ADVANCED POWER TECHNOLOGY RF®

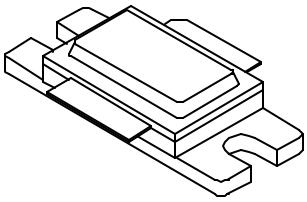
1214-150L

150 Watts, 36 Volts, 5 ms, 20%
Radar 1200 to 1400 MHz

GENERAL DESCRIPTION

The 1214-150L is an internally matched, COMMON BASE transistor capable of providing 150 Watts of pulsed RF output power at 5 milliseconds pulse width, 20% 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.

CASE OUTLINE
55ST-1



ABSOLUTE MAXIMUM RATINGS

Maximum Power Dissipation

Device Dissipation @25°C[1]	320	W

Maximum Voltage and Current

Collector to Base Voltage (BV_{ces})	70	V
Emitter to Base Voltage (BV_{ebo})	3.5	V
Collector Current (I_c)	15	A

Maximum Temperatures

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

ELECTRICAL CHARACTERISTICS @ 25°C

SYMBOL	CHARACTERISTICS	TEST CONDITIONS	MIN	TYP	MAX	UNITS
P_{out}	Power Output	F = 1200-1400 MHz Vcc = 36 Volts Pin = 27 W Pulse Width = 5 mS Duty Factor = 20%	140	150	200	W
P_g	Power Gain		7.15		8.7	dB
η_c	Collector Efficiency		45			%
R_L	Return Loss		-9			dB
Pd	Pulse Droop				0.5	dB
VSWR[1]	Load Mismatch Tolerance	F=1200 MHz, Pin = 27W			3.0:1	

FUNCTIONAL CHARACTERISTICS @ 25°C

BV_{ebo}	Emitter to Base Breakdown	I_e = 50 mA	3.0			V
BV_{ces}	Collector to Emitter Breakdown	I_c = 100 mA	65			V
h_{FE}	DC – Current Gain	V_{ce} = 5V, I_c = 1A	20	55		
θjc[1]	Thermal Resistance				0.55	°C/W

NOTES: 1. Pulse condition of 5 mS, 20%

April 2005

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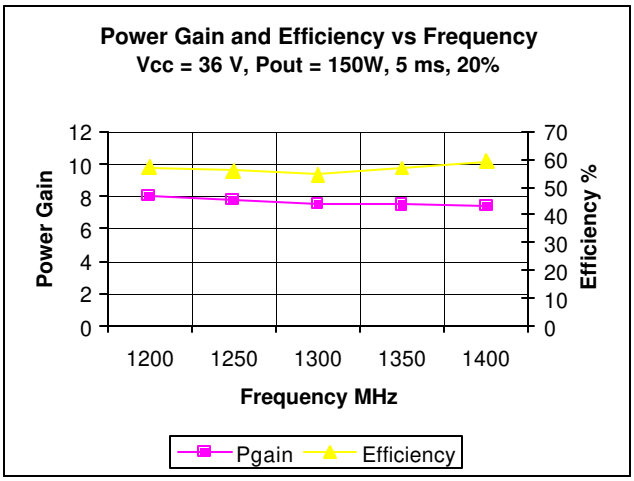
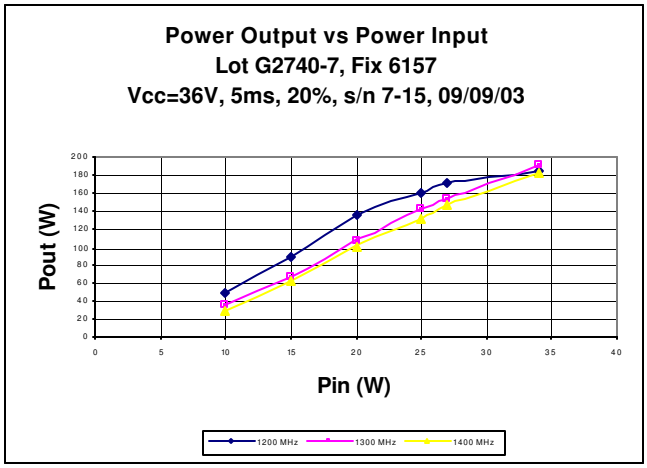
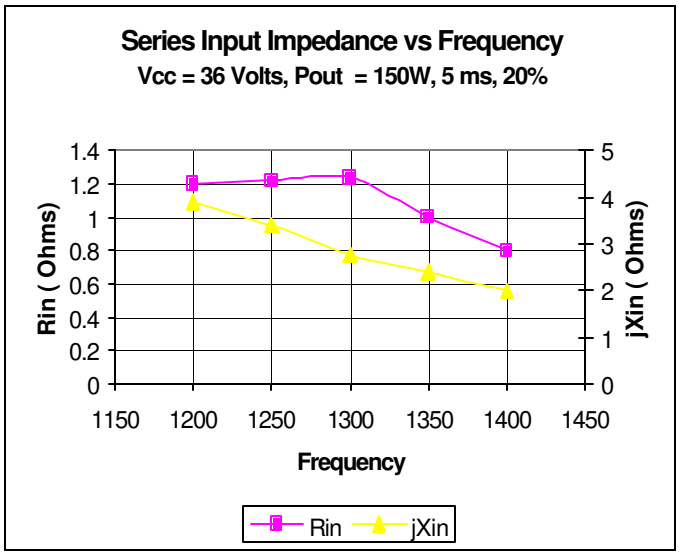
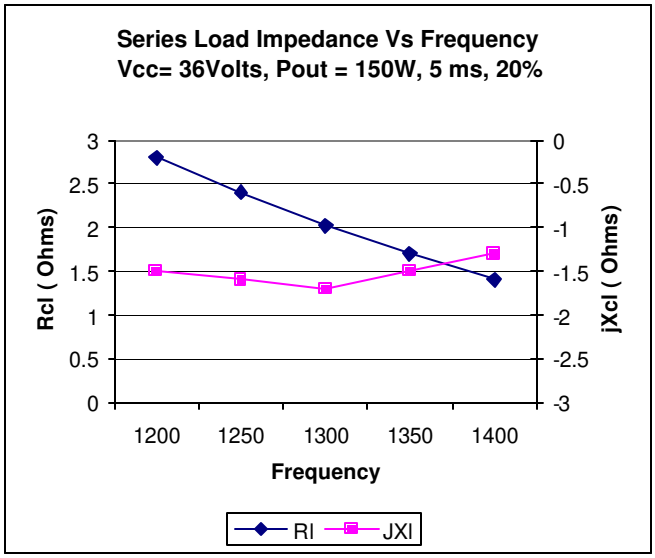
Performance Curves



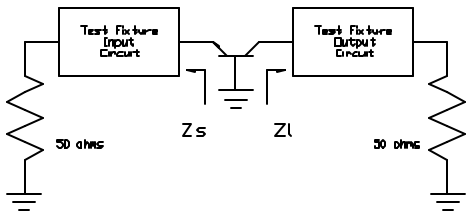


Typical Impedances





Impedance		
Freq	Zs	Zl
1200	3.9-j1.2	2.8-j1.5
1300	2.77-j1.24	2.02-j1.7
1400	2.0-j0.8	2.02-j1.7



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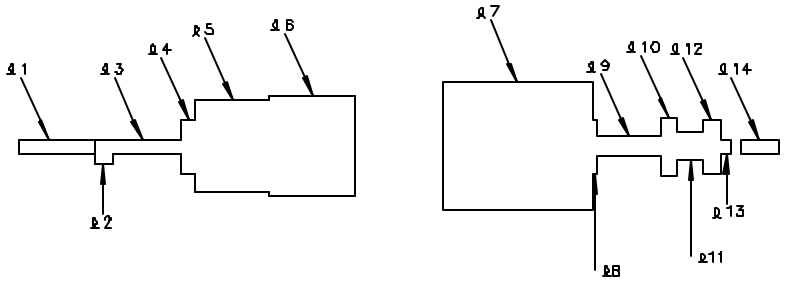
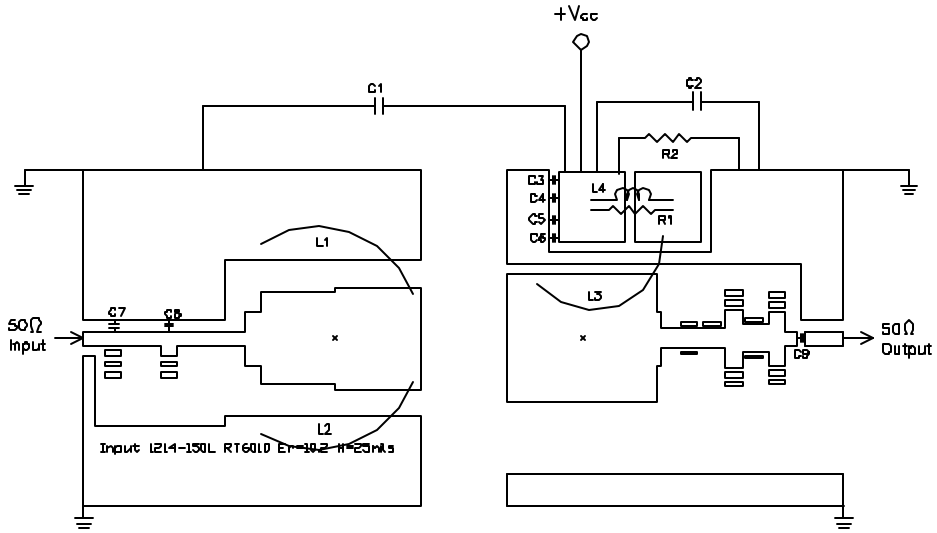
1214-150L

REVISIONS				
ZONE	REV	DESCRIPTION	DATE: 9/15/03	APPROVED

ℓ NO.	L	W
1	0.358	0.065
2	0.080	0.115
3	0.319	0.065
4	0.070	0.250
5	0.347	0.430
6	0.400	0.475
7	0.701	0.600
8	0.020	0.253
9	0.299	0.090
10	0.080	0.270
11	0.120	0.128
12	0.080	0.253
13	0.055	0.065
14	0.179	0.065

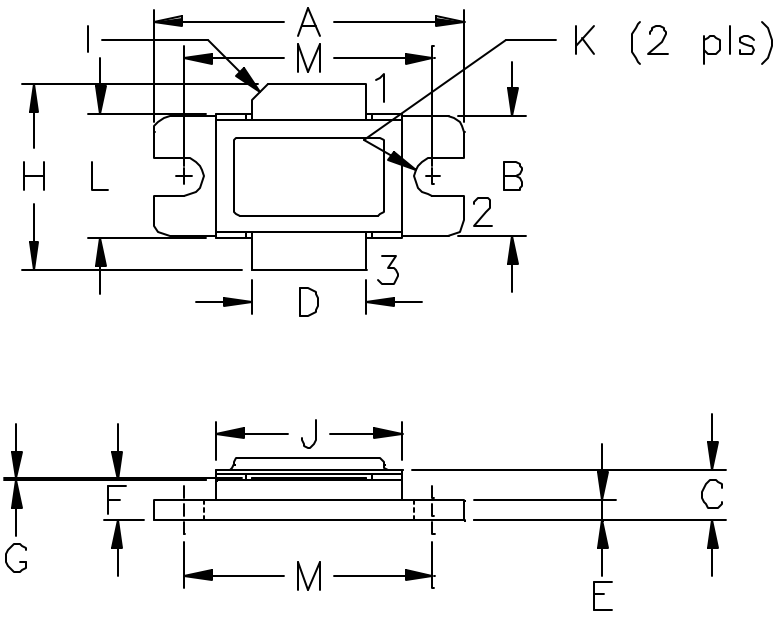




Item	Value	Type
C1	4000uF	Cap. electrolytic 63v. Sprague
C2	220uF	Cap. electrolytic 63v, Sprague
C3,C4	4.7uF	Cap. Tant 594D 50v Low ESR
C5,C6	22pf	Cap. Chip, ATC 100A
C7	0.6pf	Cap. Chip, ATC 100A
C8	1.3pf	Cap. Chip, ATC 100A
C9	36pf	Cap. Chip, ATC 100A
R1	20 Ω	Res. Carbon, 1/4 w, 5%
R2	18kΩ	Res. Carbon, 1/4 w, 5%
L1,L2,L3	1000 mil Length	Inductor, 18 AWG
L4	5 turns, I.D.=160 mil	Inductor, 18 AWG
Board: RT/duroid 6010		
Er=10.2, H=25mils		

	CAGE	DWG NO.	REV
CHz TECHNOLOGY	0PJR2	1214-150L	
		SCALE 1:1	SHEET

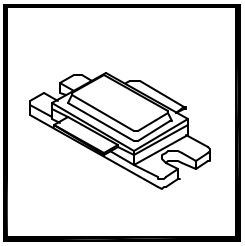
1214-150L



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

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