

Radar Pulsed Power Transistor, 75W, 300 μ s Pulse, 10% Duty 2.7 - 3.1 GHz

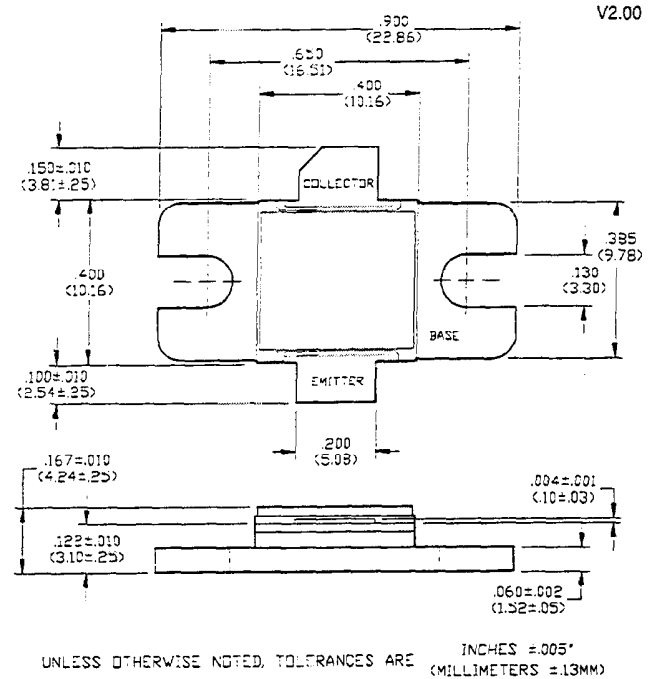
PH2731-75L

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	7.0	A
Total Power Dissipation	P_{TOT}	190	W
Junction Temperature	T_J	200	°C
Storage Temperature	T_{STG}	-65 to +200	°C

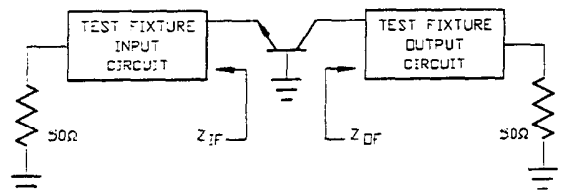


Electrical Characteristics at 25°C

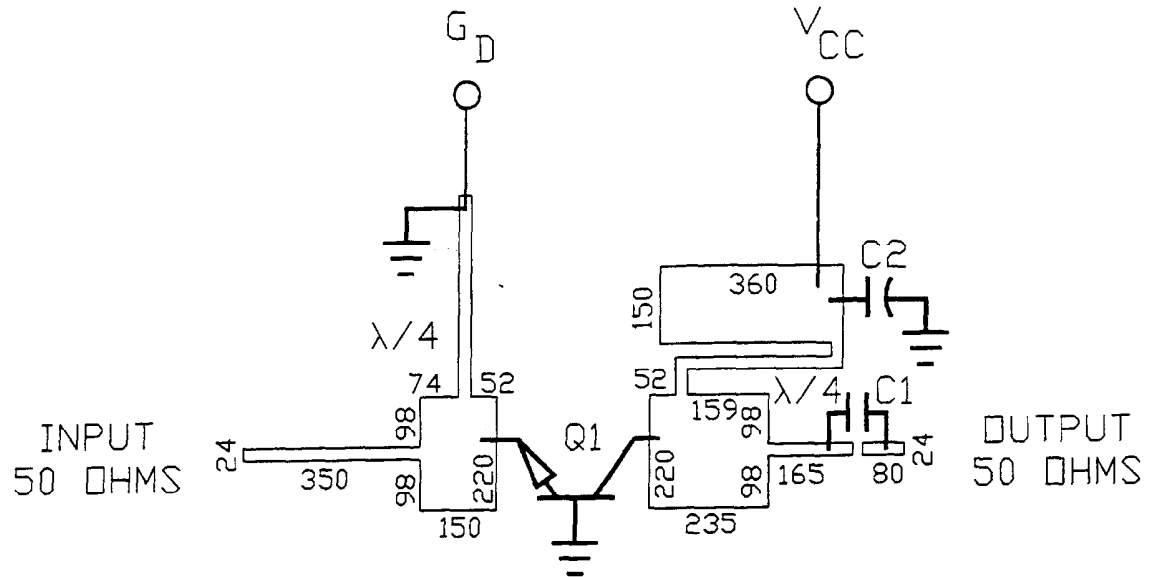
Parameter	Symbol	Min	Max	Units	Test Conditions
Collector-Emitter Breakdown Voltage	BV_{CES}	65	-	V	$I_C=50$ mA
Collector-Emitter Leakage Current	I_{CES}	-	7.5	mA	$V_{CE}=36$ V
Thermal Resistance	$R_{TH(JC)}$	-	0.80	°C/W	$V_{CC}=36$ V, $P_{OUT}=75$ W, $F=2.7, 2.9, 3.1$ GHz
Output Power	P_{OUT}	75	-	W	$V_{CC}=36$ V, $P_{OUT}=75$ W, $F=2.7, 2.9, 3.1$ GHz
Input Return Loss	RL	-	-6	dB	$V_{CC}=36$ V, $P_{OUT}=75$ W, $F=2.7, 2.9, 3.1$ GHz
Power Gain	G_p	7.0	-	dB	$V_{CC}=36$ V, $P_{OUT}=75$ W, $F=2.7, 2.9, 3.1$ GHz
Collector Efficiency	η_c	38	-	%	$V_{CC}=36$ V, $P_{OUT}=75$ W, $F=2.7, 2.9, 3.1$ GHz
Load Mismatch Tolerance	VSWR-T	-	3:1	-	$V_{CC}=36$ V, $P_{OUT}=75$ W, $F=2.7, 2.9, 3.1$ GHz
Load Mismatch Stability	VSWR-S	-	1.5:1	-	$V_{CC}=36$ V, $P_{OUT}=75$ W, $F=2.7, 2.9, 3.1$ GHz

Broadband Test Fixture Impedances

F(GHz)	$Z_{IF}(\Omega)$	$Z_{OF}(\Omega)$
2.70	6.9 - j12.2	4.5 - j6.8
2.90	6.0 - j11.7	3.9 - j6.1
3.10	5.2 - j10.0	3.4 - j4.8



RF Test Fixture



ARTWORK DIMENSIONS IN MILS

PARTS LIST

- C1 36 pF ATC SIZE A
- C2 50 μF 50 VOLTS
- Q1 PH2731-75L
- BOARD TYPE: ROGERS 6010.5 .025" THICK, $E_R = 10.5$