GHz TECHNOLOGY
RF·MICROWAVE SILICON POWER TRANSISTORS

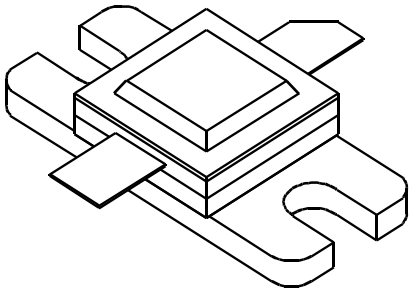
1214-30

30 Watts, 28 Volts, Pulsed
Radar 1200 - 1400 MHz

GENERAL DESCRIPTION

The 1214-30 is an internally matched, COMMON BASE transistor capable of providing 30 Watts of pulsed RF output power at two milliseconds pulse width, twenty percent duty factor across the band 1200 to 1400 MHz. This hermetically solder-sealed transistor is specifically designed for long pulse radar applications. It utilizes gold metalization and diffused emitter ballasting to provide high reliability and supreme ruggedness.

CASE OUTLINE
55AW, STYLE 1



ABSOLUTE MAXIMUM RATINGS

Maximum Power Dissipation @ 25°C		88 Watts
Maximum Voltage and Current		
BVces	Collector to Emitter Voltage	50 Volts
BVebo	Emitter to Base Voltage	3.5 Volts
Ic	Collector Current	4.0 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	F = 1200-1400 MHz	30			Watts
Pin	Power Input	Vcc = 28 Volts			6.0	Watts
Pg	Power Gain	Pulse Width = 2 ms	7.0			dB
η_c	Collector Efficiency	Duty = 20%		48		%
VSWR	Load Mismatch Tolerance	Rated Conditions			3:1	

BVces	Collector to Emitter Breakdown	Ic = 50 mA	50			Volts
BVebo	Emitter to Base Breakdown	Ie = 5 mA	3.5			Volts
Hfe	DC Current Gain	Vce=5 V, Ic =500mA	20			
Cob	Output Capacitance*	F=1 MHz, Vcb=28V				pF
θ_{jc}	Thermal Resistance	Rated Pulse Condition			2.0	°C/W

* Not measureable due to internal prematch network

IssueA July 1997

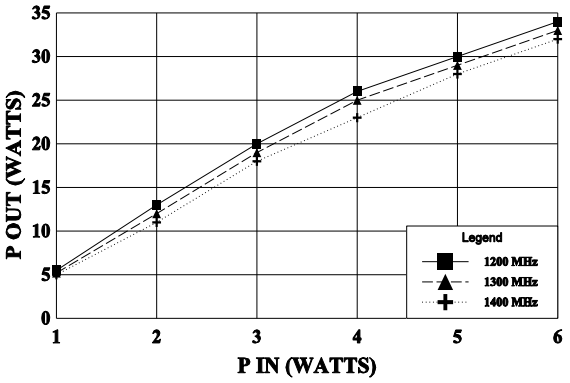
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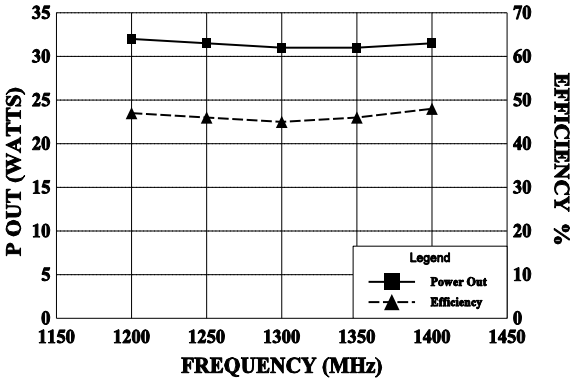
POWER OUTPUT vs POWER INPUT

Vcc = 28 V, PW = 2 ms, Duty = 20%



POWER OUPUT AND EFF. vs FREQUENCY

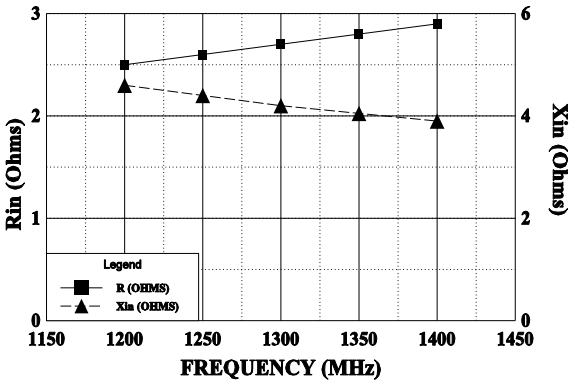
Vcc = 28 V, Pin = 6 W, 2 ms, 20%



Typical Impedances

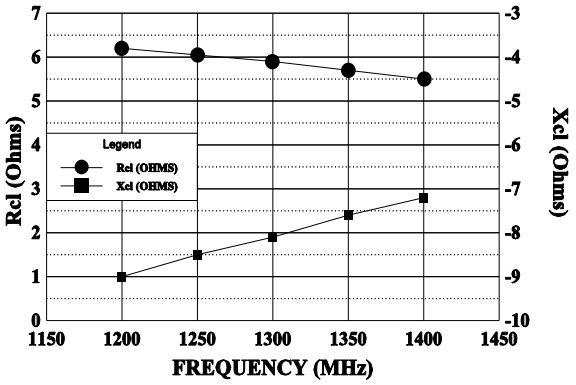
INPUT IMPEDANCE vs FREQUENCY

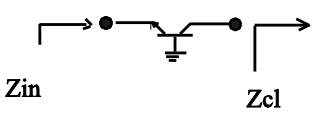
Zin = R + jX (Vcc = 28 V, Pin = 6 W)



LOAD IMPEDANCE vs FREQUENCY

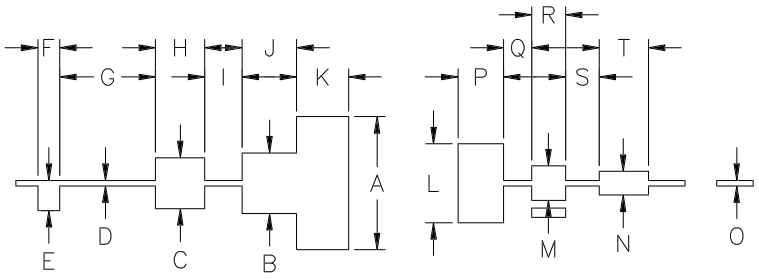
Zcl = Rcl - jXcl (Vcc = 28 V, Pin= 6 W)





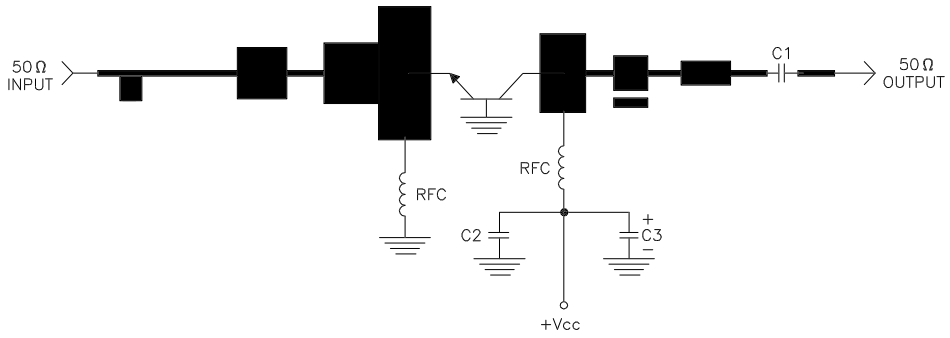
August 1996

REVISIONS				
ZONE	REV	DESCRIPTION	DATE	APPROVED



DIM	INCHES
A	.730
B	.332
C	.280
D	.030
E	.165
F	.120
G	.525
H	.270
I	.205
J	.300
K	.285
L	.433
M	.190
N	.130
O	.030
P	.250
Q	.155
R	.185
S	.185
T	.270

1214-30 TEST CIRCUIT



DIELECTRIC = 10 MIL THICK
DUROID, Er = 2.3
C1, C2 = 82pF CHIP ATC "A"
C3 = 100MFD @ 35V
RFC = 5 turns #22 wire 1/16" I.D.

	CAGE	DWG NO.	REV
GHz TECHNOLOGY	0PJR2	1214-30	A
		SCALE 1/1	SHEET