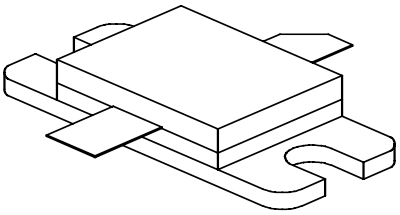
0910– 300M

300 Watts - 50 Volts, 150µs, 5%
Radar 890 - 1000 MHz

GENERAL DESCRIPTION

The 0910-300M is an internally matched, COMMON BASE transistor capable of providing 300 Watts of pulsed RF output power at 150 µs pulse width, , 5% duty factor across the band 900 to 1000 MHz. This hermetically solder-sealed transistor is specifically designed for P-Band radar applications. It utilizes gold metallization and diffused emitter ballasting to provide high reliability and supreme ruggedness.

CASE OUTLINE
55KT, STYLE 1



ABSOLUTE MAXIMUM RATINGS

Maximum Power Dissipation @ 25°C 600 Watts

Maximum Voltage and Current

BVces	Collector to Emitter Voltage	65 Volts
BVebo	Emitter to Base Voltage	3.5 Volts
Ic	Collector Current	20 Amps

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
Pout	Power Out	Freq = 890 – 1000 MHz	300		425	Watts
Pg	Power Gain	Vcc = 50 Volts	9.6			dB
ηc	Collector Efficiency	Pin = 33 Watts	40	45		%
Rl	Input Return loss	Pulse Width = 150µs	-9			dB
Droop	Load Mismatch Tolerance	Duty Factor = 5%			0.5	dB
VSWR[1]	Droop				3:1	
VSWRs	Load Mismatch - Stability				2:1	

Note 1: Pulse condition of 150µsec, 10%.

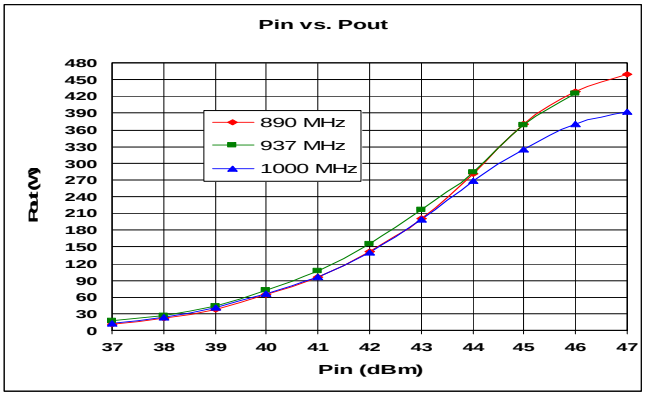
Bvces	Collector to Emitter Breakdown	Ic = 80 mA	65			Volts
Ices	Collector to Emitter Leakage	Vce = 50 Volts			15	mA
θjc[1]	Thermal Resistance	Rated Pulse Condition			0.29	°C/W

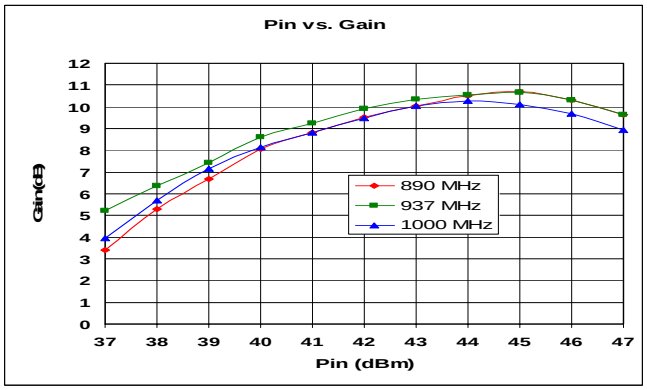
Issue Nov 2005

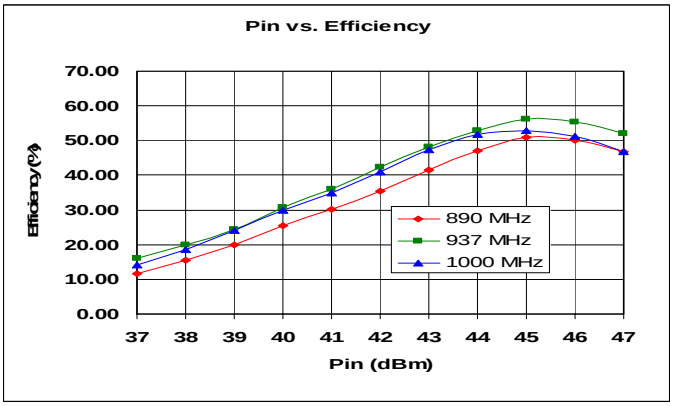
ADVANCED POWER TECHNOLOGY INC. RESERVES THE RIGHT TO MAKE CHANGES WITHOUT FURTHER NOTICE. TO VERIFY THE CURRENT VERSION PLEASE CHECK OUR WEB SITE AT WWW. ADVANCEDPOWER.COM OR CONTACT OUR FACTORY DIRECT.
Advanced Power Technology Inc. 3000 Oakmead Village Drive, Santa Clara, CA 95051-0808 Tel. 408 / 986-8031 Fax 408 /869-2324

0910– 300M

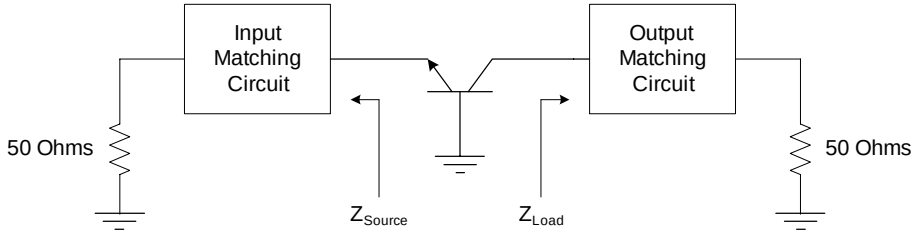
Performance Curves







Impedance Information



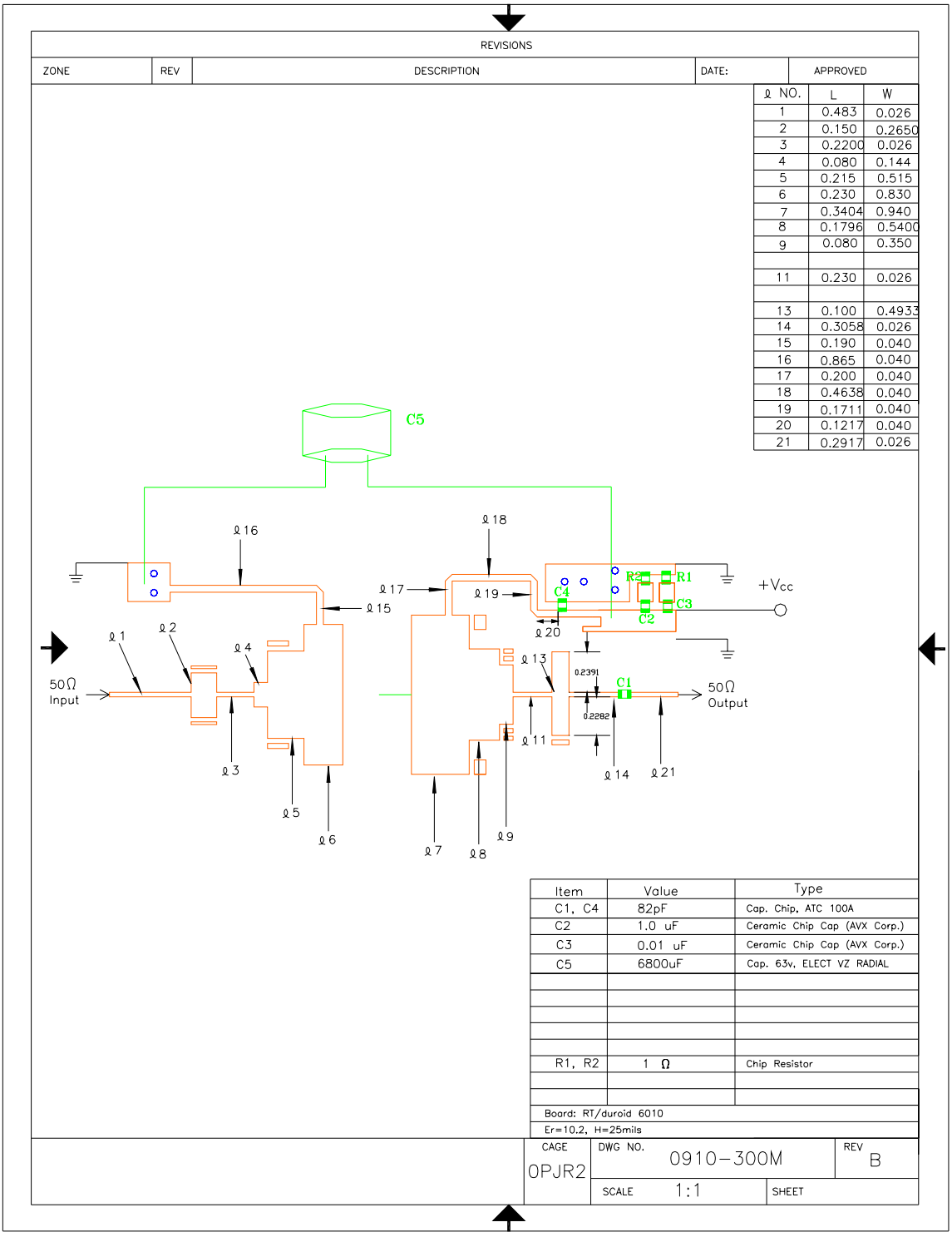
Frequencies (MHz)	$Z_{Source}(\Omega)$	$Z_{Load}(\Omega)$ [2]
890	1.828 – j3.921	1.636-j2.494
937	1.895 – j3.67	1.745 – j2.406
1000	2.015 – j3.408	1.911 – j2.387

Note 2: Z_{Load} exclusive of bias circuit

ADVANCED POWER TECHNOLOGY INC. RESERVES THE RIGHT TO MAKE CHANGES WITHOUT FURTHER NOTICE. TO VERIFY THE CURRENT VERSION PLEASE CHECK OUR WEB SITE AT WWW. ADVANCEDPOWER.COM OR CONTACT OUR FACTORY DIRECT.
Advanced Power Technology Inc. 3000 Oakmead Village Drive, Santa Clara, CA 95051-0808 Tel. 408 / 986-8031 Fax 408 /869-2324

0910– 300M

Test Circuit



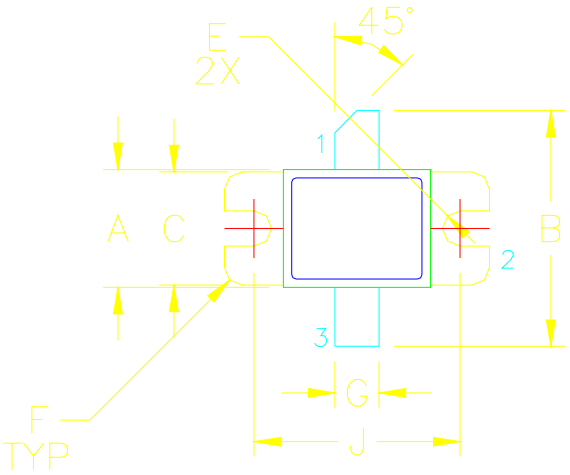
ℓ NO.	L	W
1	0.483	0.026
2	0.150	0.2650
3	0.2200	0.026
4	0.080	0.144
5	0.215	0.515
6	0.230	0.830
7	0.3404	0.940
8	0.1796	0.5400
9	0.080	0.350
11	0.230	0.026
13	0.100	0.4933
14	0.3058	0.026
15	0.190	0.040
16	0.865	0.040
17	0.200	0.040
18	0.4638	0.040
19	0.1711	0.040
20	0.1217	0.040
21	0.2917	0.026

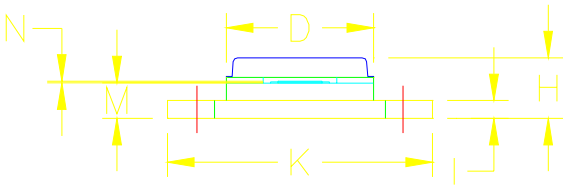
Item	Value	Type
C1, C4	82pF	Cap. Chip, ATC 100A
C2	1.0 uF	Ceramic Chip Cap (AVX Corp.)
C3	0.01 uF	Ceramic Chip Cap (AVX Corp.)
C5	6800uF	Cap. 63v, ELECT VZ RADIAL
R1, R2	1 Ω	Chip Resistor
Board: RT/duroid 6010		
Er=10.2, H=25mils		

ADVANCED POWER TECHNOLOGY INC. RESERVES THE RIGHT TO MAKE CHANGES WITHOUT FURTHER NOTICE. TO VERIFY THE CURRENT VERSION PLEASE CHECK OUR WEB SITE AT WWW. ADVANCEDPOWER.COM OR CONTACT OUR FACTORY DIRECT.
Advanced Power Technology Inc. 3000 Oakmead Village Drive, Santa Clara, CA 95051-0808 Tel. 408 / 986-8031 Fax 408 /869-2324

0910– 300M

REVISIONS				
ZONE	REV	DESCRIPTION	DATE	APPROVED

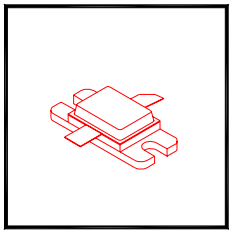




DIM	MILLIMETER	± TOL	INCHES	±TOL
A	10.16	.13	.400	.005
B	20.32	.76	.800	.030
C	9.78	.13	.385	.005
D	12.70	.13	.500	.005
E	1.52R	.13	.060R	.005
F	1.52R	.13	.060R	.005
G	3.81	.13	.150	.005
H	5.84	MAX	.230	MAX
I	1.52	.13	.060	.005
J	17.78	.13	.700	.005
K	22.86	.13	.900	.005
M	3.05	.13	.120	.010
N	0.08	+ .05 − .03	.003	+ .002 − .001

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

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



CAGE	DWG NO.	REV
0PJR2	55KT	E
	SCALE 2/1	SHEET

ADVANCED POWER TECHNOLOGY INC. RESERVES THE RIGHT TO MAKE CHANGES WITHOUT FURTHER NOTICE. TO VERIFY THE CURRENT VERSION PLEASE CHECK OUR WEB SITE AT WWW. ADVANCEDPOWER.COM OR CONTACT OUR FACTORY DIRECT.
Advanced Power Technology Inc. 3000 Oakmead Village Drive, Santa Clara, CA 95051-0808 Tel. 408 / 986-8031 Fax 408 /869-2324