ADVANCED POWER TECHNOLOGY RF®

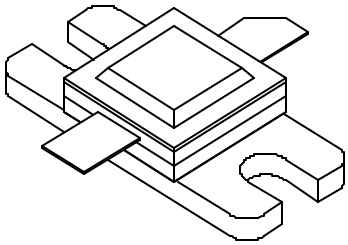
1214-32L

32 Watts, 36 Volts
Pulsed Radar at 1.2-1.4 GHz

GENERAL DESCRIPTION

The 1214-32L is an internally matched, COMMON BASE transistor capable of providing 32 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
55AW-1



ABSOLUTE MAXIMUM RATINGS

Maximum Power Dissipation

Device Dissipation @ 25°C[1]	125 W

Maximum Voltage and Current

Collector to Base Voltage (BV_{ces})	50 V
Emitter to Base Voltage (BV_{ebo})	3.5 V
Collector Current (I_c)	*5 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}[1]	Power Output	F = 1200-1400 MHz	32		41	W
P_g	Power Gain	Pin = 5.3 W	7.8		8.9	dB
η_c	Collector Efficiency	Pulse Width = 5 mS	42	45		%
R_L	Return Loss	Duty Factor = 20%	-9			dB
Pd	Pulse Droop				0.5	dB
VSWR[1]	Load Mismatch Tolerance[1]	F=1200 MHz, Pin=5.3 W			3.0:1	

FUNCTIONAL CHARACTERISTICS @ 25°C

BV_{ebo}	Emitter to Base Breakdown	Ie = 15 mA	3.5			V
BV_{ces}	Collector to Emitter Breakdown	Ic = 100 mA	50			V
h_{FE}	DC – Current Gain	Vce = 5V, Ic = 1A	20			
θjc[1]	Thermal Resistance				1.4	°C/W

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

Rel 5: March 2005

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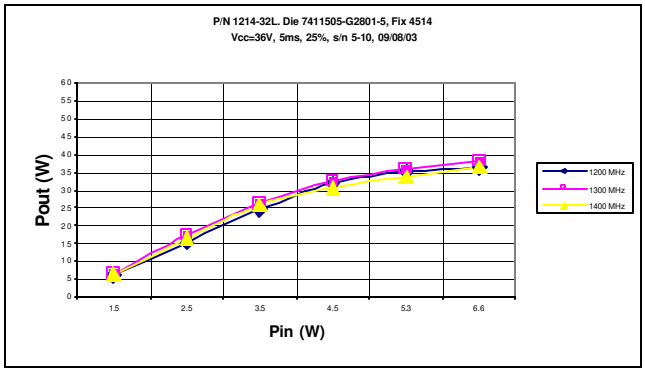
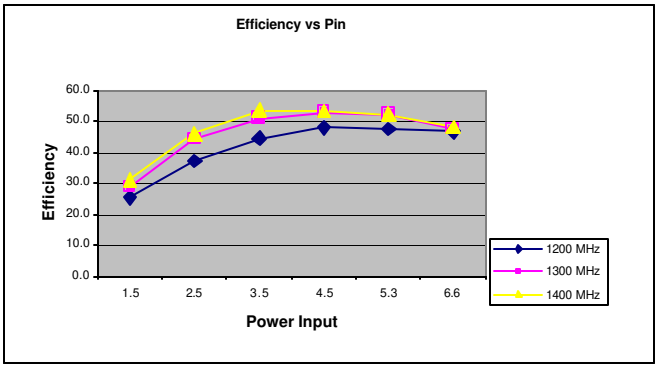
Performance Curves

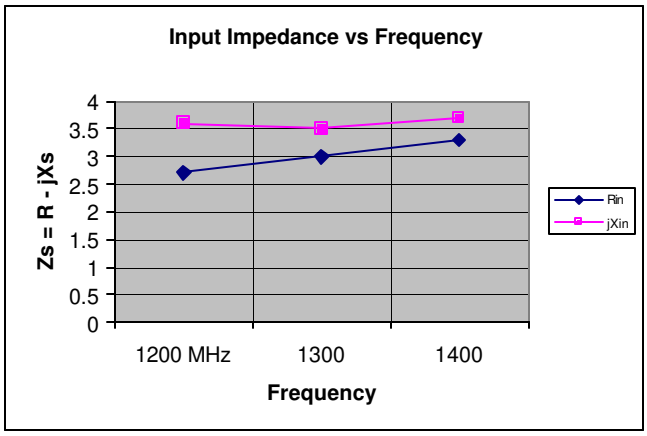
Power Output vs Power Input



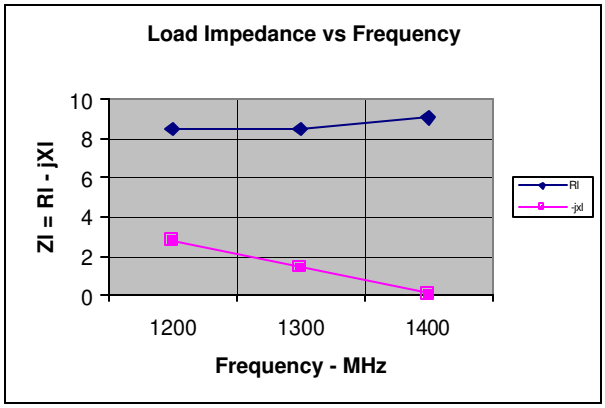
Efficiency vs Power Input



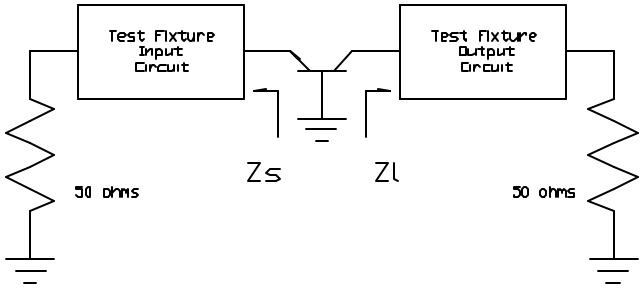
Input Impedance



Load Impedance



Impedance		
Freq	Zs	Zl
1200	2.7-j3.6	8.5-j2.8
1300	3-j3.5	8.5-j1.44
1400	3.3-j3.7	9.07-j0.08



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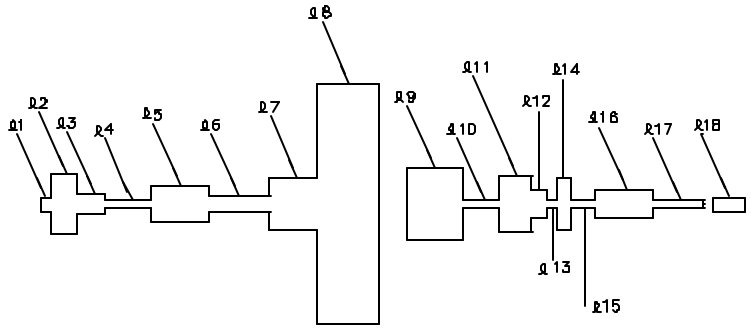
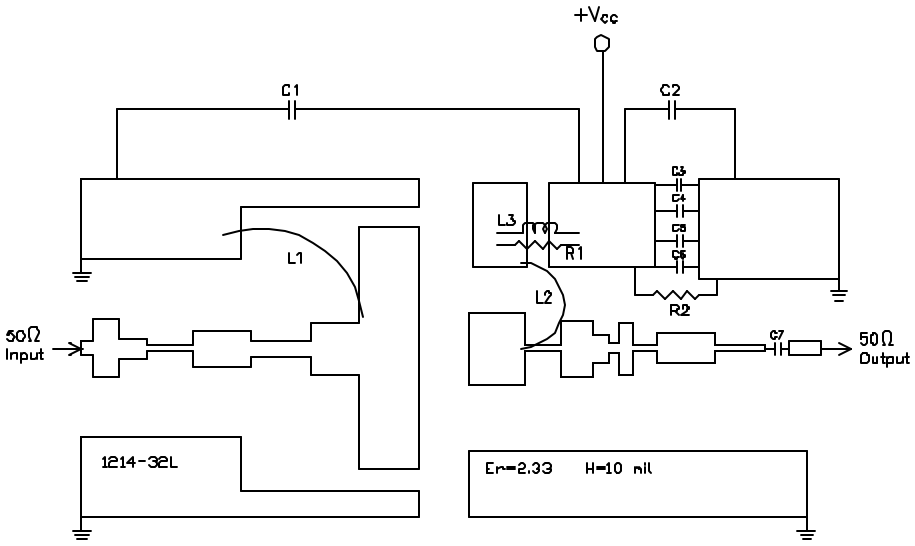
REVISIONS			
ZONE	REV	DESCRIPTION	DATE: 8/12/03 APPROVED

P NO.	L	W
1	0.050	0.066
2	0.123	0.274
3	0.126	0.094
4	0.215	0.030
5	0.270	0.166
6	0.285	0.072
7	0.220	0.244
8	0.285	1.125
9	0.262	0.334
10	0.166	0.030
11	0.154	0.260
12	0.066	0.129
13	0.053	0.044
14	0.059	0.244
15	0.118	0.030
16	0.272	0.135
17	0.235	0.030
18	0.150	0.066





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	100pF	Cap, Chip, ATC 100A
L1,L2	800 mil Length	Inductor, 18 AWG
L3	7 turns, I.D.=180 mil	Inductor, 18 AWG
R1	20Ω	Res. Carbon, 1/4 w, 5%
R2	18kΩ	Res. Carbon, 1/4 w, 5%

Board: RT/duroid 5870
Er=2.33, H=10mil

CAGE	DWG NO.	REV
0PJR2	1214-32L	
	SCALE 1:1	SHEET

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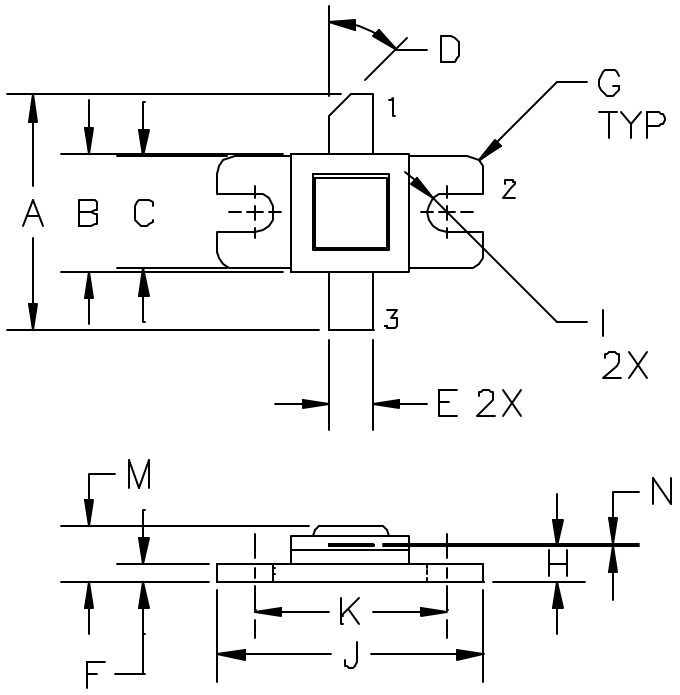
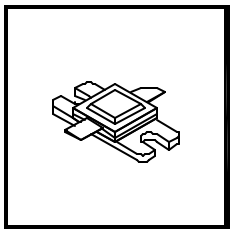
REVISIONS				
ZONE	REV	DESCRIPTION	DATE	APPROVED



DIM	MILLIMETER	±TOL	INCHES	±TOL
A	20.32	.76	.800	.050
B	10.16	.13	.400	.005
C	9.78	.13	.385	.005
D	45°	5°	45°	5°
E	3.81	.13	.150	.005
F	1.52	.13	.060	.005
G	1.52R	.13	.060R	.005
H	3.05	.13	.120	.005
I	3.30 DIA	.13	.130 DIA	.005
J	22.86	.13	.900	.005
K	16.51	.13	.650	.005
M	4.70	REF	.185	REF
N	0.13	.02	.005	.001

STYLE 1:
PIN1 = COLLECTOR
2 = BASE
3 = EMITTER

STYLE 2:
PIN1 = COLLECTOR
2 = EMITTER
3 = BASE



CAGE	DWG NO.		REV
0PJR2	55AW		A
	SCALE	2/1	SHEET

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