

Radar Pulsed Power Transistor, 20W, 100 μ s Pulse, 10% Duty

2.7 - 3.1 GHz

PH2731-20M

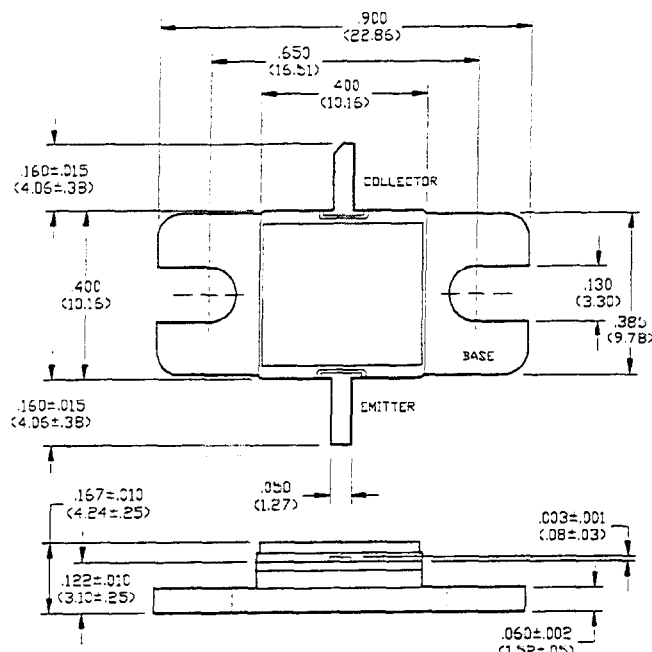
V2.00

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

Absolute Maximum Ratings at 25°C

Parameter	Symbol	Rating	Units
Collector-Emitter Voltage	V_{CES}	65	V
Emitter-Base Voltage	V_{EBO}	3.0	V
Collector Current (Peak)	I_C	1.85	A
Total Power Dissipation	P_{TOT}	70	W
Junction Temperature	T_J	200	°C
Storage Temperature	T_{STG}	-65 to +200	°C



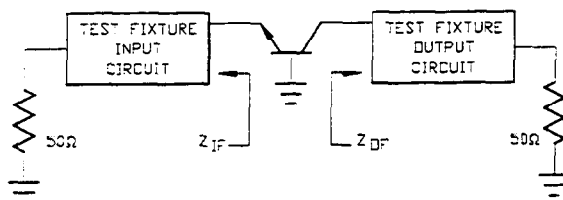
UNLESS OTHERWISE NOTED, TOLERANCES ARE INCHES $\pm .005$
(MILLIMETERS $\pm .13$ MM)

Electrical Characteristics at 25°C

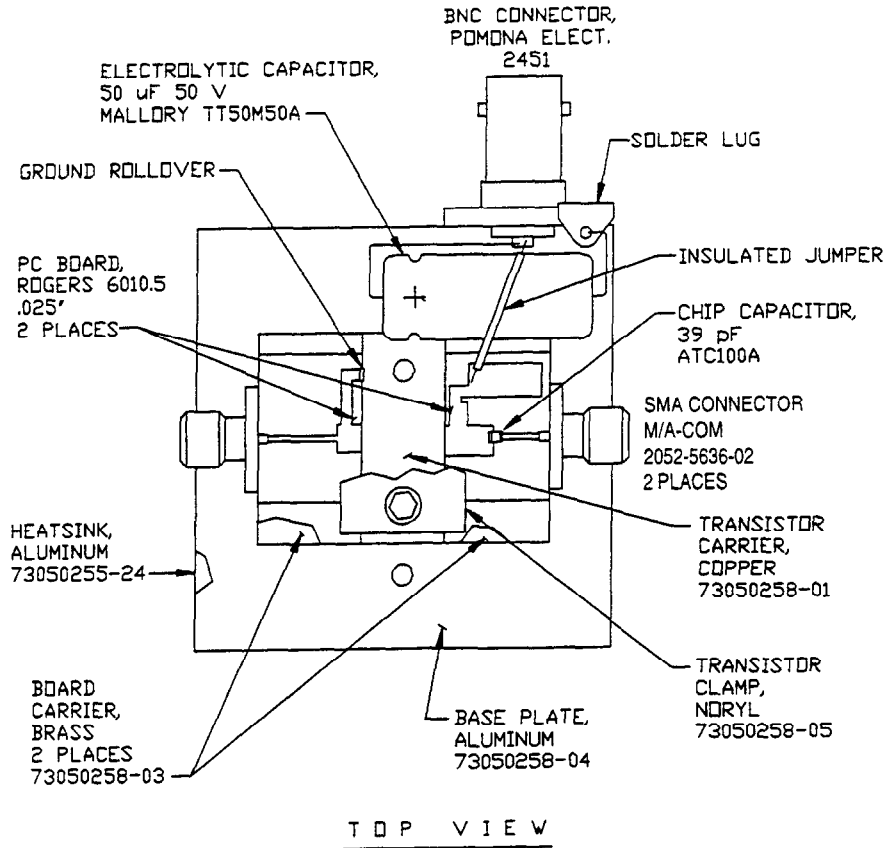
Parameter	Symbol	Min	Max	Units	Test Conditions
Collector-Emitter Breakdown Voltage	BV_{CES}	65	-	V	$I_C = 10$ mA
Collector-Emitter Leakage Current	I_{CES}	-	1.5	mA	$V_{CE} = 40$ V
Thermal Resistance	$R_{TH(JC)}$	-	2.5	°C/W	$V_{CC} = 36$ V, $P_{IN} = 3.0$ W, $F = 2.7, 2.9, 3.1$ GHz
Output Power	P_{OUT}	20	-	W	$V_{CC} = 36$ V, $P_{IN} = 3.0$ W, $F = 2.7, 2.9, 3.1$ GHz
Power Gain	G_P	8.2	-	dB	$V_{CC} = 36$ V, $P_{IN} = 3.0$ W, $F = 2.7, 2.9, 3.1$ GHz
Collector Efficiency	η_C	45	-	%	$V_{CC} = 36$ V, $P_{IN} = 3.0$ W, $F = 2.7, 2.9, 3.1$ GHz
Input Return Loss	RL	6	-	dB	$V_{CC} = 36$ V, $P_{IN} = 3.0$ W, $F = 2.7, 2.9, 3.1$ GHz
Load Mismatch Tolerance	VSWR-T	-	3:1	-	$V_{CC} = 36$ V, $P_{IN} = 3.0$ W, $F = 2.7, 2.9, 3.1$ GHz
Load Mismatch Stability	VSWR-S	-	1.5:1	-	$V_{CC} = 36$ V, $P_{IN} = 3.0$ W, $F = 2.7, 2.9, 3.1$ GHz

Broadband Test Fixture Impedances

F(GHz)	$Z_{IF}(\Omega)$	$Z_{OF}(\Omega)$
2.70	38 - j14.4	17.1 - j8.7
2.90	33 - j17.8	13.3 - j8.3
3.10	27 - j19.4	10.9 - j7.4



RF Test Fixture



Test Fixture PC Board Dimensions

