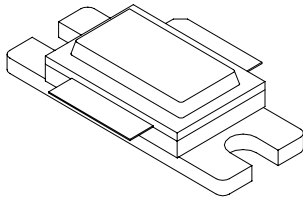


# DME800

800 Watts, 50 Volts

Pulsed Avionics 1025 to 1150 MHz

<p><b>GENERAL DESCRIPTION</b></p> <p>The DME800 is a high power COMMON BASE bipolar transistor. It is designed for pulsed DME systems at 1025 to 1150 MHz, with the pulse width and duty required for DME applications. The device has gold thin-film metalization for proven highest MTTF. The transistor includes input and output prematch for broadband capability. Low thermal resistance package reduces junction temperature, extends life.</p>	<p><b>CASE OUTLINE</b> <b>55ST-1</b> <b>(Common Base)</b></p> 
<p><b>ABSOLUTE MAXIMUM RATINGS</b></p> <p><b>Maximum Power Dissipation</b> Device Dissipation @25°C<sup>1</sup>                      2500 W</p> <p><b>Maximum Voltage and Current</b> Collector to Base Voltage (BV<sub>ces</sub>)                      65 V Emitter to Base Voltage (BV<sub>ebo</sub>)                      3 V Collector Current (I<sub>c</sub>)                      50 A</p> <p><b>Maximum Temperatures</b> Storage Temperature                      -65 to +200 °C Operating Junction Temperature                      +200 °C</p>	

**ELECTRICAL CHARACTERISTICS @ 25°C**

SYMBOL	CHARACTERISTICS	TEST CONDITIONS	MIN	TYP	MAX	UNITS
P <sub>out</sub>	Power Out	Pulse Width = 10 μs, Pin = 100 Watts V <sub>cc</sub> = 50 Volts F = 1025-1150 MHz Long Term Duty Factor = 1%	800		1000	W
P <sub>g</sub>	Power Gain		9.0		10.0	dB
η <sub>c</sub>	Collector Efficiency		40			%
R <sub>L</sub>	Return Loss		-9			dB
Tr	Rise Time				200	ns
Pd	Pulse Droop				0.7	dB
VSWR	Load Mismatch Tolerance <sup>1</sup>		F = 1025 MHz	3.0:1		

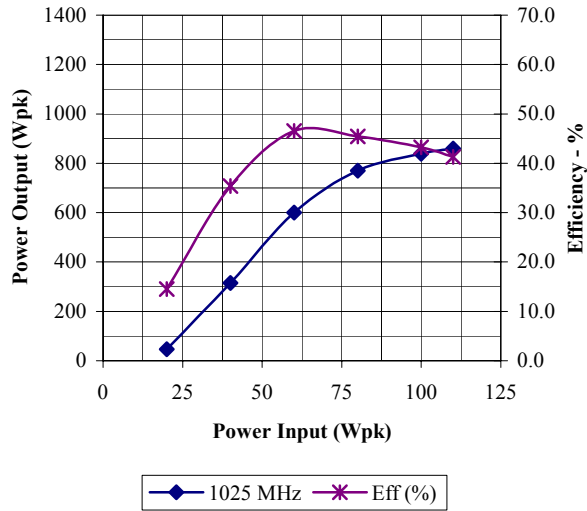
**FUNCTIONAL CHARACTERISTICS @ 25°C**

BV <sub>ebo</sub>	Emitter to Base Breakdown	I <sub>c</sub> = 20 mA	3.5			V
BV <sub>ces</sub>	Collector to Emitter Breakdown	I <sub>c</sub> = 50 mA	65			V
h <sub>FE</sub>	DC – Current Gain	V <sub>ce</sub> = 5V, I <sub>c</sub> = 600mA	20			
θ <sub>jc</sub> <sup>2</sup>	Thermal Resistance			0.04	0.06	°C/W

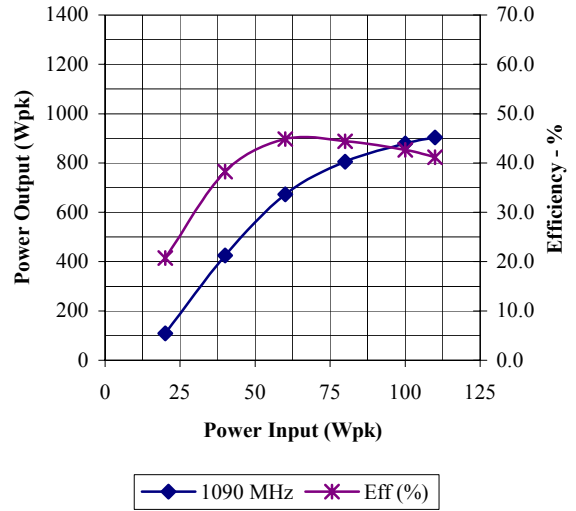
NOTES: 1. At rated output power and pulse conditions  
2. At rated pulse conditions

Issued June 2003

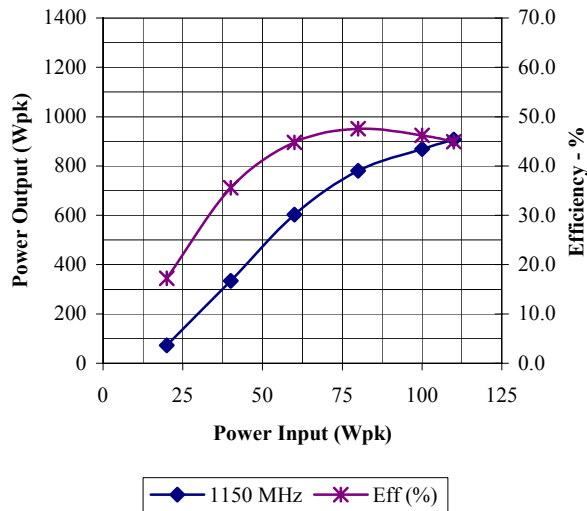
**Power Output & Efficiency vs. Power Input**  
**F=1025 MHz**

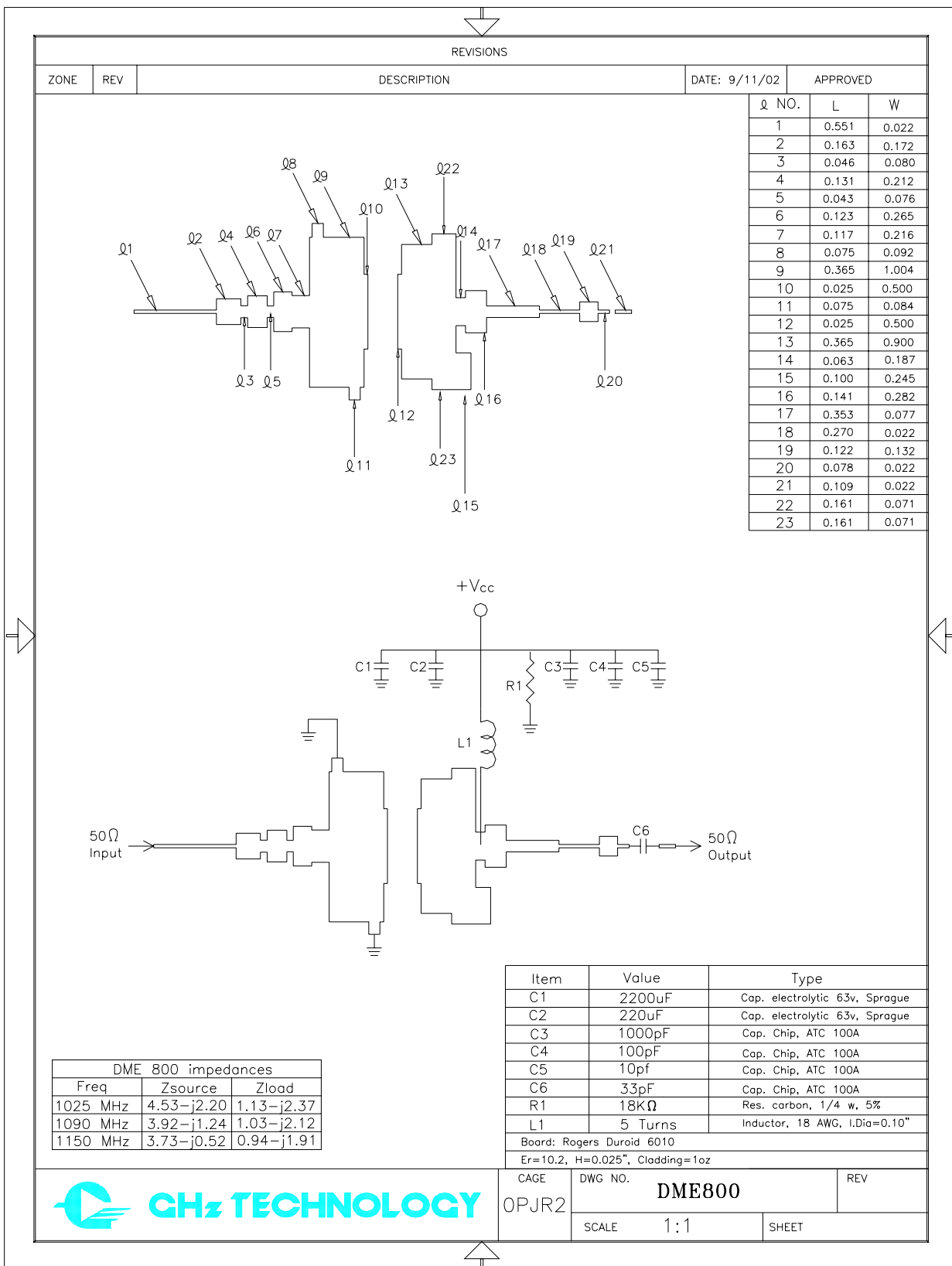


**Power Output & Efficiency vs. Power Input**  
**F=1090 MHz**



**Power Output & Efficiency vs. Power Input**  
**F = 1150 MHz**





REVISIONS			DATE: 9/11/02	APPROVED
ZONE	REV	DESCRIPTION		

Q NO.	L	W
1	0.551	0.022
2	0.163	0.172
3	0.046	0.080
4	0.131	0.212
5	0.043	0.076
6	0.123	0.265
7	0.117	0.216
8	0.075	0.092
9	0.365	1.004
10	0.025	0.500
11	0.075	0.084
12	0.025	0.500
13	0.365	0.900
14	0.063	0.187
15	0.100	0.245
16	0.141	0.282
17	0.353	0.077
18	0.270	0.022
19	0.122	0.132
20	0.078	0.022
21	0.109	0.022
22	0.161	0.071
23	0.161	0.071

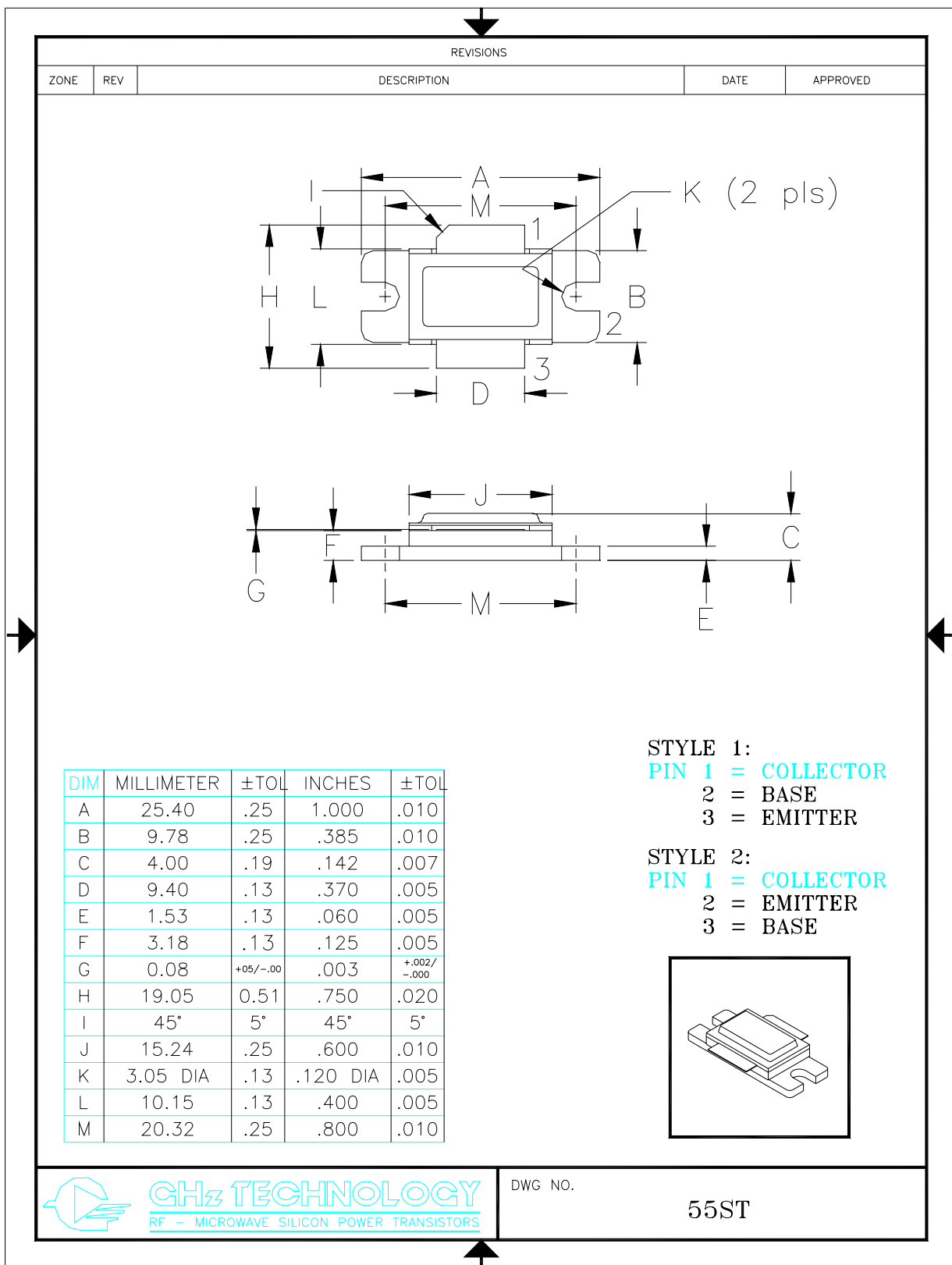
DME 800 impedances		
Freq	Zsource	Zload
1025 MHz	4.53-j2.20	1.13-j2.37
1090 MHz	3.92-j1.24	1.03-j2.12
1150 MHz	3.73-j0.52	0.94-j1.91

Item	Value	Type
C1	2200uF	Cap. electrolytic 63v, Sprague
C2	220uF	Cap. electrolytic 63v, Sprague
C3	1000pF	Cap. Chip, ATC 100A
C4	100pF	Cap. Chip, ATC 100A
C5	10pf	Cap. Chip, ATC 100A
C6	33pF	Cap. Chip, ATC 100A
R1	18KΩ	Res. carbon, 1/4 w, 5%
L1	5 Turns	Inductor, 18 AWG, I.Dia=0.10"

Board: Rogers Duroid 6010  
Er=10.2, H=0.025", Cladding=1oz



CAGE	DWG NO.	REV
0PJR2	DME800	
SCALE	1:1	SHEET



**GHz TECHNOLOGY**  
RF - MICROWAVE SILICON POWER TRANSISTORS

DWG NO.

55ST