



Radar Pulsed Power Transistor

PH0404-100EL

100 Watts, 0.420-0.450 GHz, 20 ms Pulse, 20% Duty

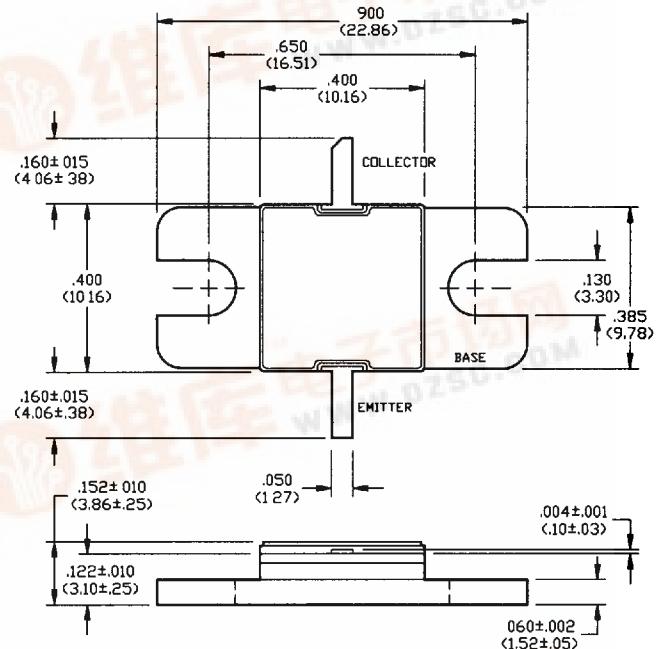
Features

- NPN Silicon Microwave Power Transistor
- Common Base Configuration
- Broadband Class C Operation
- Reliable Fishbone Geometry
- Diffused Emitter Ballasting Resistors
- Gold Metallization 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}	3.5	V
Collector Current (Peak)	I_C	5.8	A
Power Dissipation at 25°C	P_D	165	W
Junction Temperature	T_J	200	°C
Storage Temperature	T_{STG}	-65 to +200	°C

Outline Drawing



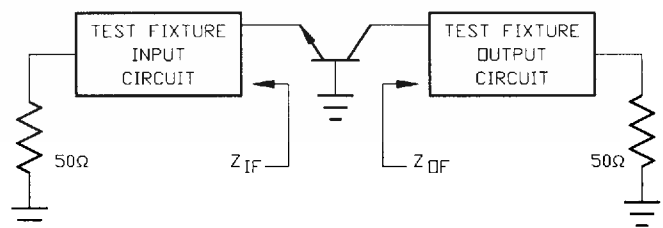
UNLESS OTHERWISE NOTED, TOLERANCES ARE INCHES ±.005* (MILLIMETERS ±.13MM)

Electrical Characteristics at 25°C

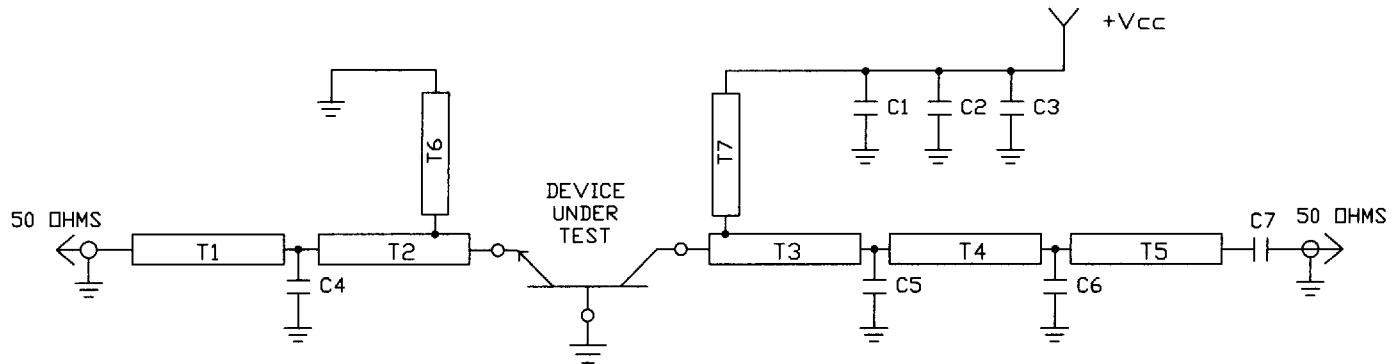
Parameter	Symbol	Min	Max	Units	Test Conditions
Collector-Emitter Breakdown Voltage	BV_{CES}	65	-	V	$I_C=20$ mA
Collector-Emitter Leakage Current	I_{CES}	-	4.0	mA	$V_{CE}=31.5$ V
Thermal Resistance	$R_{TH(JC)}$	-	0.9	°C/W	$V_{CC}=31.5$ V, $P_{OUT}=100$ W, $F=0.420, 0.450$ GHz
Input Power	P_{IN}	-	18	W	$V_{CC}=31.5$ V, $P_{OUT}=100$ W, $F=0.420, 0.450$ GHz
Power Gain	G_P	7.5	-	dB	$V_{CC}=31.5$ V, $P_{OUT}=100$ W, $F=0.420, 0.450$ GHz
Collector Efficiency	η_C	55	-	%	$V_{CC}=31.5$ V, $P_{OUT}=100$ W, $F=0.420, 0.450$ GHz
Input Return Loss	RL	10	-	dB	$V_{CC}=31.5$ V, $P_{OUT}=100$ W, $F=0.420, 0.450$ GHz
Load Mismatch Tolerance	VSWR-T	-	3:1	-	$V_{CC}=31.5$ V, $P_{OUT}=100$ W, $F=0.420, 0.450$ GHz
Load Mismatch Stability	VSWR-S	-	1.5:1	-	$V_{CC}=31.5$ V, $P_{OUT}=100$ W, $F=0.420, 0.450$ GHz

Broadband Test Fixture Impedances

F(GHz)	$Z_{IF}(\Omega)$	$Z_{OF}(\Omega)$
0.42	$5.6 - j4.5$	$5.5 - j2.3$
0.45	$4.8 - j2.7$	$4.9 - j0.1$



Broadband Test Fixture Electrical Schematic

COMPONENT LIST

T1,T2,T3,T4,T5: PRINTED LINE FOR FIXED BROADBAND MATCHING
 T6,T7: PRINTED 1/4 WAVE STUB FOR BIAS
 C1,C2,C3,C7: BYPASS CAPACITORS
 C4,C5,C6: MATCHING CAPACITORS