MMIC REFLECTIONLESS

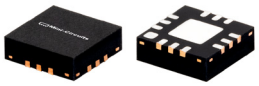
Low Pass Filter

XLF-861+

50Ω DC to 860 MHz

THE BIG DEAL

- Match to 50Ω in the stop band, eliminates undesired reflections
- Cascadable
- Excellent Power handling
- Temperature sData, up to +105°C
- Small size, 3 x 3 mm
- Protected by US Patent No. 8,392,495



Generic photo used for illustration purposes only

CASE STYLE: DQ1225

+RoHS Compliant
The +Suffix identifies RoHS Compliance.
See our website for methodologies and qualifications

APPLICATIONS

- Harmonics Rejection
- Wideband Matching
- Transmitters / Receivers

PRODUCT OVERVIEW

Mini-Circuits' XLF-861+ reflectionless filter employs a novel filter topology which absorbs and terminates stop band signals internally rather than reflecting them back to the source. This new capability enables unique applications for filter circuits beyond those suited to traditional approaches. Traditional filters are reflective in the stop band, sending signals back to the source at 100% of the power level. These reflections interact with neighboring components and often result in inter-modulation and other interferences. Reflectionless filters eliminate stop band reflections, allowing them to be paired with sensitive devices and used in applications that otherwise require circuits such as isolation amplifiers or attenuators.

KEY FEATURES

Features	Advantages
Reflectionless Technology	Reflectionless filters absorb unwanted signals, preventing reflections back to the source. This reduces generation of additional unwanted signals without the need for extra components like attenuators, improving system dynamic range and saving board space.
50Ω Match in Stopband	Reflectionless filters maintain good impedance matching in the stopband, allowing for integration with high gain, wideband amplifiers without the risk of creating out-of-band instabilities.
Excellent RF Performance Repeatability	Fabricated on a GaAs process, X-series filters are inherently repeaData for large-volume production.
Excellent Stability over temperature	With ±0.3 dB variation over temperature, is ideal for use in wide temperature range applications without the need for additional temperature compensation.
Excellent Power Handling in a Compact Package	High power handling extends the usability of these filters to the transmit path for inter-stage filtering.

Low Pass Filter

XLF-861+

50Ω DC to 860 MHz

ELECTRICAL SPECIFICATIONS[1] AT +25°C

Parameter		F#	Frequency (MHz)	Min.	Typ.	Max.	Unit
Pass Band	Insertion Loss	DC - F1	DC - 860	—	1.4	1.8	dB
	Frequency Cut-off	F2	1150	—	3.0	—	dB
	VSWR	DC - F1	DC - 860	—	1.2	—	:1
Stop Band	Rejection	F3 - F4	1700 - 7500	12	15	—	dB
		F4 - F5	7500 - 25000	—	24	—	dB
	VSWR	F3 - F4	1700 - 7500	—	1.2	—	:1
		F4 - F5	7500 - 25000	—	2.3	—	:1

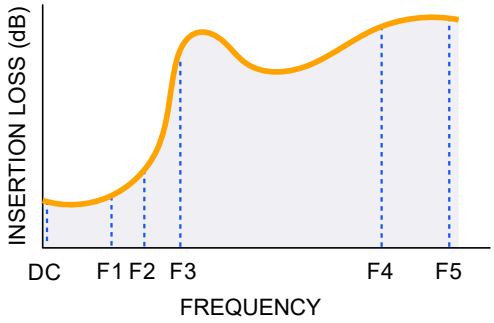
1. Measured on Mini-Circuits Characterization Test Board TB-844-861+.

ABSOLUTE MAXIMUM RATINGS[2]

Parameter	Ratings
Operating Temperature	-55°C to +105°C
Storage Temperature	-65°C to +150°C
RF Power Input, Passband (DC-F1)[3]	2 W at +25°C
RF Power Input, Stopband (F2-F5)[4]	0.2 W at +25°C

2. Permanent damage may occur if any of these limits are exceeded.
3. Passband rating derates linearly to 1 W at +105°C ambient
4. Stopband rating derates linearly to 0.1 W at +105°C ambient

SPECIFICATION DEFINITION

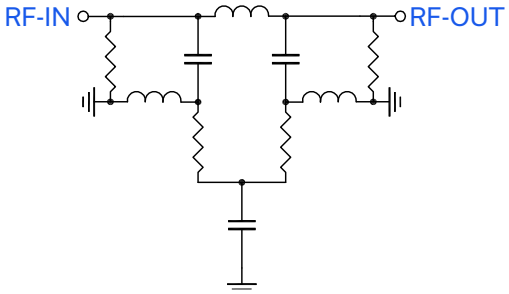


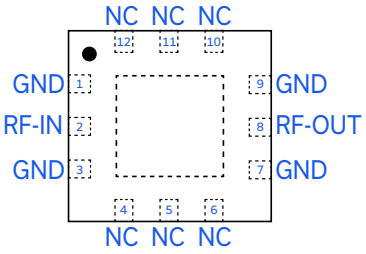
Low Pass Filter

XLF-861+

50Ω DC to 860 MHz

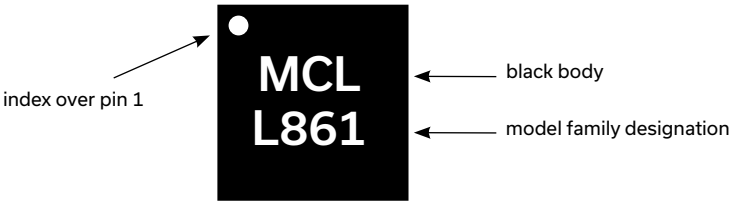
SIMPLIFIED SCHEMATIC AND PAD DESCRIPTION





Function	Pad Number	Description
RF-IN	2	RF Input Pad
RF-OUT	8	RF Output Pad
GND	1,3,7,9, Paddle	Connected to ground
NC (GND Externally)	4,5,6,10,11,12	No internal connection

PRODUCT MARKING



Marking may contain other features or characters for internal lot control

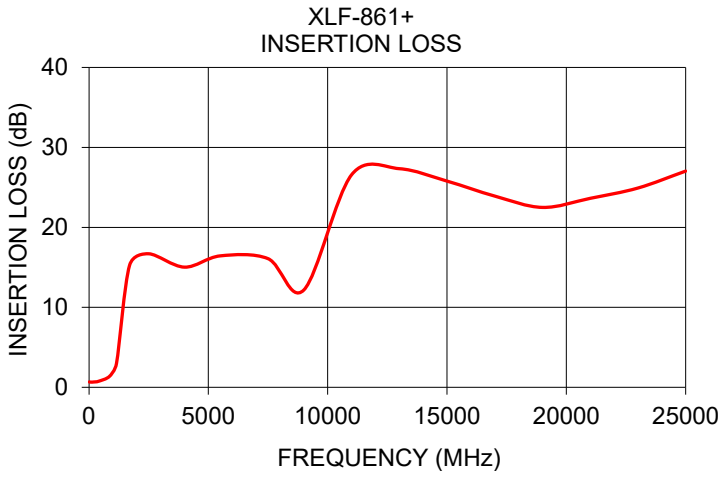
Low Pass Filter

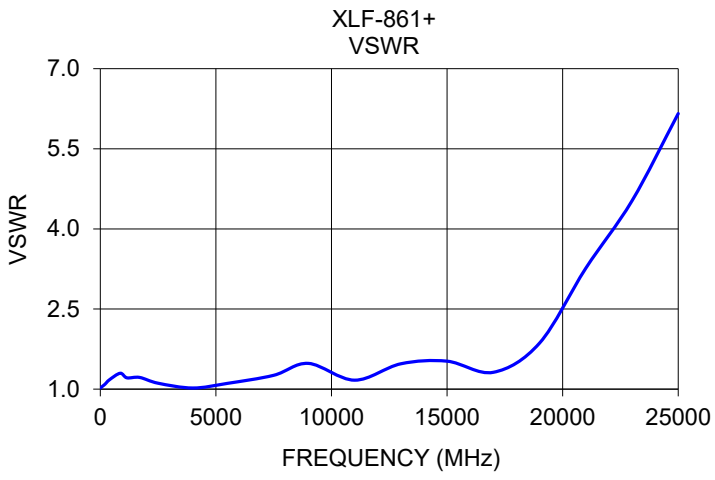
XLF-861+

50Ω DC to 860 MHz

TYPICAL PERFORMANCE DATA AT +25°C

Frequency (MHz)	Insertion Loss (dB)	VSWR (:1)
10	0.67	1.02
100	0.65	1.06
200	0.67	1.09
400	0.76	1.18
860	1.38	1.30
1150	2.97	1.21
1700	15.26	1.22
2500	16.70	1.11
4000	15.03	1.02
5500	16.44	1.11
7500	16.09	1.26
9000	12.17	1.48
11000	26.57	1.17
13000	27.34	1.48
15000	25.78	1.52
17000	23.91	1.32
19000	22.50	1.86
21000	23.63	3.26
23000	24.92	4.53
25000	27.04	6.16





Low Pass Filter

XLF-861+

50Ω DC to 860 MHz

ADDITIONAL DETAILED TECHNICAL INFORMATION IS AVAILABLE ON OUR DASHBOARD. TO ACCESS CLICK HERE

Performance Data & Graphs	Data Graphs S-Parameter (S2P Files) Data Set (.zip file)
Case Style	DQ1225 Plastic package, exposed paddle lead finish: matte-tin
Tape & Reel **Standard quantities available on reel**	F66 7" reels with 20, 50, 100, 200, 500 ,1000, 2000, 3000 devices
Suggested Layout for PCB Design	PL-451
Evaluation Board	TB-844-861+ (without connectors) TB-844-861C+ (with connectors) B20-118-F1+ Connector sold separately
Environmental Ratings	ENV82

ESD RATING

Human body model (HBM): Class 1A (250 to <500 V) in accordance with ANSI/ESD 5.1-2001

MSL RATING

Moisture Sensitivity: MSL1 in accordance with IPC/JEDEC J-STD-020D

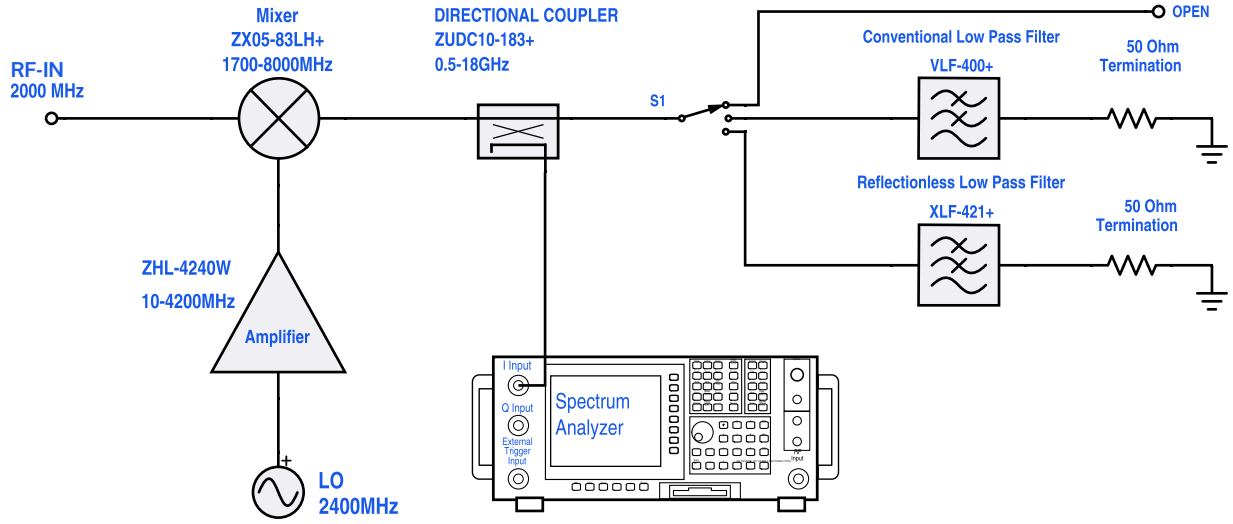
Low Pass Filter

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50Ω DC to 860 MHz

REFLECTIONLESS FILTER APPLICATION NOTE

Application Circuit Example: Pairing mixers with reflectionless filters to improve system dynamic range



Test block diagram: IF output reflection spectrum with single input frequency

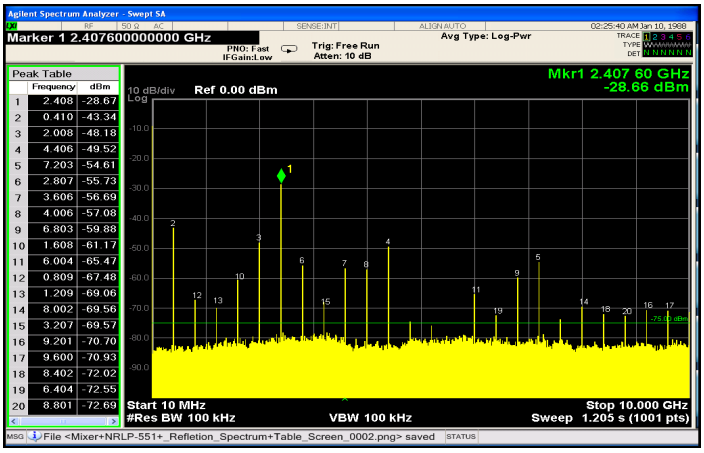


Figure 1. IF output reflection spectrum without filter

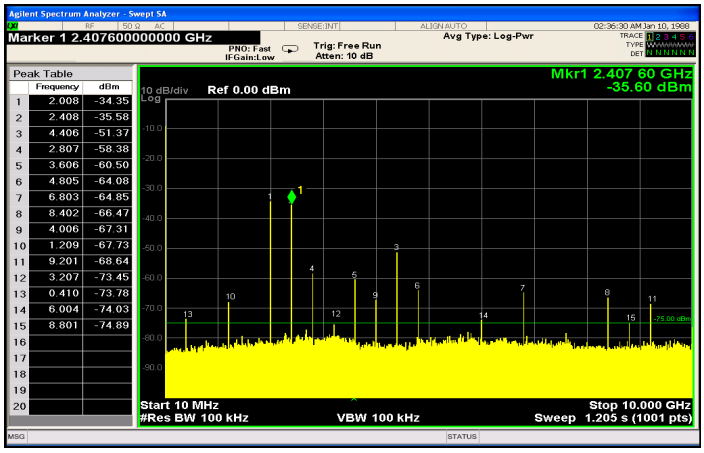
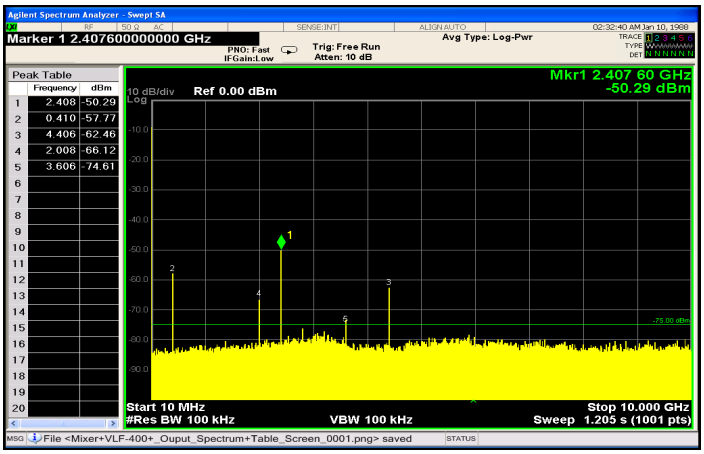


Figure 2. IF output reflection spectrum with conventional filter



NOTES

A. 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.

B. Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's applicable established test performance criteria and measurement instructions.

C. 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/terms/viewterm.html

Typical Performance Data

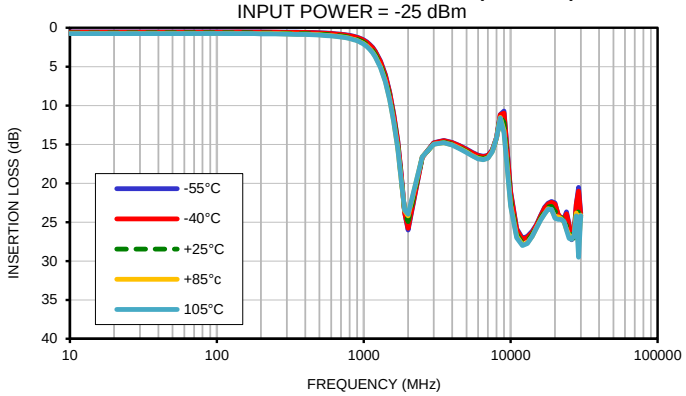
FREQ.	INSERTION LOSS					GROUP DELAY				
(MHz)	(dB)					(nsec)				
	@-55°C	@-40°C	@+25°C	@+85°C	@+105°C	@-55°C	@-40°C	@+25°C	@+85°C	@+105°C
10	0.54	0.57	0.68	0.73	0.77	0.18	0.21	0.21	0.21	0.18
50	0.54	0.56	0.65	0.72	0.75	0.19	0.21	0.20	0.21	0.19
100	0.52	0.55	0.64	0.72	0.74	0.20	0.20	0.20	0.20	0.20
120	0.53	0.55	0.65	0.72	0.75	0.20	0.20	0.20	0.20	0.20
140	0.53	0.55	0.65	0.73	0.75	0.20	0.20	0.20	0.20	0.20
160	0.54	0.56	0.66	0.74	0.76	0.20	0.20	0.20	0.20	0.20
180	0.53	0.56	0.66	0.73	0.77	0.20	0.20	0.20	0.20	0.20
200	0.54	0.56	0.66	0.75	0.77	0.20	0.20	0.20	0.20	0.20
250	0.55	0.58	0.69	0.77	0.80	0.20	0.20	0.20	0.20	0.20
300	0.56	0.59	0.71	0.79	0.82	0.20	0.20	0.20	0.20	0.20
350	0.58	0.61	0.73	0.81	0.85	0.20	0.21	0.20	0.20	0.20
400	0.59	0.62	0.74	0.83	0.87	0.21	0.21	0.21	0.21	0.21
450	0.61	0.66	0.78	0.88	0.90	0.21	0.21	0.21	0.21	0.21
500	0.64	0.68	0.81	0.91	0.95	0.22	0.22	0.21	0.21	0.21
550	0.68	0.71	0.86	0.96	1.00	0.22	0.22	0.22	0.22	0.22
600	0.72	0.76	0.91	1.01	1.05	0.23	0.23	0.22	0.22	0.22
650	0.77	0.81	0.97	1.08	1.12	0.23	0.24	0.23	0.23	0.23
700	0.83	0.87	1.04	1.16	1.20	0.24	0.24	0.24	0.24	0.24
750	0.89	0.94	1.12	1.24	1.29	0.25	0.25	0.25	0.25	0.25
800	0.98	1.03	1.22	1.35	1.40	0.26	0.26	0.26	0.26	0.26
850	1.09	1.13	1.33	1.48	1.53	0.27	0.27	0.27	0.27	0.27
860	1.11	1.16	1.37	1.51	1.56	0.27	0.27	0.27	0.27	0.27
880	1.17	1.22	1.43	1.57	1.62	0.28	0.28	0.27	0.27	0.27
900	1.22	1.27	1.48	1.63	1.69	0.29	0.28	0.28	0.28	0.28
920	1.28	1.33	1.55	1.71	1.76	0.29	0.29	0.28	0.28	0.28
940	1.34	1.40	1.62	1.79	1.84	0.29	0.29	0.29	0.29	0.29
960	1.41	1.47	1.70	1.87	1.93	0.30	0.30	0.29	0.29	0.29
980	1.50	1.56	1.80	1.97	2.03	0.30	0.30	0.30	0.30	0.30
1000	1.58	1.64	1.89	2.06	2.13	0.31	0.31	0.31	0.30	0.30
1050	1.84	1.90	2.16	2.36	2.42	0.32	0.32	0.31	0.31	0.31
1100	2.16	2.22	2.51	2.72	2.79	0.34	0.33	0.33	0.32	0.32
1150	2.54	2.62	2.93	3.15	3.23	0.34	0.34	0.33	0.33	0.33
1200	3.02	3.10	3.43	3.68	3.76	0.35	0.35	0.34	0.34	0.33
1300	4.28	4.37	4.75	5.02	5.12	0.35	0.35	0.34	0.33	0.33
1400	6.03	6.13	6.53	6.85	6.95	0.33	0.33	0.31	0.30	0.29
1500	8.27	8.38	8.83	9.16	9.26	0.28	0.28	0.25	0.24	0.23
1600	11.07	11.19	11.65	11.99	12.10	0.20	0.20	0.17	0.15	0.14
1700	14.51	14.62	15.09	15.42	15.53	0.08	0.07	0.03	-0.01	-0.02
1800	18.76	18.86	19.29	19.54	19.58	-0.18	-0.20	-0.26	-0.32	-0.33
1900	23.76	23.80	23.73	23.54	23.45	-0.81	-0.82	-0.85	-0.83	-0.83
2000	26.00	25.80	24.92	24.21	23.97	-1.16	-1.11	-0.96	-0.85	-0.81
2500	16.68	16.68	16.70	16.62	16.61	0.07	0.07	0.06	0.05	0.05
3000	14.78	14.81	14.93	14.97	14.97	0.08	0.08	0.07	0.07	0.07
3500	14.51	14.55	14.71	14.78	14.78	0.07	0.07	0.07	0.06	0.06
4000	14.74	14.80	14.99	15.05	15.08	0.07	0.07	0.06	0.06	0.06
4500	15.17	15.21	15.42	15.51	15.56	0.06	0.07	0.05	0.06	0.06
5000	15.62	15.68	15.90	15.99	16.06	0.06	0.06	0.05	0.06	0.05
5500	16.06	16.11	16.33	16.47	16.51	0.06	0.05	0.05	0.05	0.05
6000	16.38	16.47	16.69	16.80	16.86	0.05	0.06	0.05	0.06	0.05
6500	16.54	16.59	16.86	16.95	16.98	0.06	0.06	0.05	0.06	0.06
7000	16.42	16.46	16.66	16.74	16.77	0.07	0.06	0.06	0.06	0.06
7500	15.72	15.78	15.92	15.94	15.96	0.07	0.07	0.07	0.08	0.08
8000	14.12	14.15	14.26	14.20	14.19	0.11	0.11	0.12	0.13	0.13
8500	11.15	11.19	11.41	11.54	11.62	0.25	0.25	0.27	0.29	0.30
9000	10.73	10.99	12.19	13.20	13.54	0.36	0.35	0.31	0.28	0.27
10000	21.05	21.23	22.11	22.76	22.95	0.08	0.07	0.06	0.05	0.07
11000	25.85	25.97	26.52	26.84	27.00	0.04	0.03	0.03	0.03	0.02
12000	27.09	27.22	27.70	27.92	28.00	0.04	0.05	0.03	0.04	0.03
13000	26.82	26.95	27.41	27.64	27.76	0.03	0.04	0.03	0.02	0.03
14000	26.17	26.33	26.62	26.84	26.83	0.04	0.05	0.03	0.04	0.04
15000	25.31	25.37	25.61	25.69	25.76	0.04	0.04	0.04	0.03	0.04
16000	24.18	24.25	24.54	24.70	24.76	0.04	0.04	0.05	0.04	0.04
17000	23.07	23.20	23.65	23.90	23.96	0.05	0.04	0.05	0.04	0.05
18000	22.58	22.68	23.02	23.28	23.34	0.05	0.05	0.06	0.04	0.05
19000	22.34	22.45	22.96	23.41	23.36	0.05	0.06	0.04	0.05	0.05
20000	22.53	22.68	23.70	24.29	24.50	0.06	0.06	0.04	0.04	0.04
21000	24.10	23.98	23.64	24.31	24.63	-0.04	-0.03	0.05	0.04	0.03
22000	24.42	24.51	24.32	24.55	24.66	0.00	-0.01	0.03	0.04	0.04
23000	24.59	24.72	24.98	24.97	24.87	0.02	0.02	0.04	0.04	0.04
24000	23.69	23.94	25.44	25.89	26.00	0.06	0.07	0.03	0.02	0.02
25000	25.33	25.41	26.04	26.72	27.11	0.03	0.04	0.02	0.01	-0.01
26000	27.27	27.19	26.68	27.04	27.23	-0.03	-0.01	0.01	0.01	0.03
27000	26.60	26.68	27.04	26.73	26.70	0.00	0.00	-0.02	0.02	0.02
28000	22.69	22.69	23.24	23.81	24.20	0.11	0.10	0.16	0.17	0.21
29000	20.52	21.00	23.81	28.14	29.52	0.31	0.32	0.39	0.41	0.54
30000	23.90	24.20	24.34	24.09	24.17	0.35	0.36	0.31	0.26	0.23

Typical Performance Data

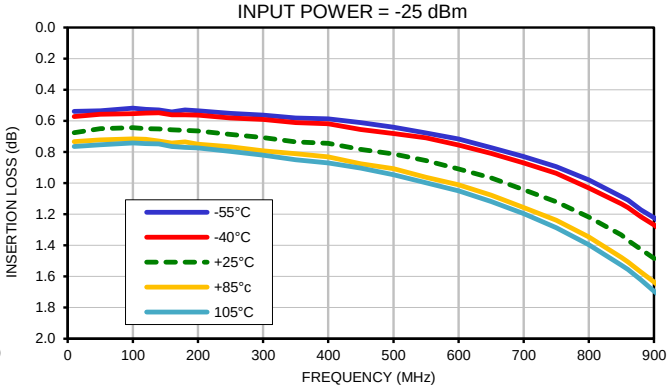
FREQ.	INPUT RETURN LOSS					OUTPUT RETURN LOSS				
(MHz)	(dB)					(dB)				
	@-55°C	@-40°C	@+25°C	@+85°C	@+105°C	@-55°C	@-40°C	@+25°C	@+85°C	@+105°C
10	42.30	43.31	39.73	34.87	33.33	36.92	37.77	34.87	32.04	30.84
50	35.29	35.29	33.16	30.71	30.11	35.47	35.70	33.77	31.94	31.42
100	32.38	32.40	30.87	29.09	28.54	32.47	32.41	32.00	30.86	30.44
120	32.01	31.86	30.14	28.54	27.96	31.79	31.74	30.59	29.79	29.51
140	30.96	30.61	29.12	27.75	27.17	31.44	31.21	29.87	29.00	28.46
160	30.16	29.73	28.26	27.16	26.64	30.59	30.17	28.82	27.74	27.38
180	29.40	29.14	27.72	26.61	26.23	29.57	29.02	27.55	26.57	26.12
200	28.22	27.92	26.77	25.89	25.47	28.70	28.43	26.97	25.89	25.46
250	26.09	26.03	25.03	24.52	24.30	26.26	26.14	25.26	24.49	24.25
300	24.70	24.56	23.84	23.45	23.34	24.35	24.24	23.71	23.16	23.09
350	23.30	23.22	22.49	22.17	22.03	23.31	23.18	22.64	22.21	22.17
400	22.17	22.11	21.49	21.19	21.00	22.32	22.19	21.63	21.22	21.08
450	21.16	21.07	20.67	20.38	20.21	21.39	21.34	20.84	20.38	20.20
500	20.42	20.37	19.91	19.72	19.62	20.68	20.58	20.18	19.75	19.59
550	19.97	19.90	19.38	19.25	19.21	19.92	19.80	19.40	19.09	19.02
600	19.46	19.39	18.88	18.75	18.71	19.48	19.42	18.91	18.72	18.67
650	18.88	18.84	18.45	18.28	18.25	18.97	18.93	18.48	18.28	18.23
700	18.48	18.45	18.18	17.97	17.95	18.57	18.49	18.18	17.94	17.86
750	18.22	18.20	17.99	17.85	17.78	18.20	18.20	17.97	17.73	17.63
800	18.00	17.99	17.85	17.72	17.69	17.96	17.94	17.78	17.60	17.53
850	17.96	17.96	17.86	17.76	17.76	17.90	17.91	17.78	17.67	17.63
860	17.93	17.93	17.84	17.74	17.77	17.88	17.91	17.79	17.68	17.64
880	17.96	17.95	17.88	17.80	17.78	17.94	17.97	17.87	17.78	17.73
900	18.02	18.00	17.96	17.86	17.87	17.95	17.97	17.91	17.84	17.78
920	18.09	18.09	18.06	17.95	17.95	18.05	18.06	18.00	17.93	17.90
940	18.16	18.17	18.14	18.04	18.03	18.17	18.17	18.13	18.07	18.03
960	18.31	18.31	18.30	18.17	18.17	18.24	18.29	18.24	18.16	18.13
980	18.42	18.43	18.44	18.32	18.30	18.39	18.42	18.39	18.32	18.25
1000	18.53	18.56	18.57	18.45	18.43	18.57	18.62	18.59	18.50	18.43
1050	19.04	19.09	19.14	19.04	19.03	19.03	19.12	19.15	19.06	18.98
1100	19.82	19.87	19.97	19.86	19.83	19.87	19.92	20.04	19.94	19.88
1150	20.71	20.72	20.83	20.72	20.69	20.84	20.88	21.02	20.90	20.87
1200	21.80	21.82	21.88	21.70	21.63	21.93	21.95	22.02	21.87	21.79
1300	23.57	23.52	23.37	23.04	22.94	23.78	23.79	23.60	23.29	23.11
1400	22.97	22.98	22.86	22.62	22.54	23.25	23.22	23.03	22.87	22.74
1500	21.29	21.30	21.43	21.35	21.30	21.43	21.50	21.50	21.52	21.53
1600	20.06	20.13	20.43	20.45	20.45	20.08	20.15	20.48	20.56	20.54
1700	19.49	19.59	19.96	20.04	20.04	19.52	19.62	20.06	20.17	20.21
1800	19.47	19.57	19.97	20.06	20.05	19.54	19.62	20.14	20.22	20.24
1900	19.82	19.94	20.36	20.45	20.44	19.76	19.90	20.49	20.63	20.60
2000	20.48	20.55	20.93	21.05	21.06	20.35	20.50	21.09	21.19	21.24
2500	26.23	26.30	26.27	26.40	26.32	25.62	25.75	26.28	26.42	26.31
3000	34.87	35.73	37.47	37.04	36.50	34.99	35.42	37.20	36.82	36.38
3500	33.65	34.32	38.34	44.87	47.69	37.05	37.77	40.17	44.69	46.43
4000	30.03	30.37	32.13	34.59	35.21	29.35	29.95	32.93	35.83	36.81
4500	28.45	28.77	29.83	30.56	30.74	27.56	27.88	30.36	31.24	31.32
5000	27.94	27.92	27.85	27.67	27.54	27.96	27.99	27.62	26.97	26.57
5500	26.52	26.39	25.61	24.98	24.85	27.86	27.55	24.72	23.43	22.91
6000	24.00	23.98	23.47	22.83	22.71	24.05	23.85	22.20	21.24	20.94
6500	22.38	22.34	21.82	21.54	21.55	20.36	20.40	20.47	20.11	20.07
7000	21.12	21.06	20.72	20.72	20.81	17.77	17.92	19.30	19.66	19.99
7500	20.27	20.23	20.15	20.10	20.19	17.10	17.23	18.59	19.23	19.55
8000	18.99	18.97	18.87	18.63	18.54	17.45	17.50	17.83	17.76	17.75
8500	14.95	14.92	15.00	14.86	14.78	16.16	16.08	15.34	14.95	14.72
9000	12.39	12.62	13.54	14.54	14.89	12.32	12.66	14.69	16.15	16.76
10000	24.00	24.36	25.88	27.75	28.95	27.52	27.61	27.55	28.49	28.81
11000	27.19	26.91	25.48	24.07	23.40	19.66	19.94	22.63	23.32	23.66
12000	18.37	18.21	17.52	16.78	16.47	16.79	16.65	16.23	15.94	15.91
13000	15.18	15.11	14.83	14.34	14.22	16.05	15.75	13.60	12.60	12.18
14000	13.88	13.89	13.92	13.83	13.86	11.76	11.94	12.52	12.04	11.74
15000	13.83	13.91	14.25	14.44	14.59	10.06	10.31	12.73	13.80	14.32
16000	15.10	15.21	15.65	16.07	16.26	12.89	13.02	14.34	15.61	16.42
17000	16.23	16.37	17.03	17.28	17.31	22.74	22.76	18.32	16.69	15.77
18000	13.78	13.76	13.78	13.56	13.36	12.04	12.45	17.49	19.78	20.45
19000	9.38	9.33	9.12	8.82	8.75	11.32	11.31	11.42	11.58	11.85
20000	6.16	6.17	6.11	5.99	6.00	9.82	9.70	7.64	6.75	6.37
21000	4.38	4.57	5.58	5.07	5.09	4.49	4.72	5.63	5.19	4.83
22000	4.27	4.29	4.17	4.02	4.06	2.27	2.48	4.56	5.52	5.68
23000	3.13	3.19	3.43	3.61	3.71	2.66	2.77	3.96	5.24	6.04
24000	2.69	2.78	3.05	3.40	3.54	4.55	4.59	3.60	3.55	3.54
25000	2.18	2.26	2.69	2.97	3.06	1.71	1.97	3.15	3.08	2.88
26000	1.85	1.95	2.44	2.62	2.70	0.53	0.74	2.81	3.87	4.07
27000	1.99	2.10	2.53	2.86	3.02	1.51	1.67	2.87	4.18	4.94
28000	2.78	2.97	3.66	4.31	4.49	4.14	4.47	4.14	3.95	3.84
29000	4.02	4.07	4.45	4.49	4.44	2.43	2.74	5.02	4.51	3.93
30000	3.36	3.43	4.10	4.30	4.33	1.37	1.59	4.18	5.99	6.23

Typical Performance Curves

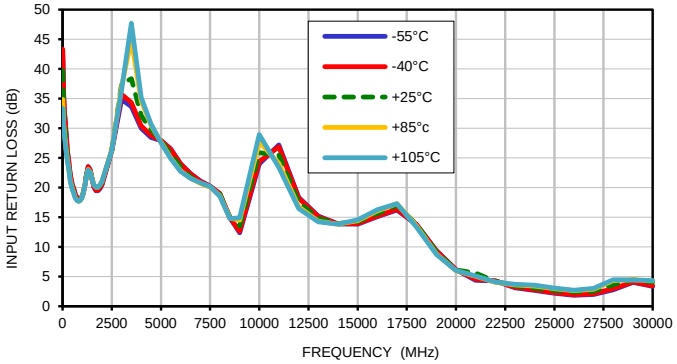
INSERTION LOSS vs. TEMPERATURE (Full band)
INPUT POWER = -25 dBm



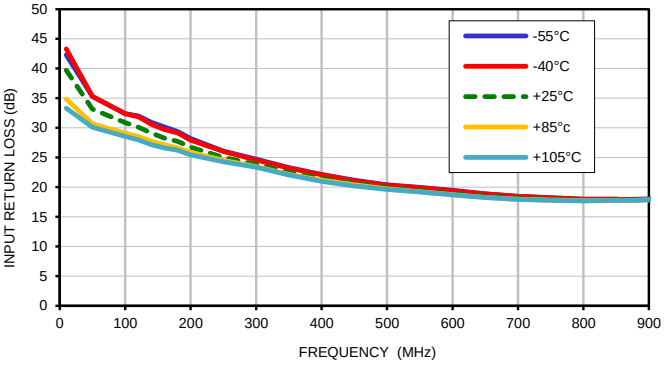
INSERTION LOSS vs. TEMPERATURE (Pass band)
INPUT POWER = -25 dBm



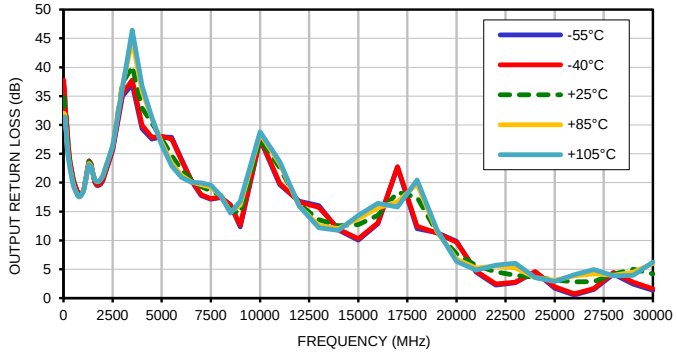
INPUT RETURN LOSS vs. TEMPERATURE (Full band)
INPUT POWER = -25 dBm



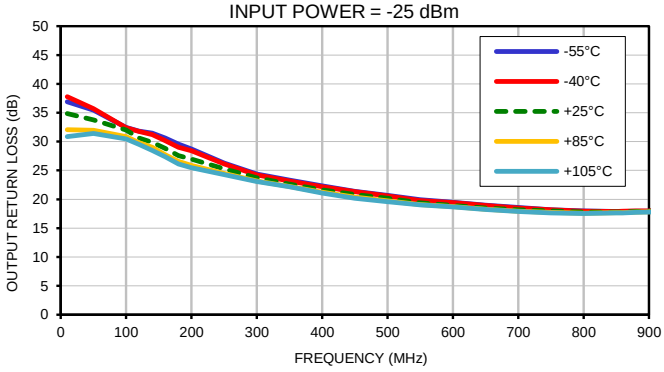
INPUT RETURN LOSS vs. TEMPERATURE (Pass band)
INPUT POWER = -25 dBm



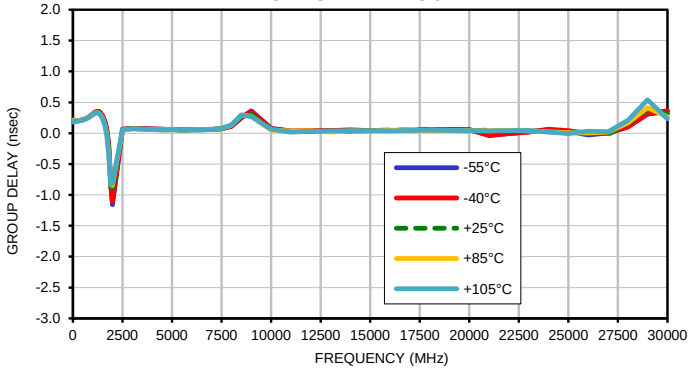
OUTPUT RETURN LOSS vs. TEMPERATURE (Full band)
INPUT POWER = -25 dBm



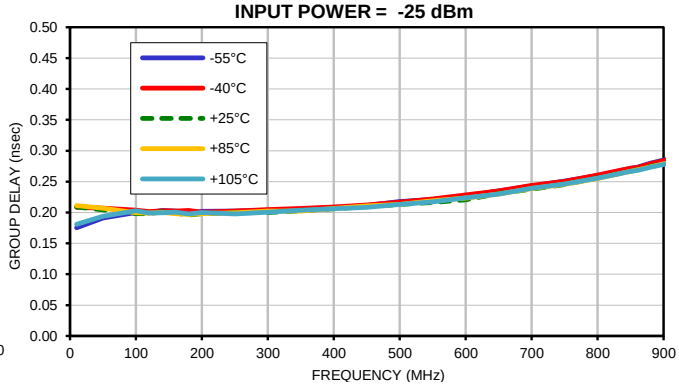
OUTPUT RETURN LOSS vs. TEMPERATURE (Pass band)
INPUT POWER = -25 dBm



GROUP DELAY vs. TEMPERATURE (Full band)
INPUT POWER = -25 dBm



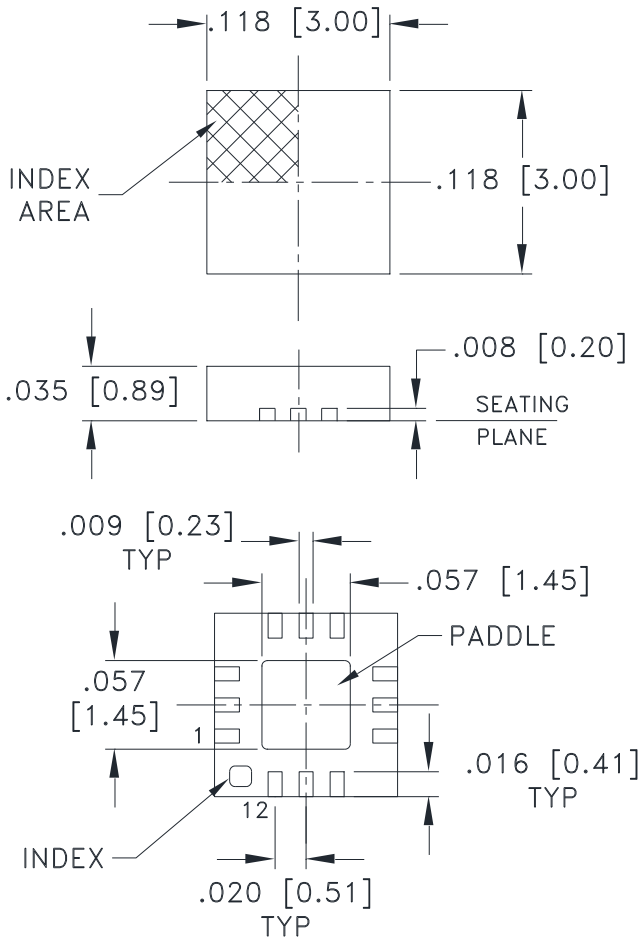
GROUP DELAY vs. TEMPERATURE (Pass band)
INPUT POWER = -25 dBm



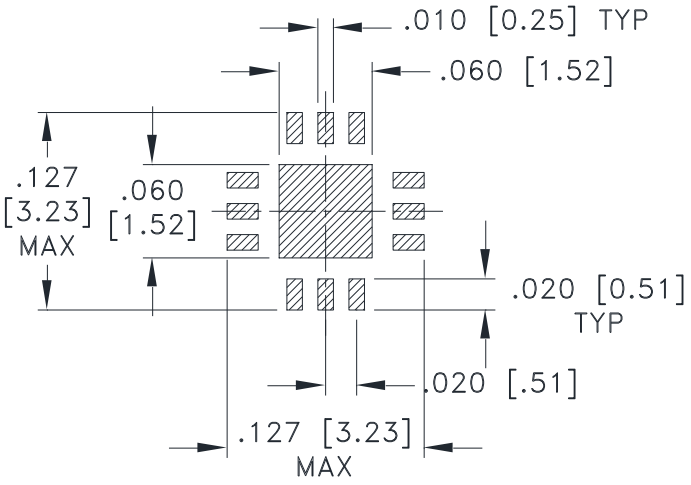
Case Style DQ

DQ1225

Outline Dimensions



PCB Land Pattern



SUGGESTED LAYOUT,
TOLERANCE TO BE WITHIN ±.002

Weight: .02 Grams

Dimensions are in inches (mm). Tolerances: 2Pl. ± .01; 3 Pl. ± .004

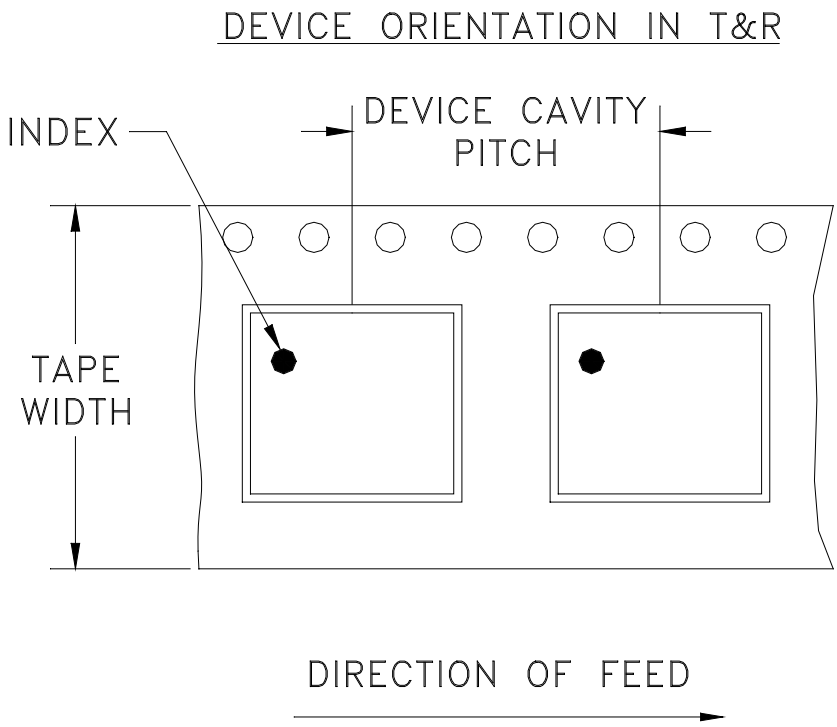
Notes:

1. Case material: Plastic.
2. Termination finish:
   - For RoHS Case Styles: Tin-Silver alloy plate over Nickel barrier or Matte-Tin. All models, (+) suffix. See Data sheet.
   - For RoHS-5 Case Styles: Tin-Lead plate. All models, no (+) suffix.

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Tape & Reel Packaging TR-F66



Tape Width, mm	Device Cavity Pitch, mm	Reel Size, inches	Devices per Reel see note	
8	4	7	Small quantity standard	20
				50
				100
				200
				500
		7	Standard	1000, 2000, 3000

Note: Please consult individual model data sheet to determine device per reel availability.

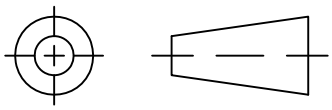
Mini-Circuits carrier tape materials provide protection from ESD (Electro-Static Discharge) during handling and transportation. Tapes are static dissipative and comply with industry standards EIA-481/EIA-541.

Go to: www.minicircuits.com/pages/pdfs/tape.pdf

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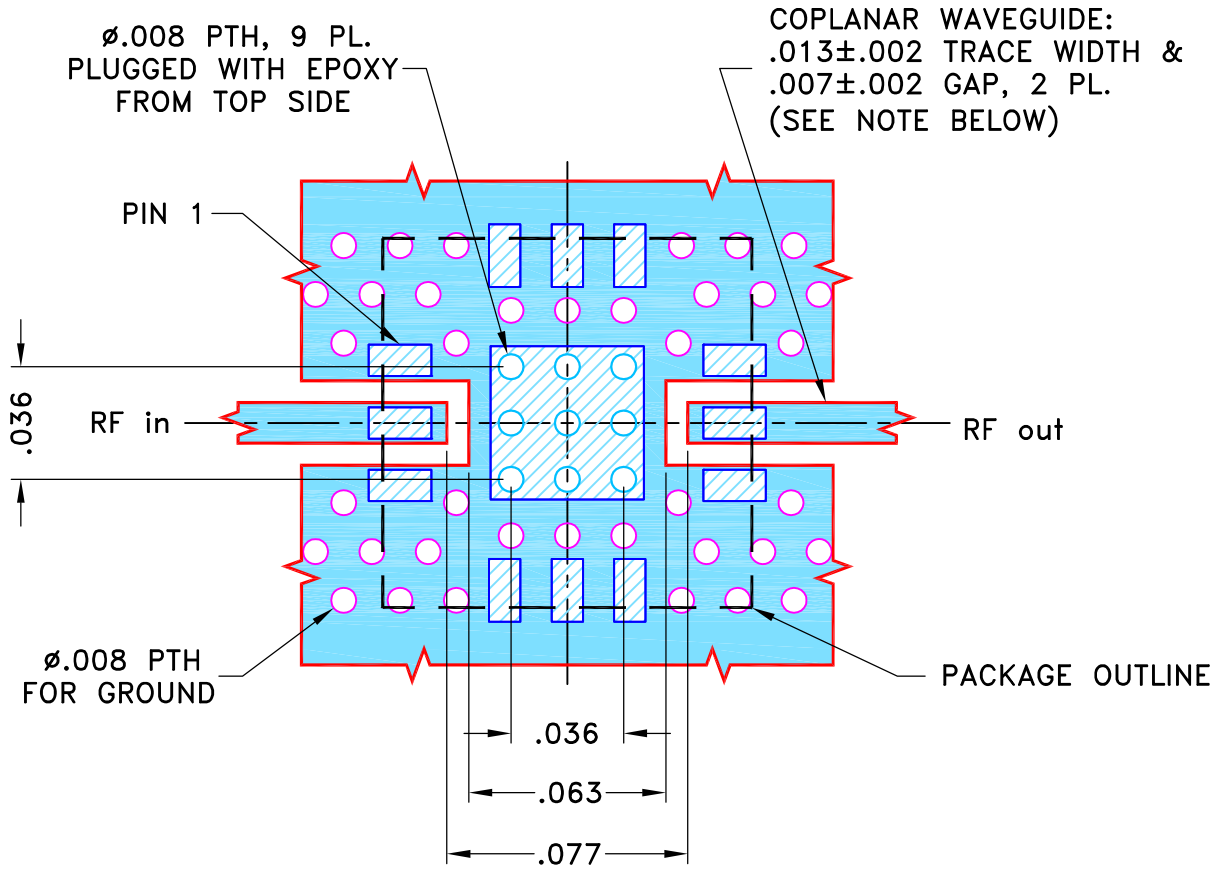
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THIRD ANGLE PROJECTION



REVISIONS					
REV	ECN No.	DESCRIPTION	DATE	DR	AUTH
OR	M152656	NEW RELEASE	09/11/15	ITG	MY

SUGGESTED MOUNTING CONFIGURATION
FOR DQ1225 CASE STYLE, "12FL02" PIN CODE



NOTES:

1. TRACE WIDTH PARAMETERS ARE SHOWN FOR ROGERS RO4350B WITH DIELECTRIC THICKNESS .0066"±.0007". COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH AND GAP MAY NEED TO BE MODIFIED.
2. BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.

DENOTES PCB COPPER LAYOUT WITH SMOBC (SOLDER MASK OVER BARE COPPER).

DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK.

UNLESS OTHERWISE SPECIFIED		INITIALS	DATE
DIMENSIONS ARE IN INCHES	DRAWN	ITG	09/10/15
TOLERANCES ON:	CHECKED	GF	09/11/15
2 PL DECIMALS ±	APPROVED	MY	09/11/15
3 PL DECIMALS ± .005			
ANGLES ±			
FRACTIONS ±			

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ASHEETA1.DWG REV:A DATE:01/12/95

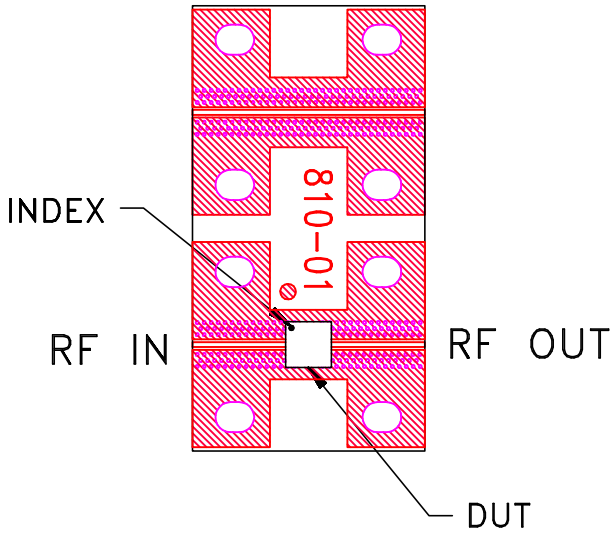
Mini-Circuits®
13 Neptune Avenue
Brooklyn NY 11235

PL, 12FL02, DQ1225, TB-844+

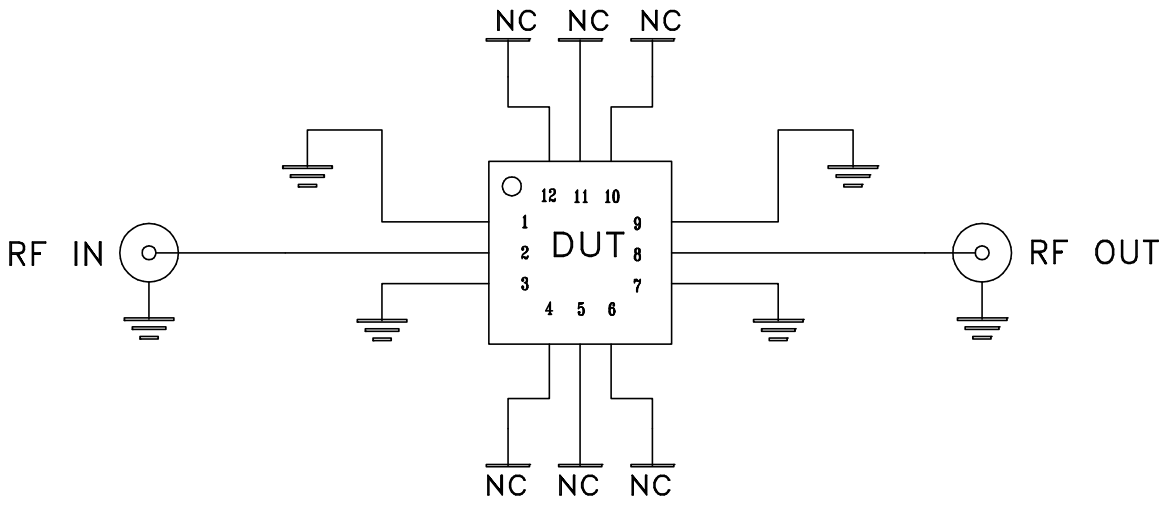
SIZE	CODE IDENT	DRAWING NO:	REV:
A	15542	98-PL-451	OR
FILE: 98PL451	SCALE: 16:1	SHEET: 1 OF 1	

Evaluation Board and Circuit

To be used with Mini-Circuits 50 Ohm 2.92 connectors B20-118-F1+.
Connectors are sold separately.



TB-844-861+



Schematic Diagram

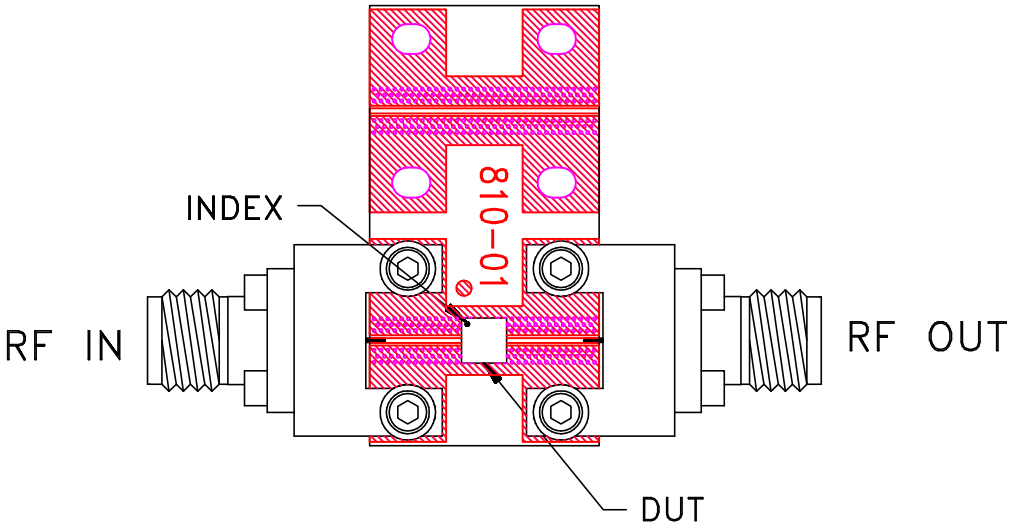
Note:

PCB Material: RO4350 or equivalent,
Dielectric Constant=3.5, Thickness=.0066 inch.

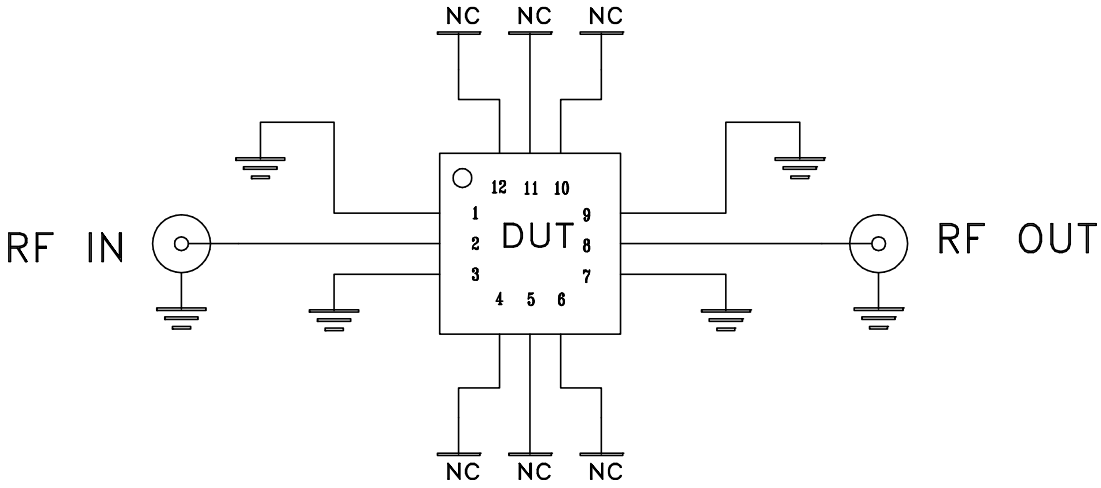
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Evaluation Board and Circuit



TB-844-861C+



Schematic Diagram

Notes:

1. 50 Ohm 2.92 mm Female connectors.
2. PCB Material: RO4350 or equivalent, Dielectric Constant=3.5, Thickness=.0066 inch.

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Mini-Circuits

Environmental Specifications ENV82

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 105°C Ambient Environment	Individual Model Data Sheet
Storage Temperature	-65° to 150° C Ambient Environment	Individual Model Data Sheet
Autoclave	15 psig, 100% RH, 121°C, 96 hours	JESD22-A102-C, Condition C
Temperature Cycling	-65° to 150°C, 100 cycles	JESD22-A104
Temperature Humidity	85°C/ 85% RH, 168 hours	JESD22-113
Solder Reflow Heat	Sn-Pb Eutetic Process: 240°C peak Pb-Free Process: 260°C peak	J-STD-020, Table 4-1, 4-2 and 5-2; Figure 5-1
Moisture Sensitivity: Level 1	Bake at 125°C for 24 hours Soak at 85°C/85% RH for 168 hours, Reflow 3 cycles at 240°C peak (Non-RoHS) or 260°C (RoHS)	J-STD-020C
Solderability	10X magnification, 95% coverage	JESD22-B102, Method 1: Dip and Look Test
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

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