



Radar Pulsed Power Transistor, 100 Watts, 1.2 - 1.4 GHz, 2 ms Pulse, 20% Duty

8/21/02

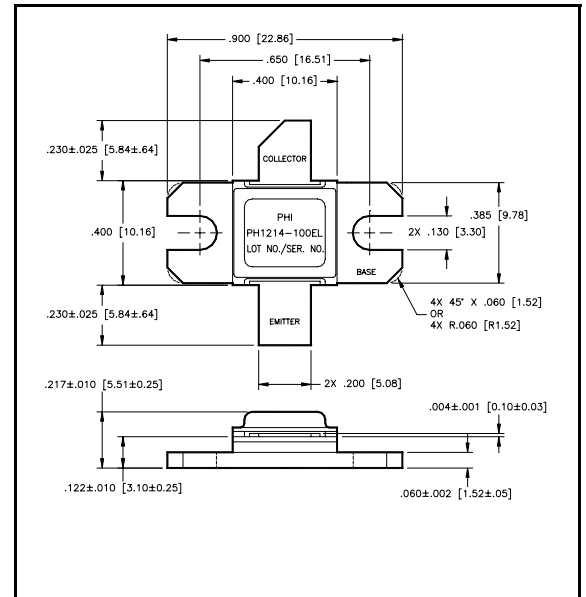
Rev. 3

PH1214-100EL

Features

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

Outline Drawing



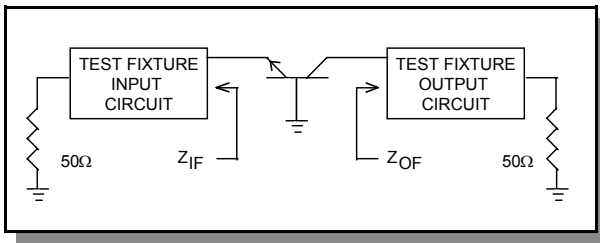
Absolute Maximum Ratings at 25 °C

Parameter	Symbol	Rating	Units
Collector-Emitter Voltage	V_{CES}	70	V
Emitter-Base Voltage	V_{EBO}	3.0	V
Collector Current (Peak)	I_C	14.1	A
Total Power Dissipation @ +45 °C	P_{TOT}	214	W
Storage Temperature	T_{STG}	-65 to +200	°C
Junction Temperature	T_j	200	°C

Electrical Characteristics at 25 °C

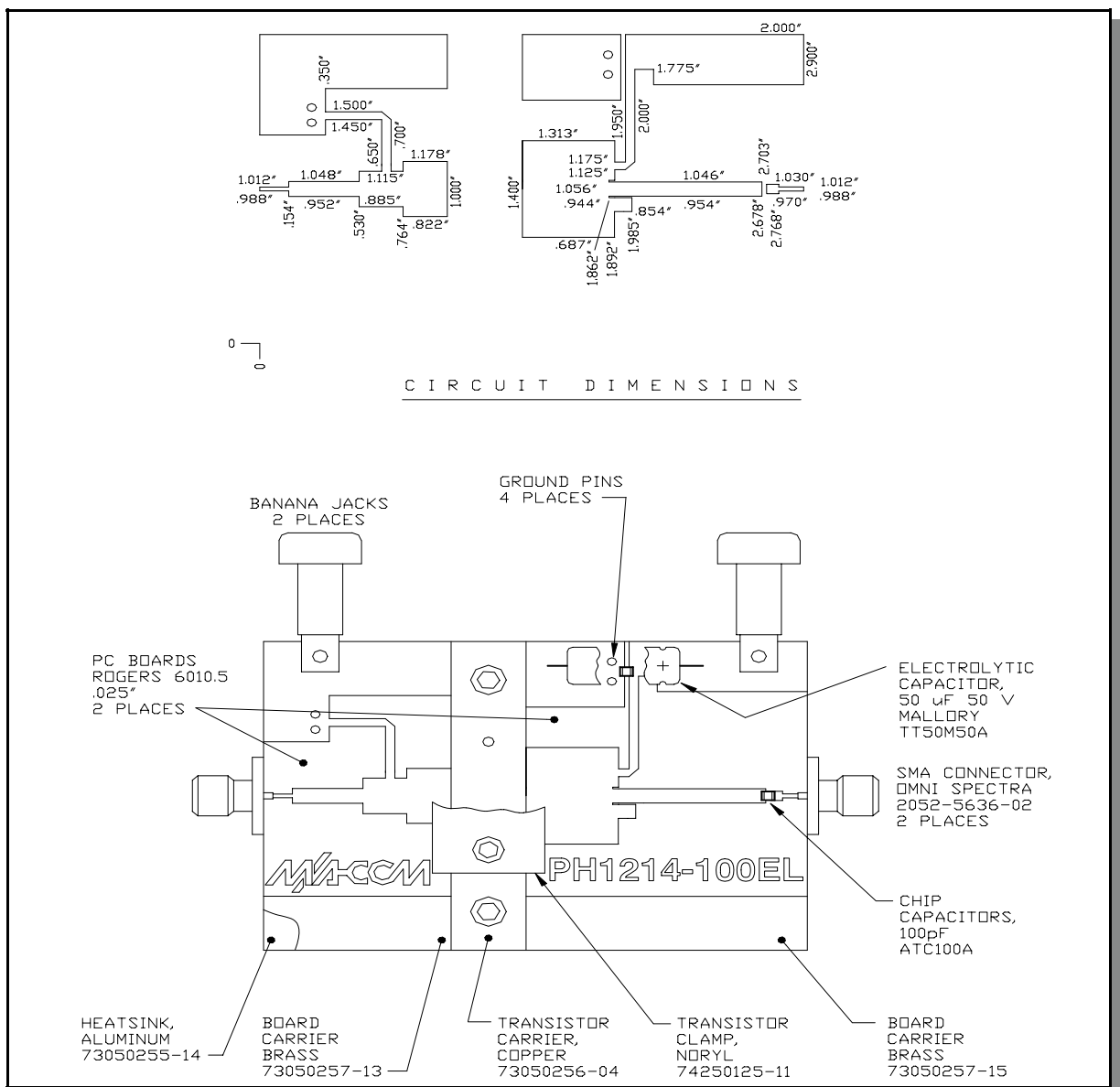
Parameter	Symbol	Min.	Max.	Units	Test Conditions
Collector-Emitter Breakdown	BV_{CES}	70	-	V	$I_C=50$ mA
Collector-Emitter Leakage	I_{CES}	-	10	mA	$V_{CE}=28$ V
Thermal Resistance	$R_{TH(JC)}$	-	0.7	°C/W	$V_{CC}=28$ V, $P_{IN} = 25$ W, Freq= 1.20, 1.30, 1.40 GHz
Output Power	P_O	100	-	W	$V_{CC}=28$ V, $P_{IN} = 25$ W, Freq= 1.20, 1.30, 1.40 GHz
Power Gain	G_P	6.0	-	dB	$V_{CC}=28$ V, $P_{IN} = 25$ W, Freq= 1.20, 1.30, 1.40 GHz
Collector Efficiency	η	52	-	%	$V_{CC}=28$ V, $P_{IN} = 25$ W, Freq= 1.20, 1.30, 1.40 GHz
Input Return Loss	RL	8	-	dB	$V_{CC}=28$ V, $P_{IN} = 25$ W, Freq= 1.20, 1.30, 1.40 GHz
Overdrive Stability	OD-S	-	+1.0	dB	$V_{CC}=28$ V, $P_{IN} = 25$ W, Freq= 1.20, 1.30, 1.40 GHz
Load Mismatch Tolerance	VSWR-T	-	3:1	-	$V_{CC}=28$ V, $P_{IN} = 25$ W, Freq= 1.20, 1.30, 1.40 GHz
Load Mismatch Stability	VSWR-S	-	1.5:1	-	$V_{CC}=28$ V, $P_{IN} = 25$ W, Freq= 1.20, 1.30, 1.40 GHz

Broadband Test Fixture Impedances



F (GHz)	Z _{IF} (Ω)	Z _{OF} (Ω)
1.20	2.6 -j3.8	3.0 -j2.7
1.30	3.0 -j3.4	2.4 -j2.6
1.40	3.4 -j3.1	1.9 -j2.5

Test Fixture Assembly



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