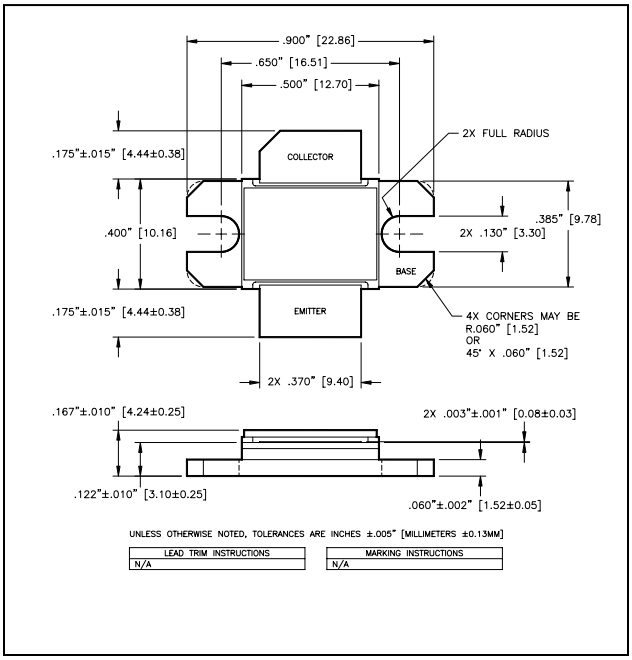
Avionics Pulsed RF Power Transistor
1000 Watts, 1030 MHz, 10µs Pulse Width, 1% Duty Cycle

MAPRST1030-1KS

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

Outline Drawing



MAXIMUM RATINGS AT 25°C

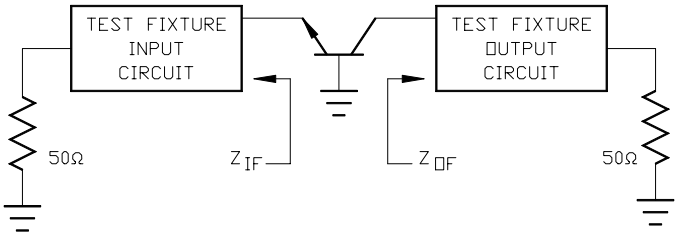
Parameter	Symbol	Rating	Units
Collector-Emitter Voltage	V_{CES}	65	V
Emitter-Base Voltage	V_{EBO}	3.0	V
Collector Current (Peak)	I_C	250	A
Total Power Dissipation @ +25° C	P_{TOT}	11.6	kW
Junction Temperature	T_J	200	°C
Storage Temperature	T_{STG}	-65 to +200	°C

ELECTRICAL CHARACTERISTICS AT 25°C

Parameter	Symbol	Min	Max	Units	Test Conditions
Collector-Emitter Breakdown Voltage	BV_{CES}	65	-	V	I_C=250mA
Collector-Emitter Leakage Current	I_{CES}	-	30	mA	V_{CE}=50V
Thermal Resistance	R_{TH}	-	0.015	°C/W	V_{CC}=50 V, P_{OUT}=1000 W, F= 1.03 GHz
RF Power Gain	P_G	8.0	-	dB	V_{CC}=50 V, P_{OUT}=1000 W, F= 1.03 GHz
Collector Efficiency	η_C	45	-	%	V_{CC}=50 V, P_{OUT}=1000 W, F= 1.03 GHz
Input Return Loss	RL	-	-10	dB	V_{CC}=50 V, P_{OUT}=1000 W, F= 1.03 GHz
Load Mismatch Stability	VSWR-S	-	1.5:1	-	V_{CC}=50 V, P_{OUT}=1000 W, F= 1.03 GHz
Load Mismatch Tolerance	VSWR-T	-	3:1	-	V_{CC}=50 V, P_{OUT}=1000 W, F= 1.03 GHz

BROADBAND TEST FIXTURE IMPEDANCE

F (GHz)	Z_{IF} (Ω)	Z_{OF} (Ω)
1.03	1.8 - j2.2	0.5 - j1.0



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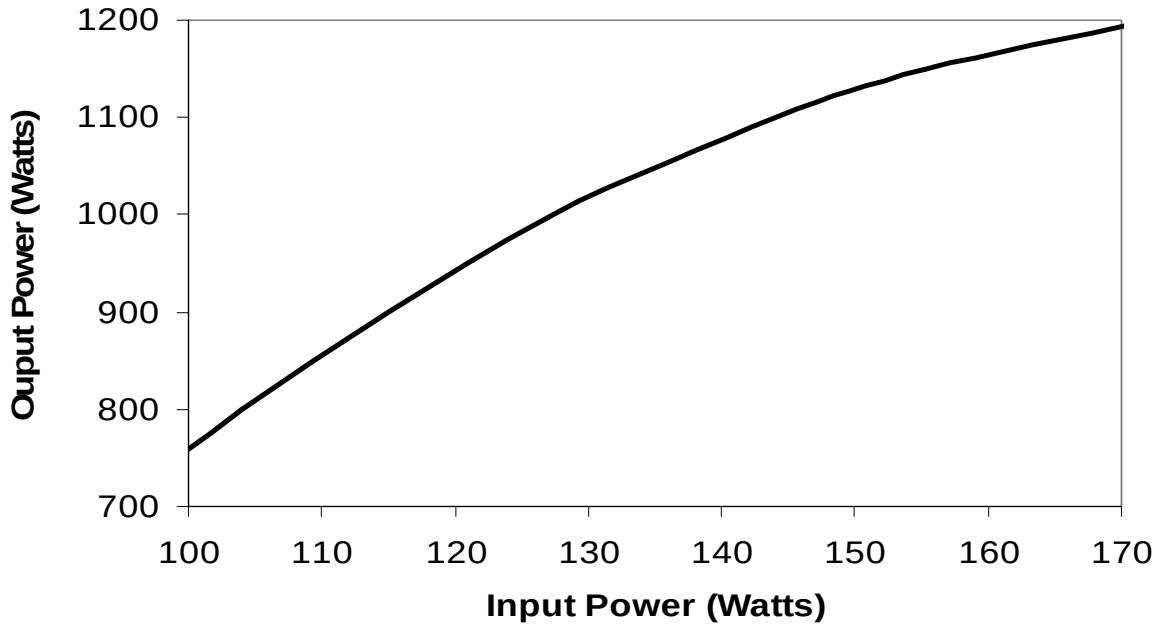
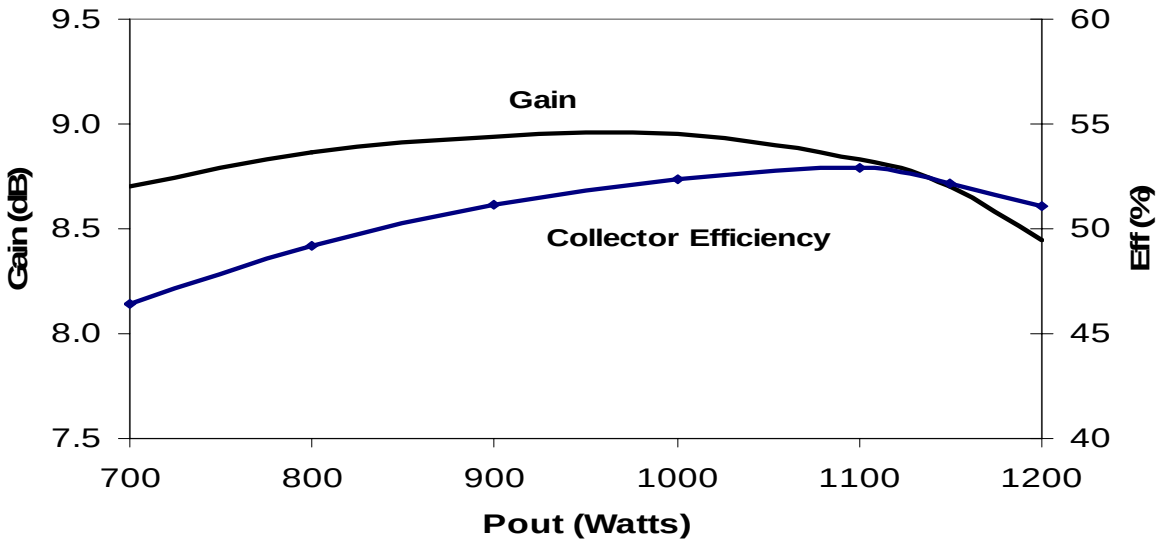
TYPICAL RF PERFORMANCE- OUTPUT POWER VS. INPUT POWER



TYPICAL RF PERFORMANCE - RF GAIN AND COLLECTOR EFFICIENCY VS. OUTPUT POWER



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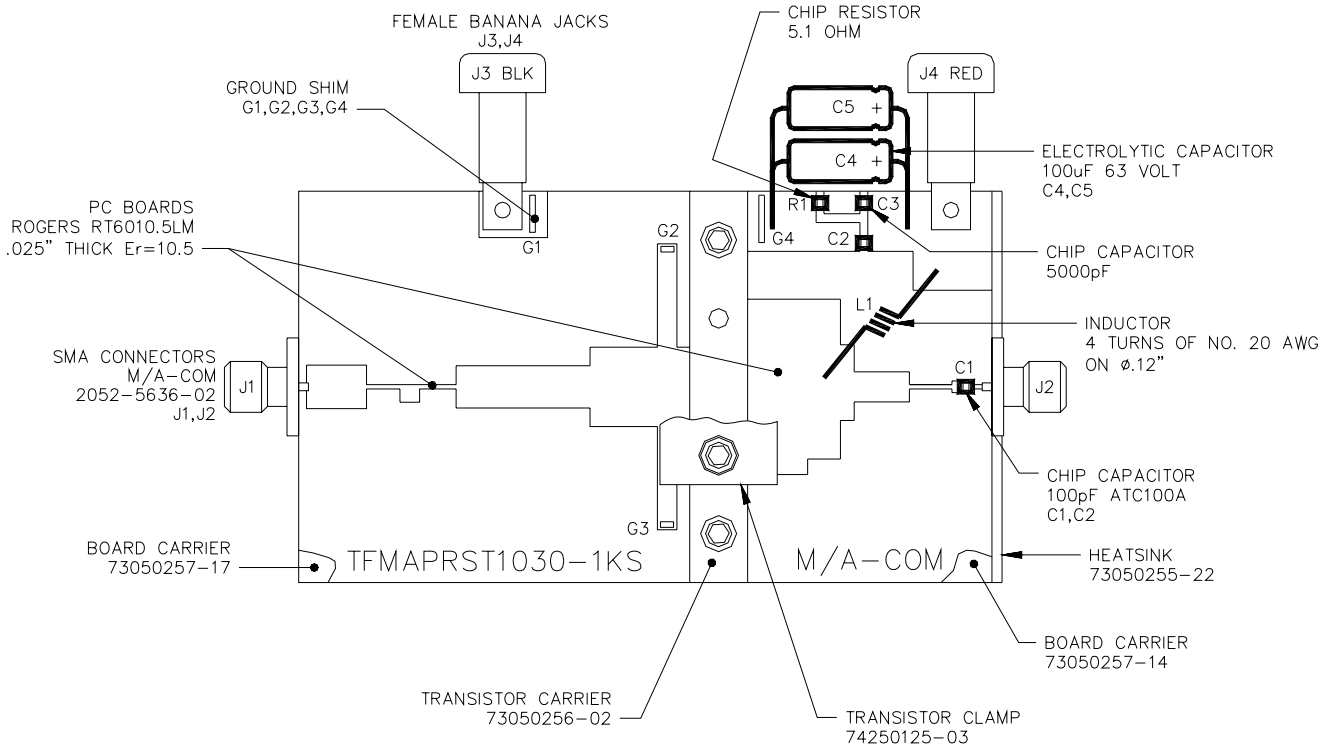
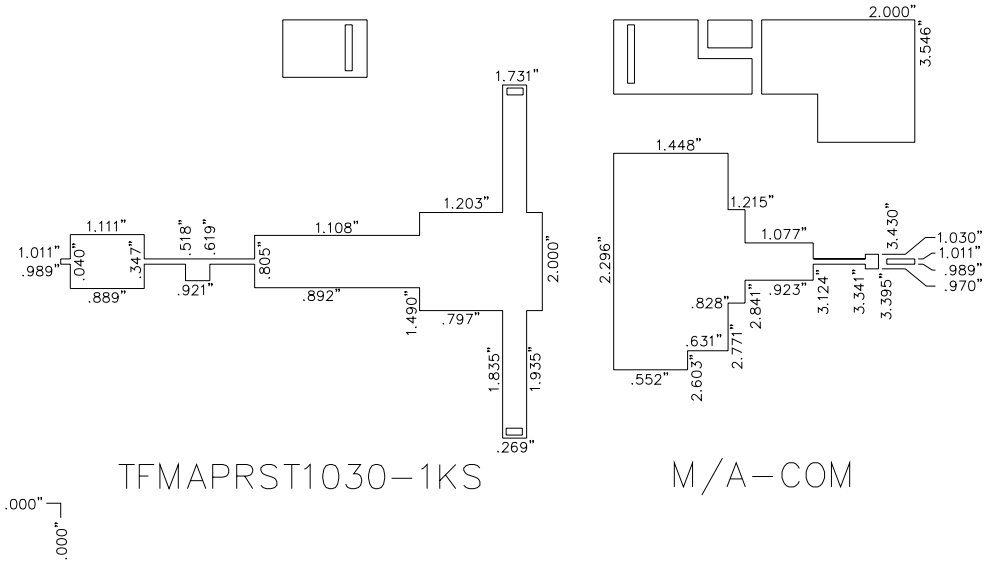


ASSEMBLY VIEW



CIRCUIT DIMENSIONS SCALE = 1:1