ST