Engineering Development Model

Power Splitter/Combiner GP2-ED13012A/1

2 Way-0°

Important Note

This model has been designed, built and tested in our engineering department. Performance data represents model capability.
At present it is a non-catalog model. On request, we can supply a final specification sheet, part number and price/delivery information.

Please click "Back", and then click "Contact Us" for Applications support.

CASE STYLE : DQ1225

ELECTRICAL SPECIFICATIONS 50Ω @ +25°C					
Parameter		**Min.**	**Typ.**	**Max.**	**Units**
Frequency		380		2510	MHz
Isolation	**380 - 2510 MHz**		20		dB
Insertion Loss Above 3.0 dB	**380 - 2510 MHz**		0.85		dB
Phase Unbalance	**380 - 2510 MHz**		0.98		deg.
Amplitude Unbalance	**380 - 2510 MHz**		0.02		dB
VSWR	**SUM Port**		1.29		(:1)
	OUT Ports		1.19		(:1)

MAXIMUM RATINGS	
Operating Temperature	-40°C to 85°C
Storage Temperature	-65°C to 150°C

PIN CONNECTIONS	
SUM PORT	2
PORT 1	7
PORT 2	9
GROUND	1,3,4,5,6,8,10,11,12, Paddle

Functional Diagram

2 Way-0° Power Splitter/Combiner GP2-ED13012A/1

Typical Performance Data

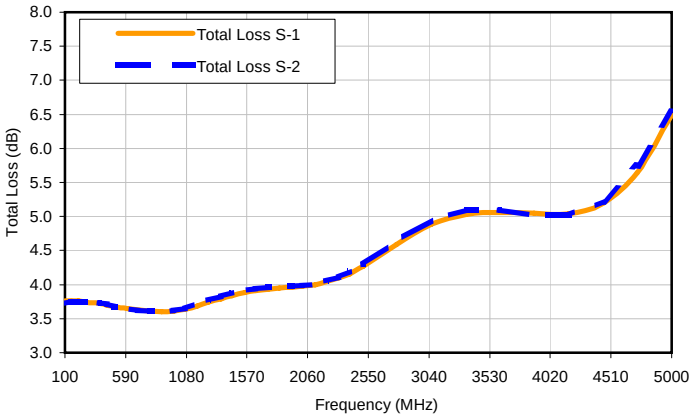
FREQUENCY (MHz)	TOTAL LOSS[1] (dB)		AMPLITUDE UNBALANCE (dB)	ISOLATION (dB)	PHASE UNBALANCE (deg.)	FREQUENCY (MHz)	VSWR (:1)		
	S-1	S-2		1-2			S	1	2
100.0	3.76	3.72	0.04	4.52	0.19	100.0	1.87	1.75	1.74
150.0	3.76	3.75	0.02	5.13	0.32	150.0	1.84	1.68	1.67
210.0	3.76	3.75	0.01	6.01	0.36	210.0	1.80	1.59	1.59
270.0	3.74	3.75	0.01	7.02	0.38	270.0	1.75	1.51	1.51
320.0	3.73	3.74	0.01	7.96	0.42	320.0	1.70	1.46	1.46
380.0	3.72	3.73	0.01	9.15	0.42	380.0	1.64	1.40	1.40
440.0	3.70	3.71	0.01	10.45	0.45	440.0	1.58	1.35	1.34
500.0	3.68	3.68	0.01	11.86	0.42	500.0	1.52	1.30	1.30
510.0	3.67	3.68	0.01	12.11	0.42	510.0	1.51	1.30	1.29
600.0	3.65	3.65	0.00	14.57	0.45	600.0	1.41	1.25	1.24
690.0	3.63	3.62	0.01	17.62	0.47	690.0	1.31	1.21	1.20
790.0	3.61	3.61	0.00	22.30	0.49	790.0	1.21	1.17	1.16
880.0	3.60	3.60	0.00	29.08	0.52	880.0	1.12	1.14	1.12
980.0	3.61	3.62	0.01	33.32	0.57	980.0	1.07	1.11	1.09
1070.0	3.64	3.65	0.01	26.49	0.66	1070.0	1.10	1.09	1.07
1170.0	3.69	3.72	0.02	22.70	0.72	1170.0	1.16	1.06	1.04
1260.0	3.74	3.77	0.04	21.01	0.78	1260.0	1.22	1.04	1.02
1360.0	3.79	3.83	0.04	20.20	0.83	1360.0	1.27	1.05	1.03
1450.0	3.84	3.88	0.04	20.24	0.87	1450.0	1.30	1.07	1.05
1550.0	3.88	3.92	0.04	21.14	0.91	1550.0	1.32	1.10	1.08
1640.0	3.91	3.94	0.03	22.91	0.97	1640.0	1.30	1.14	1.11
1740.0	3.93	3.96	0.03	26.76	1.05	1740.0	1.27	1.17	1.14
1830.0	3.95	3.97	0.02	34.69	1.16	1830.0	1.22	1.20	1.17
1930.0	3.96	3.98	0.02	32.63	1.28	1930.0	1.15	1.22	1.19
2020.0	3.98	3.99	0.01	24.55	1.41	2020.0	1.08	1.24	1.21
2120.0	4.00	4.01	0.01	19.78	1.57	2120.0	1.04	1.24	1.22
2210.0	4.04	4.05	0.02	16.91	1.65	2210.0	1.11	1.25	1.23
2310.0	4.10	4.11	0.02	14.55	1.76	2310.0	1.23	1.25	1.24
2400.0	4.16	4.19	0.03	12.90	1.80	2400.0	1.34	1.24	1.24
2500.0	4.26	4.29	0.03	11.43	1.89	2500.0	1.47	1.24	1.24
2510.0	4.27	4.30	0.03	11.31	1.89	2510.0	1.48	1.23	1.24
2780.0	4.59	4.64	0.05	8.65	1.86	2780.0	1.83	1.21	1.24
3060.0	4.89	4.95	0.06	7.05	1.78	3060.0	2.05	1.19	1.22
3340.0	5.03	5.10	0.07	6.16	1.70	3340.0	2.03	1.19	1.22
3610.0	5.06	5.10	0.04	5.87	1.79	3610.0	1.80	1.33	1.31
3890.0	5.05	5.02	0.03	6.39	2.11	3890.0	1.45	1.62	1.53
4170.0	5.04	5.02	0.02	9.02	2.67	4170.0	1.09	1.89	1.81
4440.0	5.19	5.22	0.04	16.25	2.76	4440.0	1.34	1.83	1.80
4720.0	5.64	5.74	0.09	20.28	2.42	4720.0	2.04	1.55	1.57
5000.0	6.49	6.53	0.04	10.43	2.01	5000.0	3.12	1.32	1.35

[1]Total Loss = Insertion Loss + 3dB Splitter Loss

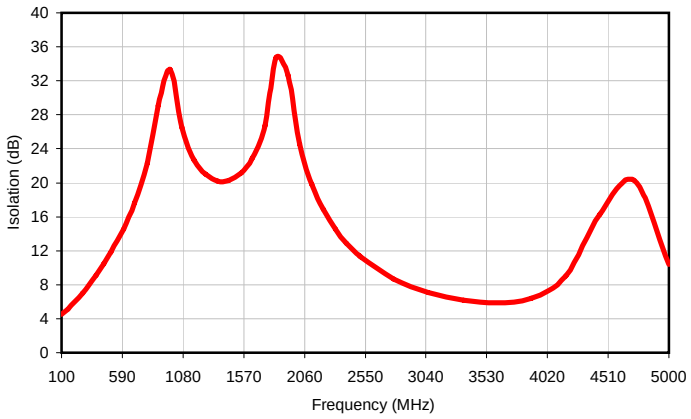
2 Way-0° Power Splitter/Combiner GP2-ED13012A/1

Typical Performance Curves

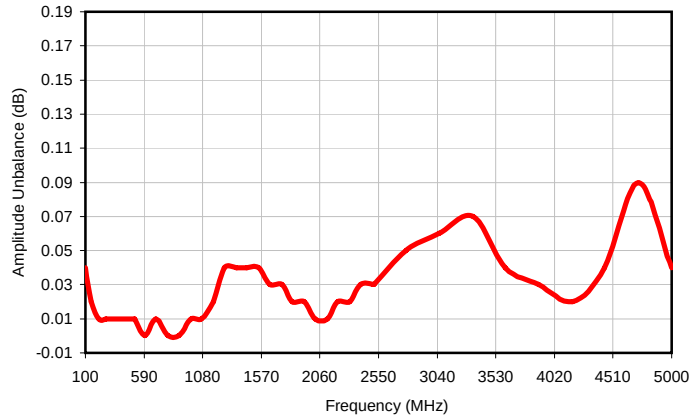
Total Loss



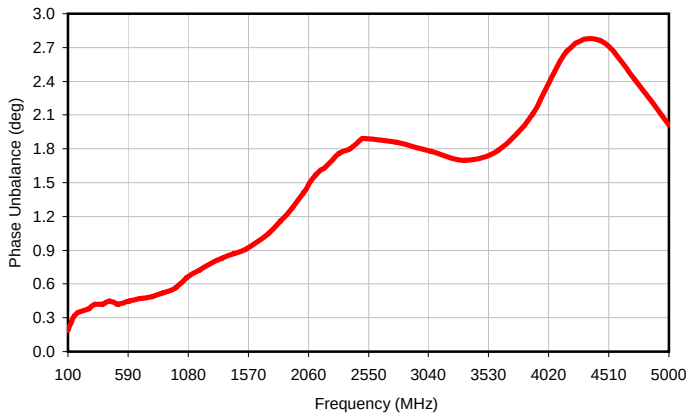
Isolation



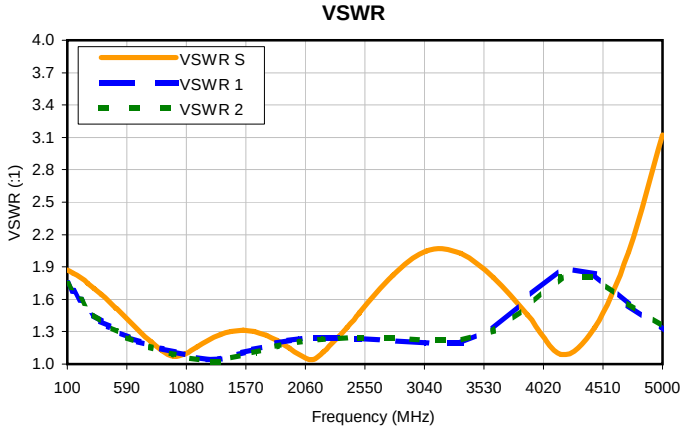
Amplitude Unbalance



Phase Unbalance



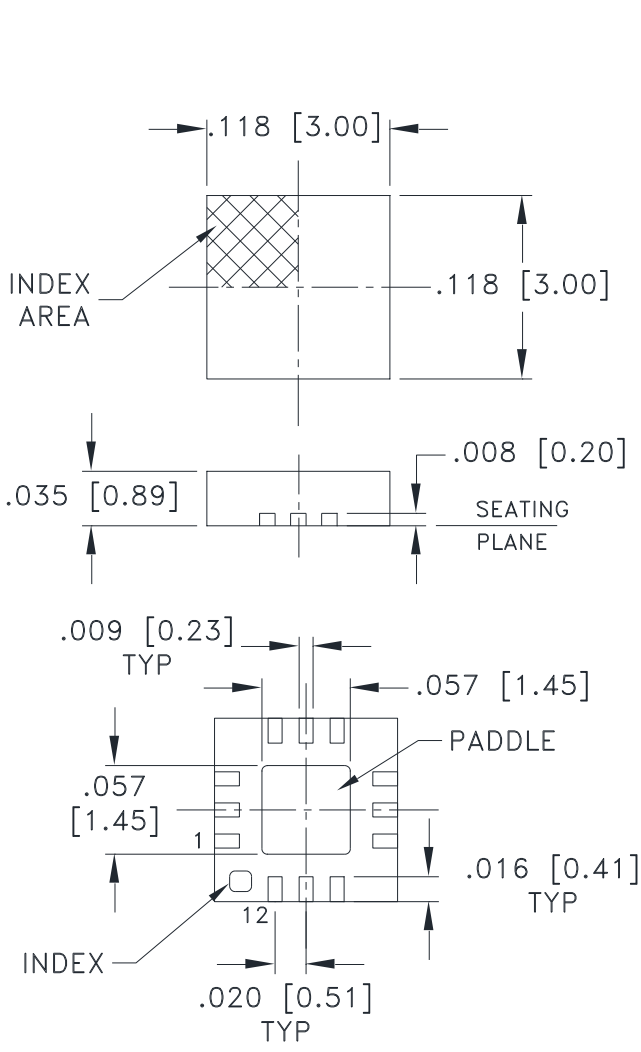
VSWR



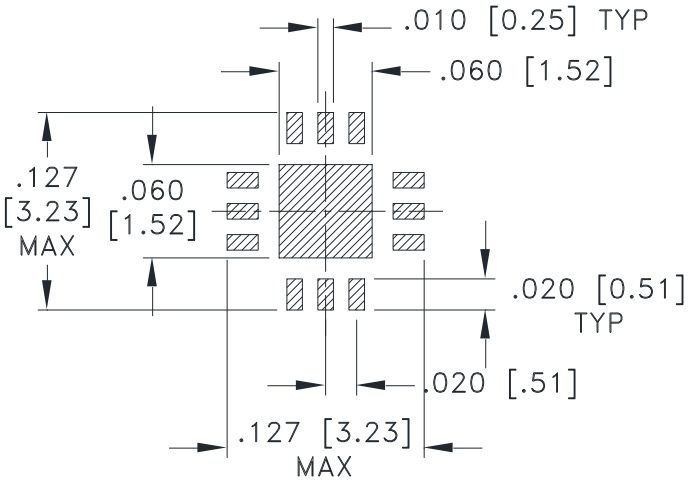
Case Style DQ

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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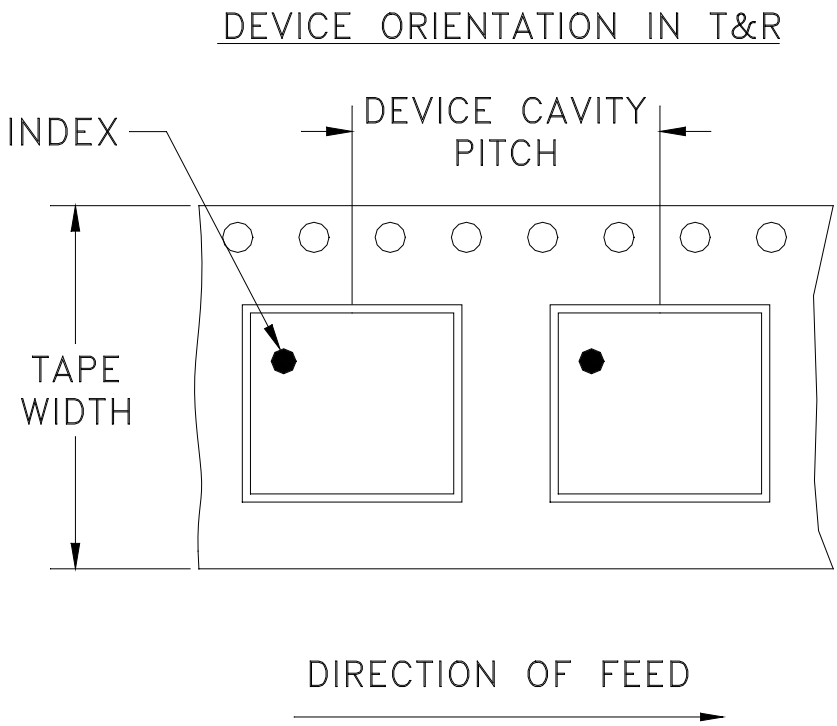
Tape & Reel Packaging TR-F66



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.

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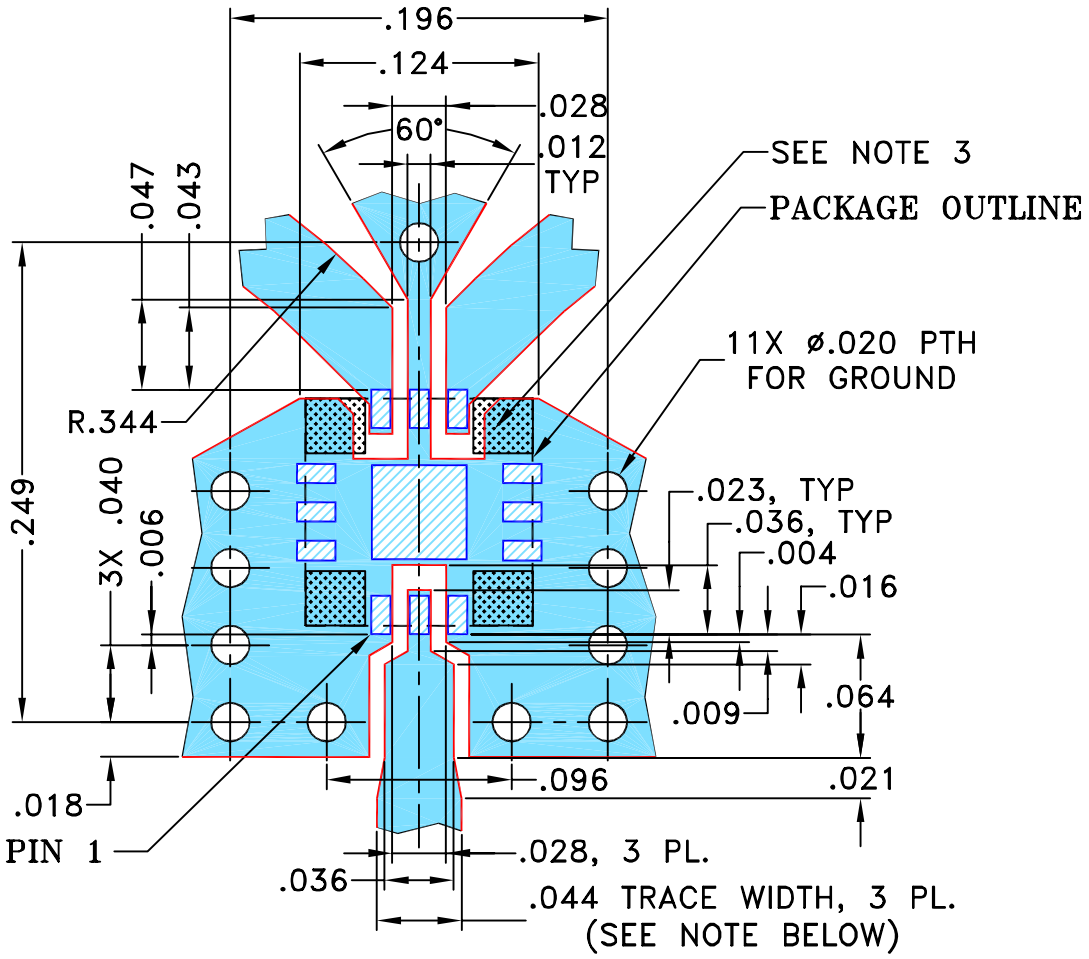
THIRD ANGLE PROJECTION

REVISIONS					
REV	ECN No.	DESCRIPTION	DATE	DR	AUTH
OR	M114550	NEW RELEASE	11/15/07	AV	WP

SUGGESTED MOUNTING CONFIGURATION FOR DQ1225 CASE STYLE, "12SP02" PIN CODE



NOTES:

1. TRACE WIDTH IS SHOWN FOR ROGERS RO4350B WITH DIELECTRIC THICKNESS .020" ± .0015"; 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.
3. SIGNAL TRACES ARE NOT ALLOWED INSIDE HATCHED AREAS (APPROX. .030 X .030) AT 4 PLACES AS SHOWN.

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	AV	11/13/07
TOLERANCES ON:	CHECKED	MMG	11/15/07
2 PL DECIMALS ±	APPROVED	WP	11/15/07
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

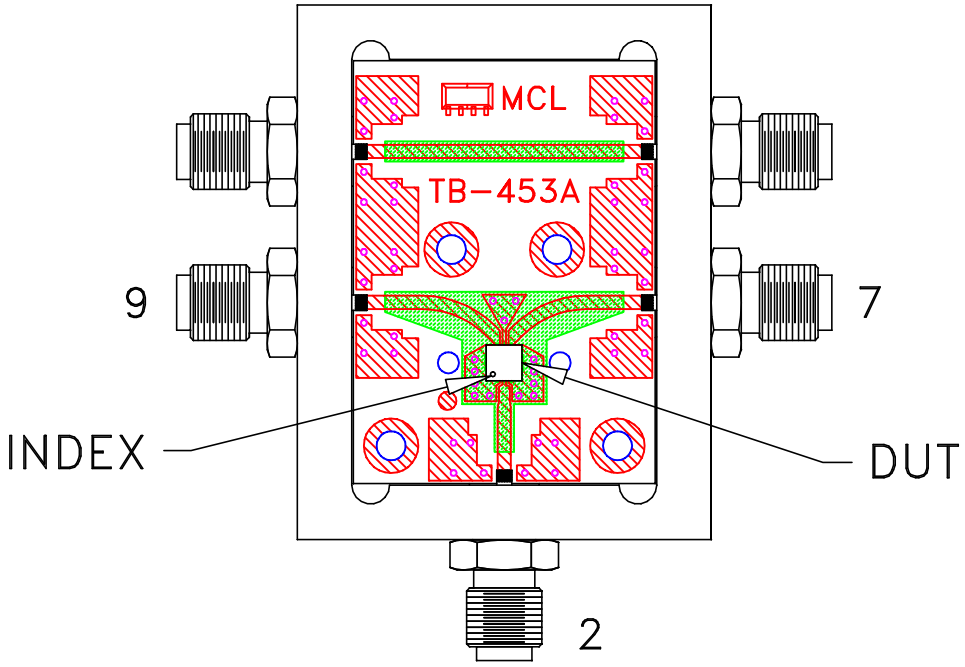
PL, 12SP02, DQ1225, GP2, TB-453+

SIZE	CODE IDENT	DRAWING NO:	REV:
A	15542	98-PL-282	OR

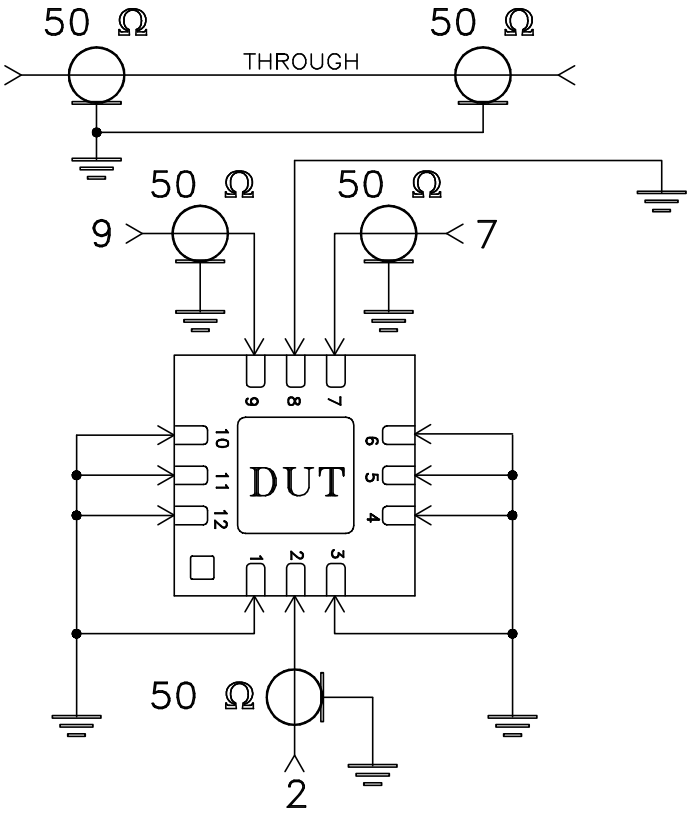
FILE:	SCALE:	SHEET:
98PL282	10:1	1 OF 1

Evaluation Board and Circuit

For Pins Connections Refer to Data Sheet of the DUT



TB-453+



Schematic Diagram

Notes:

1. SMA Female connectors.
2. PCB Material: Rogers RO4350 or equivalent, Dielectric Constant=3.5, Thickness=.020 inch.

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Environmental Specifications ENV12

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	-40° to 85° 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-020
Solderability	10X magnification, 95% coverage	JESD22-B102, Method 1: Dip and Look Test
Mechanical Shock	50g, 11 ms, 1/2-sine, 18 shocks: 3 each direction, each of 3 axes	MIL-STD-202, Method 213, Condition A
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

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