

Plug-In

NON-CATALOG QPSK Modulator

50Ω

800 to 1050 MHz

Maximum Ratings

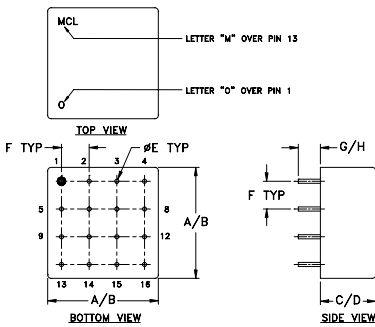
Operating Temperature	-55°C to 100°C
Storage Temperature	-55°C to 100°C
Input power	100mW
Control current	40mA

Permanent damage may occur if any of these limits are exceeded.

Pin Connections

RF IN	13
RF OUT	2
CONTROL-1	4
CONTROL-2	1
ISOLATE (DO NOT USE)	9,12,16
GROUND	3,5,6,7,8,10,11,14,15
CASE GROUND	3,5,6,7,8,10,11,14,15

Outline Drawing



Outline Dimensions (inch/mm)

A	B	C	D	.03
.770	.810	.380	.410	.03
19.56	20.57	9.65	10.41	0.7

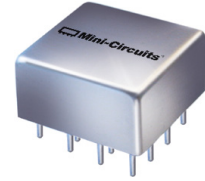
Features

- hermetically sealed metal case
- good phase and amplitude balance

Applications

- communications systems
- cellular
- military, hi-rel applications

QMC-1050



CASE STYLE: C07
PRICE: Contact Sales Dept.

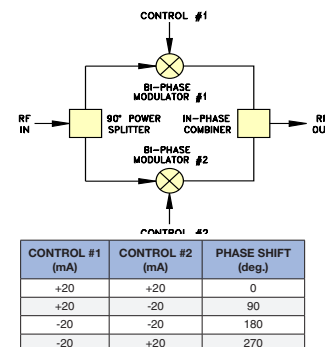
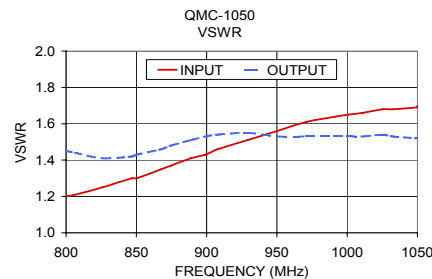
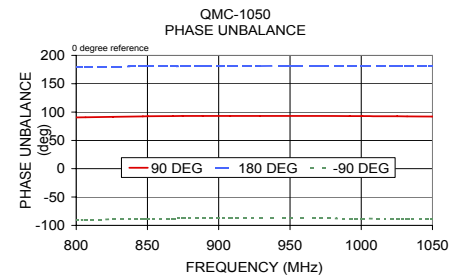
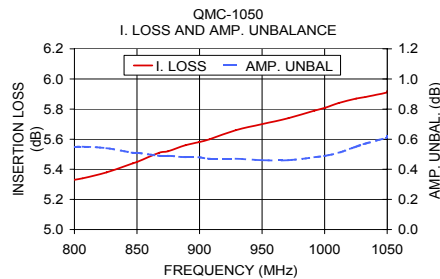
Modulator Electrical Specifications

MODEL NO.	FREQUENCY (MHz)	INSERTION LOSS (dB)		AMPLITUDE UNBALANCE (dB)		PHASE UNBALANCE (Deg.)± with reference to 90°		1 dB COMPR. (dBm)	VSWR (:1) Typ.	
		Typ.	Max.	Typ.	Max.	Typ.	Max.		Typ.	In
QMC-1050	800 1050	5.5	7.5	0.5	1.0	3	7	4	2.0	2.0

All specifications at control current ±20mA.
Control ports drive with 50-ohm source.

Typical Performance Data

Freq. (MHz)	Insertion Loss		Amplitude Unbalance $\bar{x}$ (dB)	Phase Unbalance (deg)			VSWR(:1)	
	$\bar{x}$ (dB)	σ (dB)		90°	180°	-90°	IN $\bar{x}$	OUT $\bar{x}$
				$\bar{x}$	$\bar{x}$	$\bar{x}$		
800.00	5.33	0.21	0.55	90.43	180.31	-90.46	1.20	1.45
806.50	5.34	0.20	0.55	90.65	180.30	-90.22	1.21	1.44
825.75	5.38	0.19	0.54	91.46	180.40	-89.37	1.25	1.41
846.75	5.44	0.17	0.51	92.33	180.55	-88.42	1.30	1.42
850.25	5.45	0.17	0.51	92.47	180.58	-88.31	1.30	1.43
867.75	5.51	0.16	0.49	92.89	180.73	-87.87	1.35	1.46
874.75	5.52	0.16	0.49	92.97	180.77	-87.76	1.37	1.48
888.75	5.56	0.15	0.48	93.03	180.87	-87.69	1.41	1.51
899.25	5.58	0.14	0.48	93.04	180.98	-87.67	1.43	1.53
908.00	5.60	0.14	0.47	93.07	181.08	-87.63	1.46	1.54
929.00	5.66	0.14	0.47	93.18	181.26	-87.56	1.51	1.55
950.00	5.70	0.14	0.46	93.17	181.36	-87.60	1.56	1.53
971.00	5.74	0.14	0.46	93.03	181.47	-87.78	1.61	1.53
992.00	5.79	0.14	0.48	92.84	181.53	-87.97	1.64	1.53
1000.75	5.81	0.14	0.49	92.76	181.57	-88.02	1.65	1.53
1011.25	5.84	0.14	0.51	92.66	181.59	-88.10	1.66	1.53
1025.25	5.87	0.14	0.55	92.50	181.62	-88.26	1.68	1.54
1032.25	5.88	0.15	0.57	92.42	181.67	-88.31	1.68	1.53
1049.75	5.91	0.15	0.61	92.10	181.72	-88.52	1.69	1.52
1050.00	5.92	0.14	0.62	92.04	181.75	-88.55	1.70	1.52



Notes

- Performance and quality attributes and conditions not expressly stated in this specification document are intended to be excluded and do not form a part of this specification document.
- Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's applicable established test performance criteria and measurement instructions.
- The parts covered by this specification document are subject to Mini-Circuits standard limited warranty and terms and conditions (collectively, "Standard Terms"); Purchasers of this part are entitled to the rights and benefits contained therein. For a full statement of the Standard Terms and the exclusive rights and remedies thereunder, please visit Mini-Circuits' website at www.minicircuits.com/MCLStore/terms.jsp



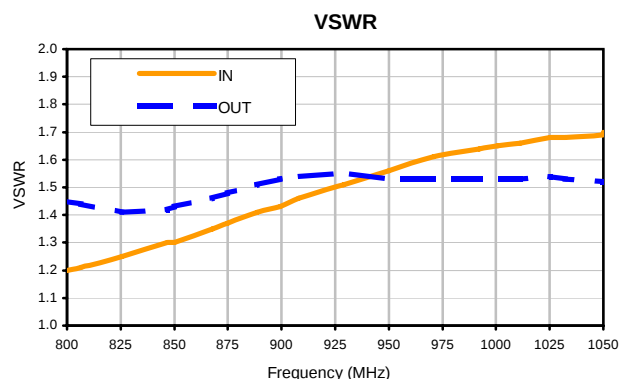
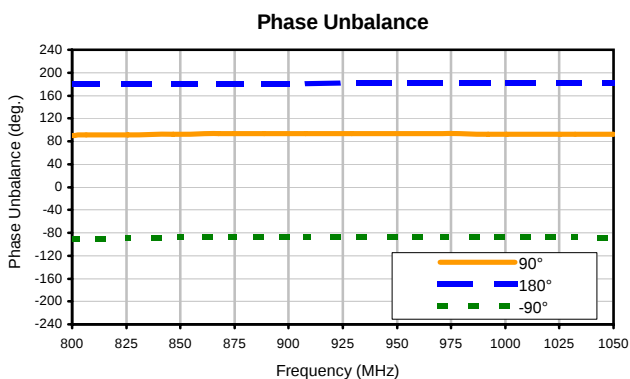
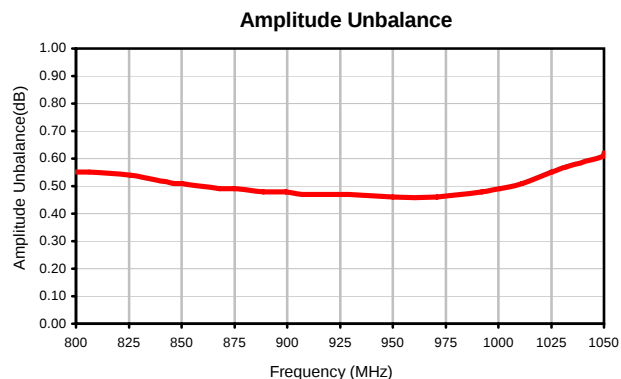
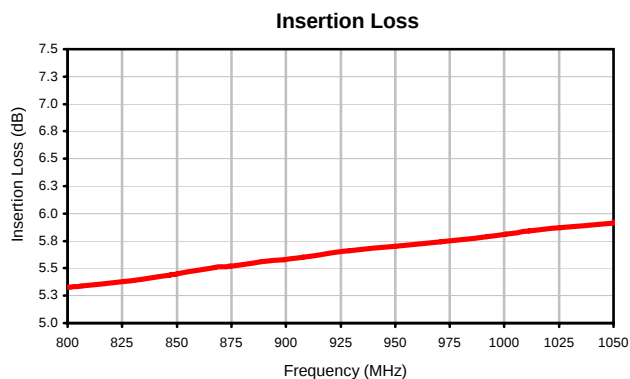
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REV. OR
M97465
QMC-1050
DJ/VV/CP
141001

Typical Performance Data

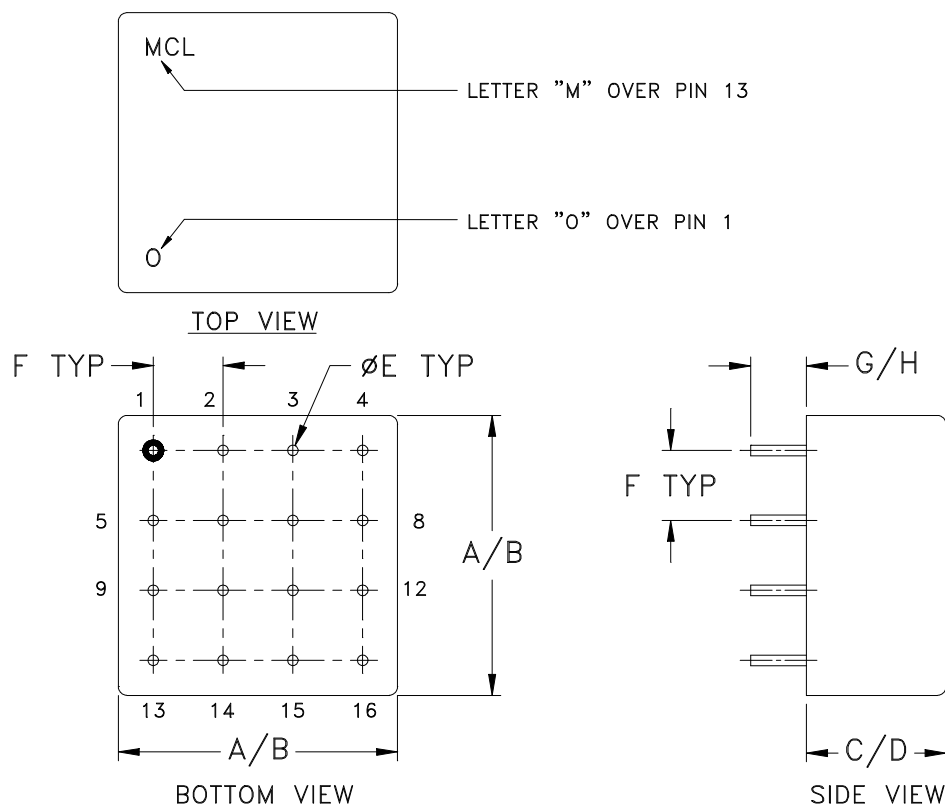
FREQUENCY	INSERTION LOSS		AMPLITUDE UNBALANCE	PHASE UNBALANCE			VSWR (:1)	
(MHz)	(dB)		(dB)	90 (deg)	180 (deg)	-90 (deg)	IN	OUT
	MEAN	SIGMA	MEAN	MEAN	MEAN	MEAN	MEAN	MEAN
800.00	5.33	0.21	0.55	90.43	180.31	-90.46	1.20	1.45
806.50	5.34	0.20	0.55	90.65	180.30	-90.22	1.21	1.44
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867.75	5.51	0.16	0.49	92.89	180.73	-87.87	1.35	1.46
874.75	5.52	0.16	0.49	92.97	180.77	-87.76	1.37	1.48
888.75	5.56	0.15	0.48	93.03	180.87	-87.69	1.41	1.51
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929.00	5.66	0.14	0.47	93.18	181.26	-87.56	1.51	1.55
950.00	5.70	0.14	0.46	93.17	181.36	-87.60	1.56	1.53
971.00	5.74	0.14	0.46	93.03	181.47	-87.78	1.61	1.53
992.00	5.79	0.14	0.48	92.84	181.53	-87.97	1.64	1.53
1000.75	5.81	0.14	0.49	92.76	181.57	-88.02	1.65	1.53
1011.25	5.84	0.14	0.51	92.66	181.59	-88.10	1.66	1.53
1025.25	5.87	0.14	0.55	92.50	181.62	-88.26	1.68	1.54
1032.25	5.88	0.15	0.57	92.42	181.67	-88.31	1.68	1.53
1049.75	5.91	0.15	0.61	92.10	181.72	-88.52	1.69	1.52
1050.00	5.92	0.14	0.62	92.04	181.75	-88.55	1.70	1.52

Typical Performance Curves



Outline Dimensions

C07



CASE#	A	B	C	D	E	F	G	H	WT. GRAM
C07	.770 (19.56)	.810 (20.57)	.380 (9.65)	.410 (10.41)	.030 (.76)	.200 (5.08)	.20 (5.08)	.14 (3.56)	11.0

Dimensions are in inches (mm). Tolerances: 2 Pl. $\pm .03$; 3 Pl. $\pm .015$

Notes:

- Header material: C.R.S.
Pin material: #52 alloy.
Cover material: Cupro-Nickel.
- Pin finish: Electro Tin-Silver..
- Tolerance on pin diameter $\pm .005$ inch.
- Glass meniscus 0.015 inch max.
- Blue bead indicates Pin 1. Pin numbers do not appear on unit, for reference only.



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P.O. Box 350166, Brooklyn, New York 11235-0003 (718) 934-4500 Fax (718) 332-4661

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Mini-Circuits ISO 9001 & ISO 14001 Certified



All Mini-Circuits products are manufactured under exacting quality assurance and control standards, and are capable of meeting published specifications after being subjected to any or all of the following physical and environmental test.

Specification	Test/Inspection Condition	Reference/Spec
Operating Temperature	-55° to 100° C Ambient Environment	Individual Model Data Sheet
Storage Temperature	-55° to 100° C Ambient Environment	Individual Model Data Sheet
Thermal Shock	-55° to 100°C, 100 cycles	MIL-STD-202, Method 107, Condition A-3, except +100°C
Vibration (High Frequency)	20g peak, 10-2000 Hz, 12 times in each of three perpendicular directions (total 36)	MIL-STD-202, Method 204, Condition D
Mechanical Shock	50g, 11 ms, 1/2-sine, 18 shocks: 3 each direction, each of 3 axes	MIL-STD-202, Method 213, Condition A
Moisture Resistance	10 cycles, 24 hours per cycle	MIL-STD-202, Method 106, Condition A, except 50°C and end point electrical test done within 12 hours
Solderability	10X Magnification	J-STD-002, 95% Coverage
Resistance to Solder Heat	260°C for 10 seconds	MIL-STD-202, Method 210, Condition B
Marking Resistance to Solvents	Isopropyl alcohol + mineral spirits at 25°C; terpene defluxer at 25°C; distilled water + proylene glycol monomethyl ether + monoethanolamine at 63°C to 70°C	MIL-STD-202, Method 215
Terminal Strength	4 1/2 Pound Pull	MIL-STD-202, Method 211, Condition A



All Mini-Circuits products are manufactured under exacting quality assurance and control standards, and are capable of meeting published specifications after being subjected to any or all of the following physical and environmental test.

Specification	Test/Inspection Condition	Reference/Spec
Gross Leak	125°C Bubble Test	MIL-STD-202, Method 112, Condition D
Barometric Pressure	100,000 Feet	MIL-STD-202, Method 105, Condition D