

Wireless Bipolar Power Transistor 2W, 16 -1.7 GHz

M/A-COM Products Released - Rev. 07.07

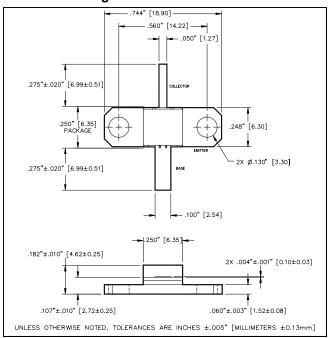
Features

- Designed for linear amplifier applications
- Class AB: -33 dBc typ. 3rd IMD at 2 W PEP
- Class A: +44 dBm typ. 3rd order intercept point
- Common emitter configuration
- Internal input impedance matching
- · Diffused emitter ballasting

ABSOLUTE MAXIMUM RATING AT 25°C

Parameter	Symbol	Rating	Units
Collector-Base Voltage	V _{CBO}	65	V
Collector-Emitter Voltage	V _{CES}	65	V
Emitter-Base Voltage	V _{EBO}	3.0	V
Collector Current	I _C	2.0	Α
Power Dissipation	P _D	13.5	W
Junction Temperature	TJ	200	°C
Storage Temperature	T _{STG}	-55 to + 150	°C
Thermal Resistance	θ_{JC}	13	°C/W

Outline Drawing



Notes: (unless otherwise specified)

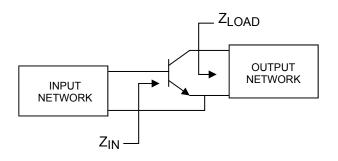
1. Tolerances are: inches ± .005" (millimeters ± 0.13mm)

ELECTRICAL SPECIFICATIONS AT 25°C

Parameter	Symbol	Min	Max	Units	Test Conditions
Collector-Emitter Breakdown Voltage	BV _{CES}	65	-	V	I _C = 5 mA
Collector-Emitter Leakage Current	I _{CES}	-	1.0	mA	V _{CE} = 25 V
Collector-Base Breakdown Voltage	BV _{CEO}	22	-	V	I _C = 5 mA
Collector-Base Breakdown Voltage	BV _{CER}	30		V	I_C = 5 mA, R_{BE} =220 Ω
Emitter-Base Breakdown Voltage	BV _{EBO}	3.0	-	V	I _B = 5 mA
DC Forward Current Gain	h _{FE}	15	120	-	V _{CE} = 5 V, I _C = 200 A
Power Gain	G _P	10	-	dB	V _{CC} = 25V, I _{CQ} = 25 mA, P _{out} = 2.0 W, F =1.60, 1.65, 1.70 GHz
Collector Efficiency	ŋC	35	-	%	V _{CC} = 25V, I _{CQ} = 25 mA, P _{out} = 2.0 W, F =1.60. 1.65, 1.70 GHz
Input Return Loss	RL	10	-	dB	V _{CC} = 25V, I _{CQ} = 25 mA, P _{out} = 2.0 W, F =1.60. 1.65, 1.70 GHz
Load Mismatch Tolerance	VSWR-T	-	5:1	-	V _{CC} = 25V, I _{CQ} = 25 mA, P _{out} = 2.0 W, F =1.60. 1.65, 1.70 GHz
3rd Order IMD	IMD ₃	-	-32	dBc	V_{CC} = 25V, I_{CQ} = 25 mA, P_{out} = 2.0 W PEP F =1650 MHz, Δ F=100kHz

TYPICAL OPTIMUM DEVICE IMPEDANCES

F (GHz)	Z _{IN} (Ω)	Z _{LOAD} (Ω)
1.60	3.5+j8.2	6.6-j13.5
1.65	2.0+j5.0	6.4-j13.1
1.70	4.2+j8.7	6.3-j12.8



ADVANCED: Data Sheets contain information regarding a product M/A-COM Technology Solutions is considering for development. Performance is based on target specifications, simulated results, and/or prototype measurements. Commitment to develop is not guaranteed.

PRELIMINARY: Data Sheets contain information regarding a product M/A-COM Technology Solutions has under development. Performance is based on engineering tests. Specifications are typical. Mechanical outline has been fixed. Engineering samples and/or test data may be available. Commitment to produce in volume is not granteed.

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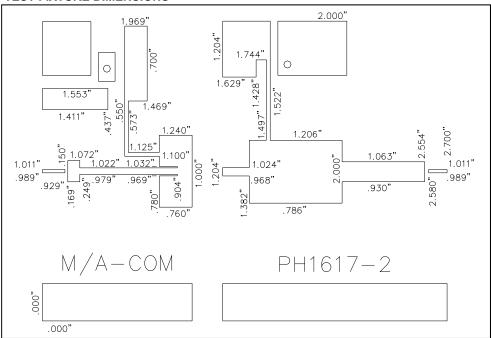
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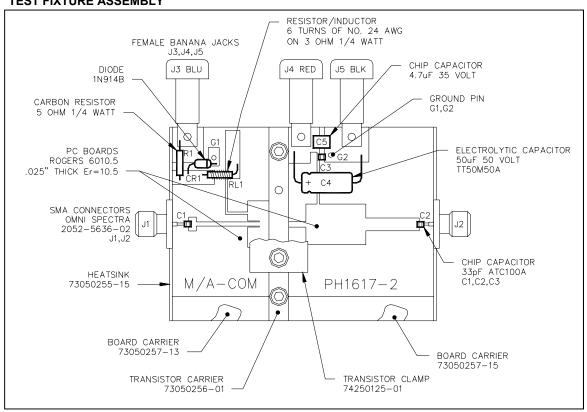
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TEST FIXTURE DIMENSIONS



TEST FIXTURE ASSEMBLY



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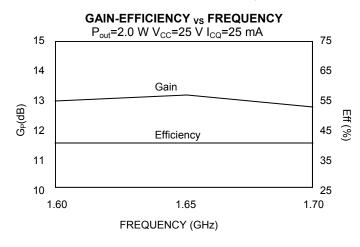
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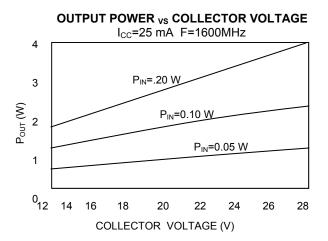


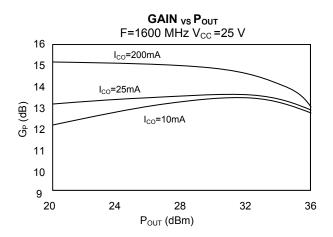
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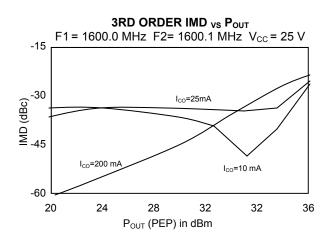
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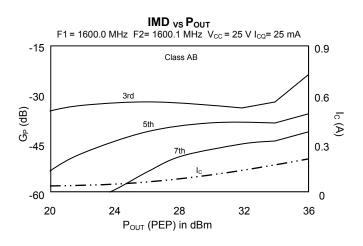
Typical Broadband Performance Curves

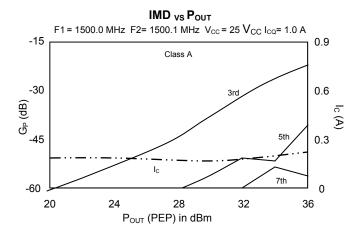












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TYPICAL S-PARAMETERS

/ _{cc} = 25 V, I _{cQ} =	200 mA			
	S11	S21	S12	S22
F(MHz)	MAG PHASE	MAG PHASE	MAG PHASE	MAG PHASE
100	1.10 171.5	23.80 120.3	0.012 -7.4	0.32 -74.5
200	0.75 175.1	12.15 92.1	0.014 -4.7	0.22 -89.6
300	0.79 -177.9	7.79 81.2	0.016 -4.5	0.20 -95.7
400	0.84 -177.4	5.77 74.4	0.016 -9.8	0.23 -98.7
500	0.87 -178.5	4.65 68.4	0.017 -3.7	0.26 -100.5
600	0.89 179.8	3.96 62.6	0.018 -5.9	0.27 -101.4
700	0.89 178.3	3.49 56.7	0.018 -0.7	0.29 -104.4
800	0.91 177.4	3.08 51.1	0.019 -2.7	0.33 -103.3
900	0.91 175.4	2.89 45.4	0.017 -3.4	0.36 -111.0
1000	0.91 174.1	2.74 38.9	0.019 -0.9	0.40 -114.6
1100	0.89 171.5	2.64 28.9	0.024 -6.1	0.46 -117.3
1200	0.87 171.7	2.45 22.8	0.024 -13.6	0.53 -120.8
1300	0.86 170.8	2.35 15.7	0.023 -18.3	0.57 -122.3
1400	0.86 170.3	2.32 7.6	0.026 -21.1	0.63 -145.5
1450	0.85 170.1	2.30 3.4	0.026 -22.9	0.65 -126.2
1500	0.84 169.9	2.27 -1.2	0.025 -22.3	0.66 -127.6
1550	0.83 169.7	2.26 -6.4	0.026 -31.0	0.68 -129.1
1600	0.82 169.7	2.24 -11.5	0.030 -37.3	0.71 -131.9
1650	0.82 170.0	2.22 -16.6	0.029 -43.2	0.71 -133.6
1700	0.81 170.5	2.19 -22.4	0.027 -48.5	0.73 -137.6
1750	0.80 171.1	2.14 -28.4	0.025 -52.2	0.76 -140.1
1800	0.80 171.5	2.11 -35.5	0.026 -60.2	0.76 -143.9
1850	0.80 171.9	2.05 -40.7	0.027 -60.1	0.81 -147.5
1900	0.81 172.6	1.99 -47.4	0.024 -67.1	0.81 -150.1
2000	0.82 173.6	1.83 -60.7	0.024 -80.8	0.86 -155.5
2100	0.84 174.5	1.61 -74.0	0.020 -94.0	0.88 160.0
2200	0.88 174.2	1.40 -84.6	0.019 104.7	0.87 164.5
2300	0.90 173.6	1.21 -94.7	0.016 -128.7	0.86 168.1

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