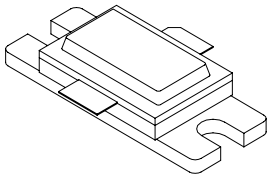
10502

500 Watts, 50 Volts, Pulsed Avionics 1030 / 1090 MHz

GENERAL DESCRIPTION

The 10502 is a high power COMMON BASE bipolar transistor. It is designed for pulsed systems in the frequency band 1030/1090 MHz, with the pulse width and duty required for MODE-S &TCAS applications. The device has gold thin-film metallization and diffused ballasting for proven highest MTTF. The transistor includes input and output prematch for broadband capability. Low thermal resistance package reduces junction temperature, extends life.

CASE OUTLINE
55SM
Common Base



ABSOLUTE MAXIMUM RATINGS

Maximum Power Dissipation

Device Dissipation @ 25°C[1]	1458 Watts

Maximum Voltage and Current

BVces	Collector to Emitter Voltage	65 Volts
BVebo	Emitter to Base Voltage	3.5 Volts
Ic	Collector Current	40 Amps

Maximum Temperatures

Storage Temperature	- 65 to + 200°C
Operating Junction Temperature	+ 230°C

ELECTRICAL CHARACTERISTICS @ 25 °C

SYMBOL	CHARACTERISTICS	TEST CONDITIONS	MIN	TYP	MAX	UNITS
P_{OUT}	Output Power	F = 1030/1090 MHz	500			W
P_{IN}	Input Power	V_{CC} = 50 Volts			70	W
P_G	Power Gain	PW = 32 μsec, DF = 2%	8.5			dB
η_c	Collector Efficiency		40			%
RL	Return Loss		10			dB
VSWR	Load Mismatch Tolerance[1]	F = 1090 MHz	10:1			

BV_{EBO}	Emitter to Base Breakdown	Ie = 15 mA	3.5			Volts
BV_{CES}	Collector to Emitter Breakdown	Ic = 60 mA	65			Volts
I_{CBO}	Collector to Base Leakage	V_{CB} = 36V			25	mA
h_{FE}	DC - Current Gain	Ic = 5 A, Vce = 5 V	20			
θjc[1]	Thermal Resistance				0.12	°C/W

Note 1: At rated output power and pulse conditions

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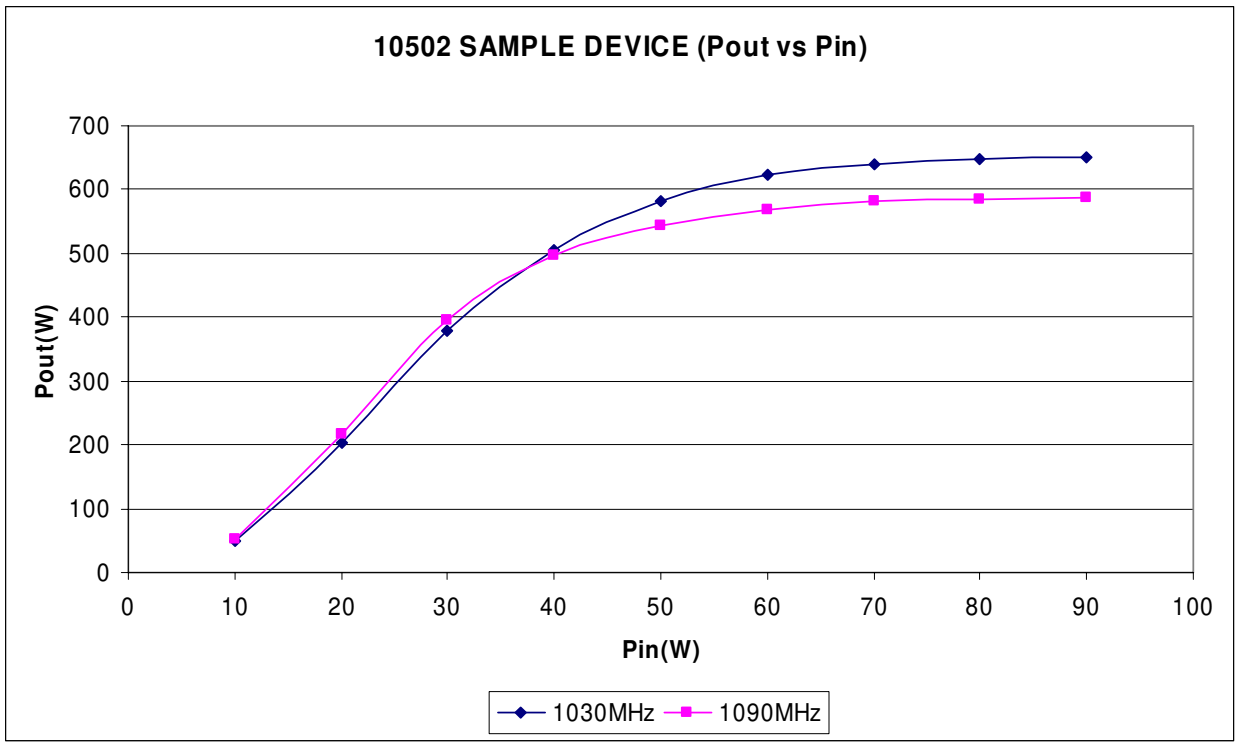
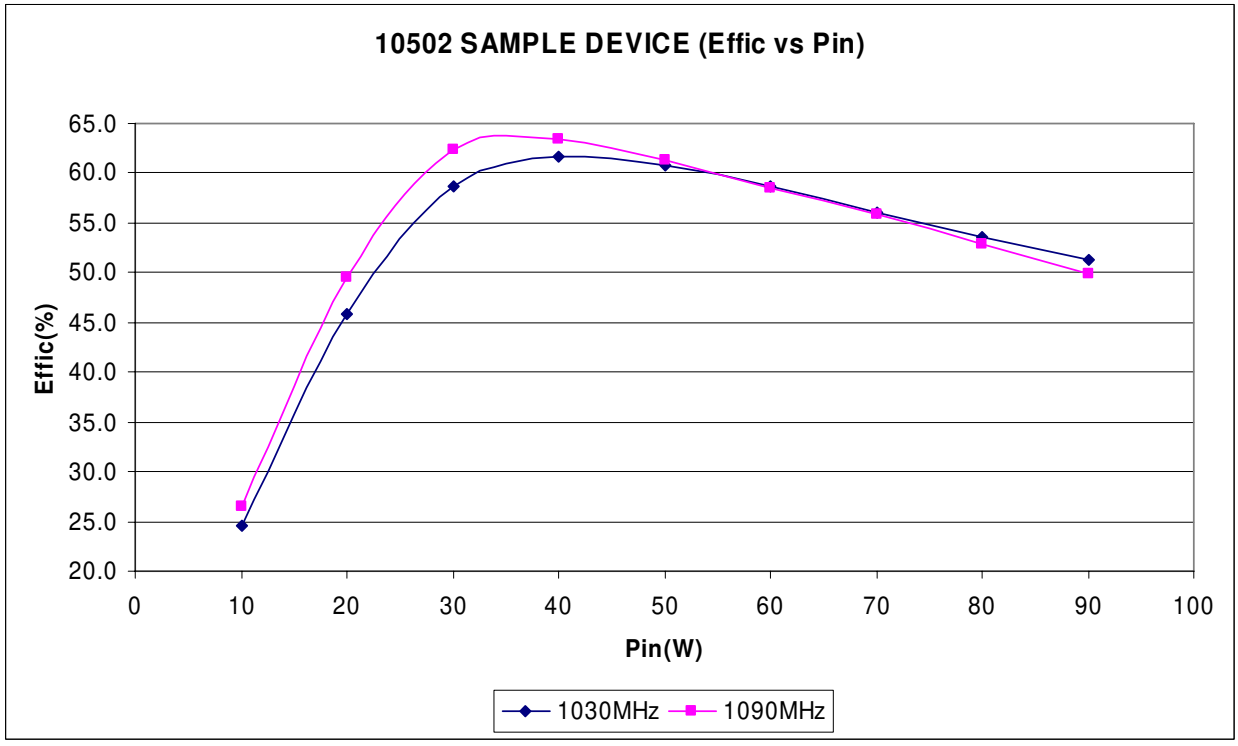
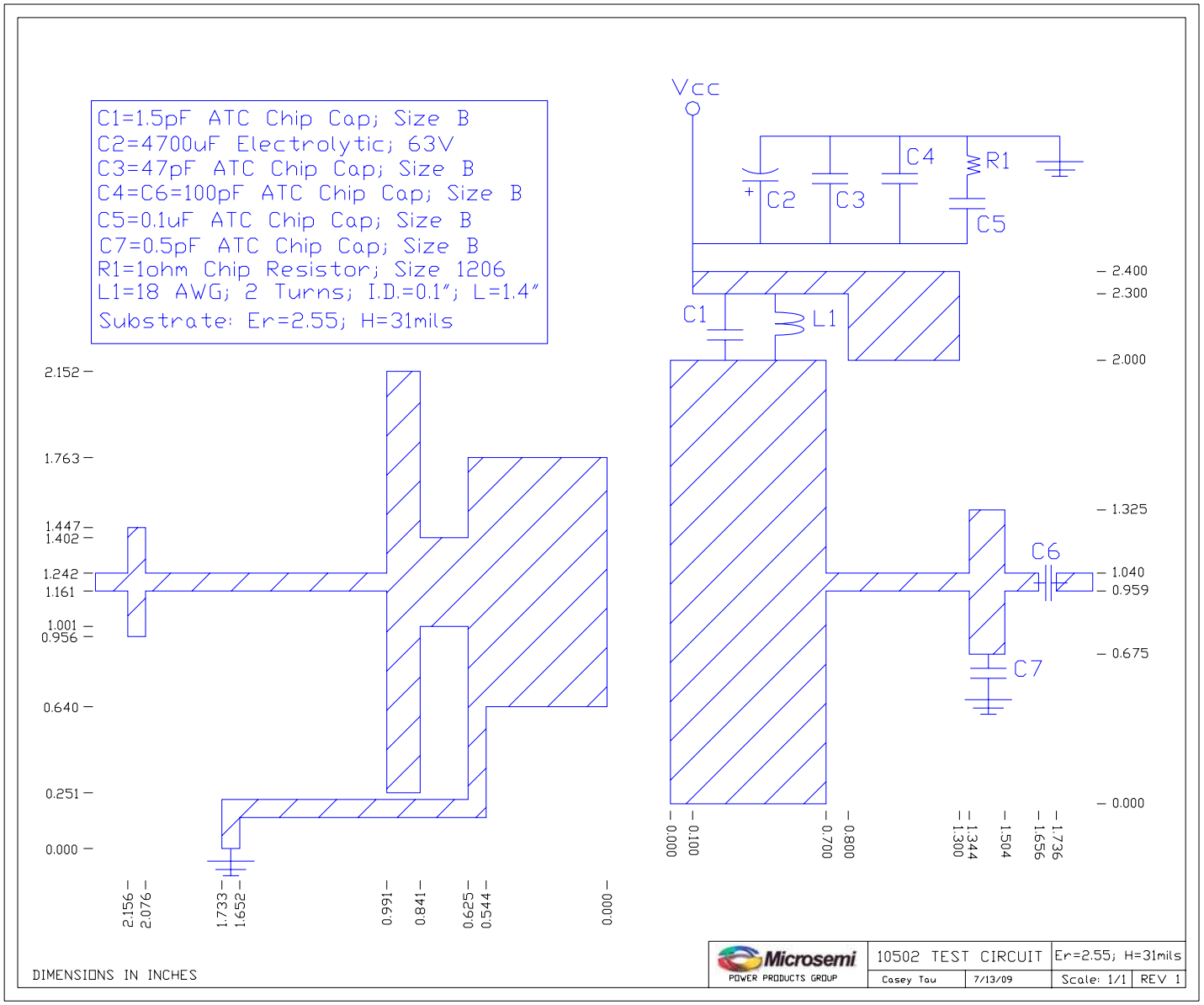
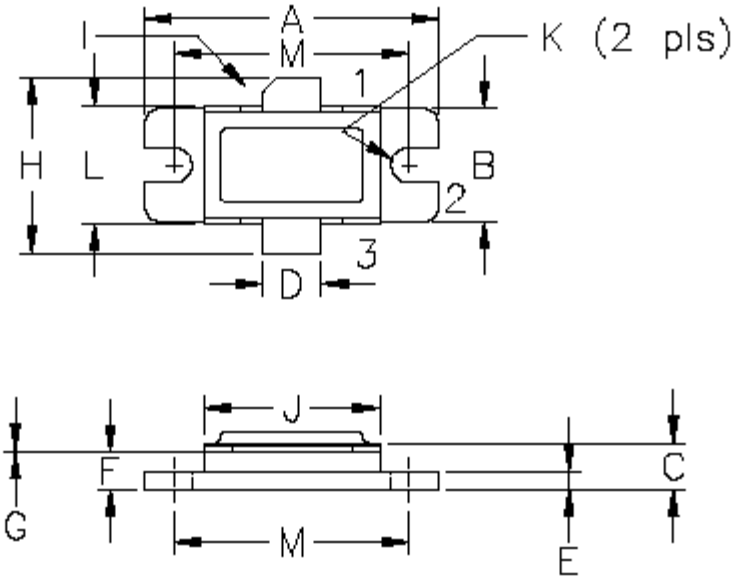




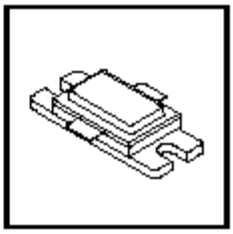




DIM	MILLIMETER	TOL	INCHES	TOL
A	25.40	.25	1.000	.010
B	9.78	.25	.385	.010
C	4.87	.19	.192	.007
D	5.08	.13	.200	.005
E	1.53	.13	.060	.005
F	3.18	.13	.125	.005
G	0.08	+.08/−.00	.003	+.002/−.000
H	19.05	0.51	.750	.020
I	45°	5°	45°	5°
J	15.24	.25	.600	.010
K	3.05 DIA	.13	.120 DIA	.005
L	10.15	.13	.400	.005
M	20.32	.25	.800	.010

STYLE 1:
PIN 1 = COLLECTOR
2 = BASE
3 = EMITTER

STYLE 2:
PIN 1 = COLLECTOR
2 = EMITTER
3 = BASE



Microsemi

DWG NO.

55SM