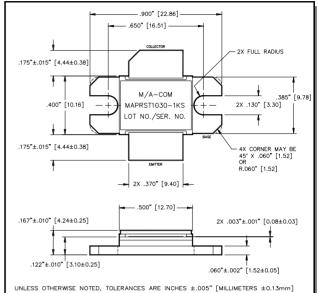
MAPRST1030-1KS

Avionics Pulsed Power Transistor 1000W, 1030 MHz, 10µs Pulse, 1% Duty

Features

- NPN silicon microwave power transistors
- Common base configuration
- Broadband Class C operation
- High efficiency inter-digitized geometry
- Diffused emitter ballasting resistors
- Gold metallization system
- · Internal input and output impedance matching
- Hermetic metal/ceramic package
- RoHS Compliant

Outline Drawing



Absolute 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)	Ι _C	250	А
Power Dissipation @ +25°C	P _{TOT}	11.6	kW
Storage Temperature	T _{STG}	-65 to +200	°C
Junction Temperature	TJ	200	°C

Electrical Specifications: $T_c = 25 \pm 5^{\circ}C$ (Room Ambient)

Parameter	Test Conditions	Frequency	Symbol	Min	Мах	Units
Collector-Emitter Breakdown Voltage	I _C = 250mA		BV _{CES}	65	-	V
Collector-Emitter Leakage Current	V _{CE} = 50V		I _{CES}	-	30	mA
Thermal Resistance	Vcc = 50V, Pout = 1000W	F = 1030 MHz	R _{TH(JC)}	-	0.015	°C/W
Input Power	Vcc = 50V, Pout = 1000W	F = 1030 MHz	P _{IN}	-	158	W
Power Gain	Vcc = 50V, Pout = 1000W	F = 1030 MHz	G _P	8.0	-	dB
Collector Efficiency	Vcc = 50V, Pout = 1000W	F = 1030 MHz	η_c	45	-	%
Input Return Loss	Vcc = 50V, Pout = 1000W	F = 1030 MHz	RL	-	-10	dB
Load Mismatch Tolerance	Vcc = 50V, Pout = 1000W	F = 1030 MHz	VSWR-T	-	10:1	-
Load Mismatch Stability	Vcc = 50V, Pout = 1000W	F = 1030 MHz	VSWR-S	-	1.5:1	-

1

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MAPRST1030-1KS

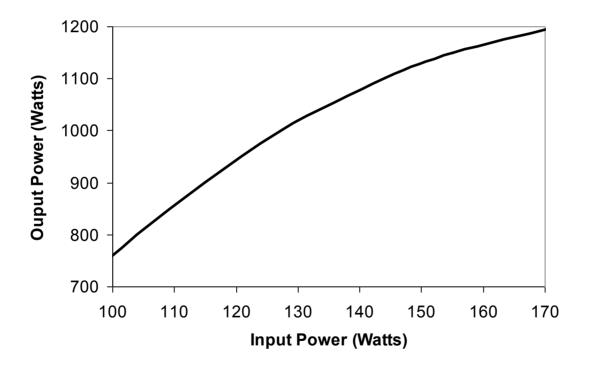
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Typical RF Performance

Freq.	Pin	Pout	Gain	lc	Eff	RL	VSWR-S	VSWR-T	P1dB O	Overdrive	
(MHz)	(W)	(W)	(dB)	(A)	(%)	(dB)	(1.5:1)	(10:1)	Pout	∆ Po	
1030	134	1000	8.74	39.5	50.8	-21.3	S	Р	1180	0.74	

Note: $\Delta Po(dB)$ is the difference between Pout at 1dB overdrive and Pout at Pout = 1000W.

RF Power Transfer Curve (Output Power Vs. Input Power)



2

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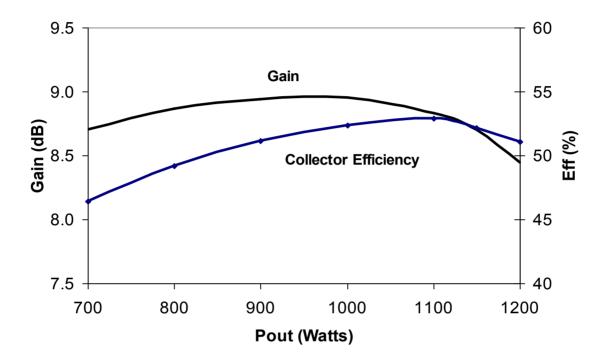




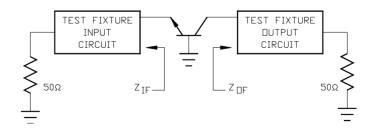
Avionics Pulsed Power Transistor 1000W, 1030 MHz, 10µs Pulse, 1% Duty

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RF Power Transfer Curve (Gain & Collector Efficiency vs. Output Power)



F (MHz)	Z _{IF} (Ω)	Z _{OF} (Ω)		
1030	1.8 - j2.2	0.5 - j1.0		



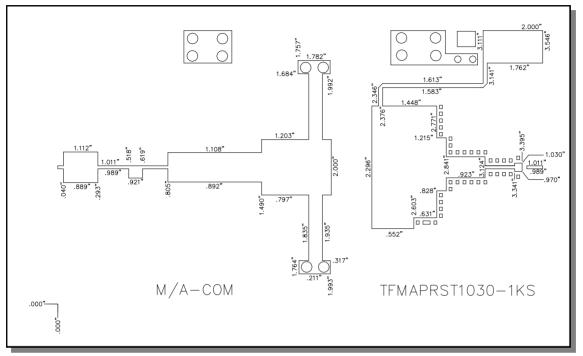
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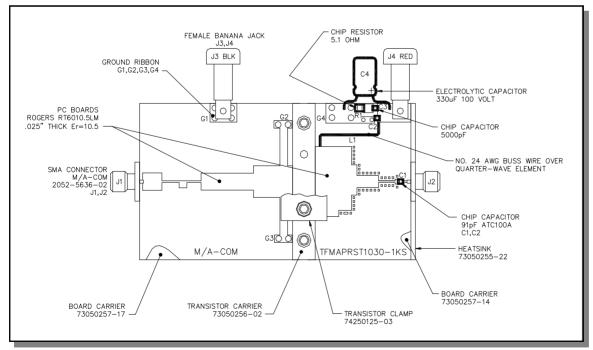
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Avionics Pulsed Power Transistor 1000W, 1030 MHz, 10µs Pulse, 1% Duty

Test Fixture Circuit Dimensions



Test Fixture Assembly



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