R.A.P.990305-BEHRE

GHz TECHNOLOGY
RF·MICROWAVE SILICON POWER TRANSISTORS

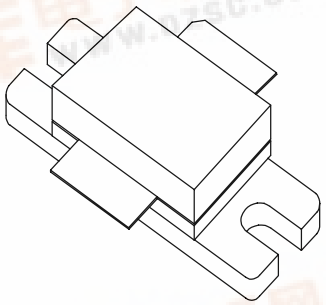
ITC1000

1000 WATT, 50V, Pulsed Avionics 1030 MHz

GENERAL DESCRIPTION

The **ITC1000** is a common base bipolar transistor. It is designed for pulsed interrogator systems in the frequency band of 1030 MHz. The device has gold thin-film metallization for proven high MTTF. The transistor includes input returns for improved output rise time . Low thermal resistance package reduces junction temperature which extends the life time of the product.

CASE OUTLINE
55SW, Style 1
Common Base



ABSOLUTE MAXIMUM RATINGS

Power Dissipation

Device Dissipation[1] @25°C (P_d)	3400 W
Thermal Resistance[1] (θ_{JC})	.08°C/W

Voltage and Current

Collector-Base Voltage	65V
Emitter-Base Voltage	3.5V
Collector Current[1]	80A

Temperatures

Storage Temperature	-40 to +150°C
Operating Junction Temperature[1]	+200°C

ELECTRICAL CHARACTERISTICS @ 25°C

SYMBOL	CHARACTERISTICS	TEST CONDITIONS	MIN	TYP	MAX	UNITS
BV_{ebo}[2]	Emitter-Base Breakdown(open)	Ie=50mA	3.5			V
BV_{ces}	Collector-Emitter Breakdown(shorted)	Ic=30mA	65			V
BV_{ceo}[2]	Collector-Emitter Breakdown (open)	Ic=30mA	30			V
h_{FE}[2]	DC Current Gain	Ic=5A, Vce=5V	20	45	80	β

FUNCTIONAL CHARACTERISTICS @ 25°C

G_{PB}	Common Base Power Gain	V_{cc} = 50V, F = 1030MHz, P_{out}=1000W, PW=1μS, DF=1%	8.0	8.5		dB
η_c	Collector Efficiency	V_{cc} = 50V, F = 1030MHz, P_{out}=1000W, PW=1μS, DF=1%	35	45		%
t_r	Rise Time	V_{cc} = 50V, F = 1030MHz, P_{out}=1000W, PW=1μS, DF=1%		50	80	nS
VSWR	Output Load Mismatch	V_{cc} = 50V, F = 1030MHz, P_{out}=1000W, PW=1μS, DF=1%			4:1	Ψ
Z_{in}	Series Input Impedance (Circuit source impedance @ test cond.)	V_{cc} = 50V, F = 1030MHz, P_{out}=1000W, PW=1μS, DF=1%	1.0-j2.0			Ω
Z_{out}	Series Output Impedance (Circuit load impedance @ test cond.)	V_{cc} = 50V, F = 1030MHz, P_{out}=1000W, PW=1μS, DF=1%	0.6-j2.1			Ω

[1] At rated output power and pulse conditions
[2] Contains input returns and cannot be measured
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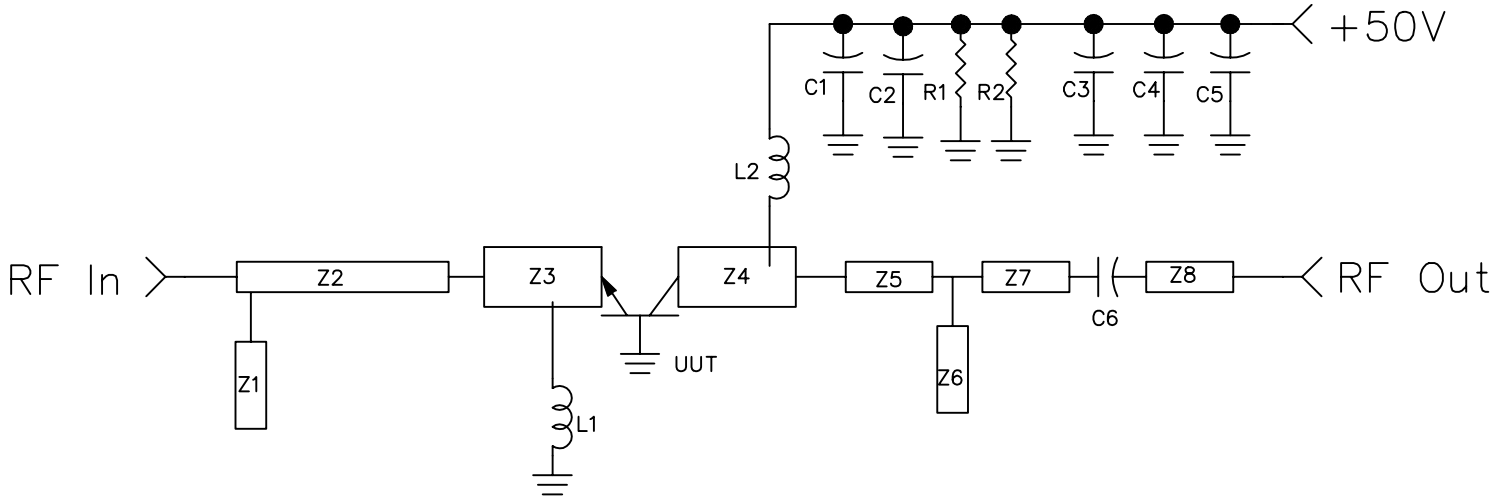
Test Fixture Schematic For The ITC1000



Z1– Z8 See PCB Autocad Drawing ITC1000pcb_rev4.dwg

L1 1/2 Turn 18 Awg, .335 ID, 1.4" long
L1 0.100" x 0.150" x 0 .005" copper strip
C1 30pF ATC 100B
C2 62pF ATC 100B
C3 1000 uF, 63V
C4 470 uF, 63V
C5 330 uF, 63V
C6 56 pF, ATC100B
R1, R2 10K, 1/4W, 1206

MECHANICAL DWG OF FIXTURE LAYOUT AVAILABLE UPON REQUEST

CHz TECHNOLOGY

CAGE OPJR2

DWG NO. ITC1000 Test Fixture Schematic

SCALE n/a

SHEET

REV –

ZONE | REV | DESCRIPTION | DATE | APPROVED

REVISIONS