

Radar Pulsed Power Transistor, 30W, 1.0ms Pulse, 10% Duty 1.2 - 1.4 GHz

PH1214-30EL

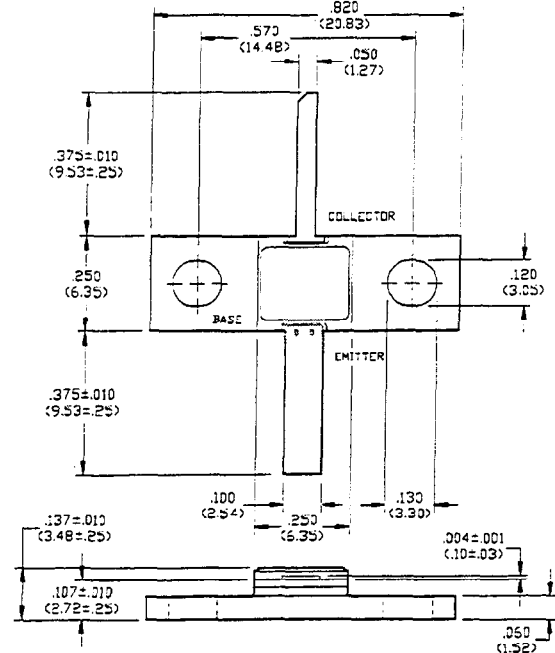
V2.00

Features

- NPN Silicon Microwave Power Transistor
- Common Base Configuration
- Broadband Class C Operation
- Matrix Geometry
- Diffused Emitter Ballasting Resistors
- Gold Metalization System
- Internal Input Impedance Matching
- Hermetic Metal/Ceramic Package

Absolute Maximum Ratings at 25°C

Parameter	Symbol	Rating	Units
Collector-Emitter Voltage	V_{CES}	56	V
Emitter-Base Voltage	V_{EBO}	3.0	V
Collector Current (Peak)	I_C	3.0	A
Total Power Dissipation	P_{TOT}	50	W
Junction Temperature	T_J	200	°C
Storage Temperature	T_{STG}	-65 to +200	°C



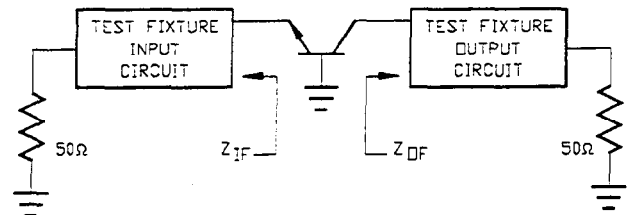
UNLESS OTHERWISE NOTED, TOLERANCES ARE INCHES ±.005" (MILLIMETERS ±.13MM)

Electrical Characteristics at 25°C

Parameter	Symbol	Min	Max	Units	Test Conditions
Collector-Emitter Breakdown Voltage	BV_{CES}	56	-	V	$I_C = 60 \text{ mA}$
Collector-Emitter Leakage Current	I_{CES}	-	3.0	mA	$V_{CE} = 28 \text{ V}$
Thermal Resistance	$R_{TH(JC)}$	-	1.5	°C/W	$V_{CC} = 28 \text{ V}$, $P_{OUT} = 30 \text{ W}$, $F = 1.20, 1.30, 1.40 \text{ GHz}$
Input Power	P_{IN}	-	4.9	W	$V_{CC} = 28 \text{ V}$, $P_{OUT} = 30 \text{ W}$, $F = 1.20, 1.30, 1.40 \text{ GHz}$
Power Gain	G_P	7.8	-	dB	$V_{CC} = 28 \text{ V}$, $P_{OUT} = 30 \text{ W}$, $F = 1.20, 1.30, 1.40 \text{ GHz}$
Collector Efficiency	η_C	50	-	%	$V_{CC} = 28 \text{ V}$, $P_{OUT} = 30 \text{ W}$, $F = 1.20, 1.30, 1.40 \text{ GHz}$
Input Return Loss	RL	10	-	dB	$V_{CC} = 28 \text{ V}$, $P_{OUT} = 30 \text{ W}$, $F = 1.20, 1.30, 1.40 \text{ GHz}$
Load Mismatch Tolerance	VSWR-T	-	3:1	-	$V_{CC} = 28 \text{ V}$, $P_{OUT} = 30 \text{ W}$, $F = 1.20, 1.30, 1.40 \text{ GHz}$
Load Mismatch Stability	VSWR-S	-	1.5:1	-	$V_{CC} = 28 \text{ V}$, $P_{OUT} = 30 \text{ W}$, $F = 1.20, 1.30, 1.40 \text{ GHz}$

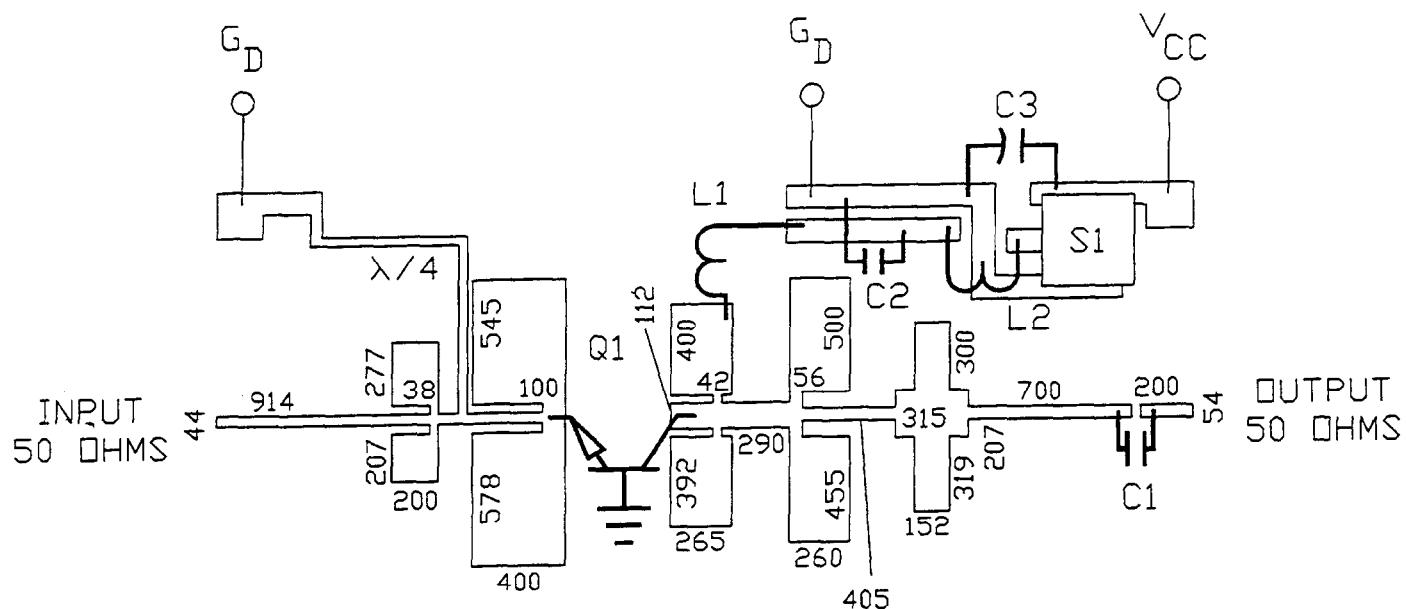
Broadband Test Fixture Impedances

F(GHz)	$Z_{IF}(\Omega)$	$Z_{OF}(\Omega)$
1.20	$2.5 - j3.5$	$10.5 + j2.0$
1.30	$2.7 - j2.7$	$6.3 + j2.0$
1.40	$3.5 - j3.5$	$5.3 + j1.5$



Specifications Subject to Change Without Notice.

RF Test Fixture



ARTWORK DIMENSIONS IN MILS

PARTS LIST

C1 C2	100 pF ATC SIZE A
C3	50 μ F 50 VOLTS
L1	4 TURNS OF NO. 18 AWG ON .15" ID
L2	NO. 18 AWG THRU FERRITE BEAD
S1	SPDT SWITCH
Q1	PH1214-30EL
BOARD TYPE:	ROGERS 5870 .015" THICK, $E_R = 2.35$

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