Very High DC Current

RF Choke

ADCH-1220+

50Ω 5 to 1220 MHz

CASE STYLE: CD637

The Big Deal

- Very wideband, 5 to 1220 MHz
- Maximum DC current handling capability of 200mA
- Excellent Insertion Loss, .2dB typical
- Good Return Loss, 25 dB typ.
- SMT Package

Product Overview

The ADCH-1220+ series of RF Chokes achieve very wide bandwidth from 5 up to 1220 MHz. The choke is wound with AWG32 wire, making the maximum continuous current 200mA DC. Excellent Insertion Loss, good VSWR (1.1:1 typ.), flatness and rugged construction make these models ideal solutions for rf-choke applications across a very wide frequency range. These units support a broad range of system and test applications.

Key Features

Feature	Advantages
Extremely wideband, 5 to 1220 MHz	Ideal for an exceptionally wide variety of lab and system applications.
Excellent Insertion Loss, .2 dB typ. across entire range.	Provides excellent signal transmission from input to output with consistent performance across its entire frequency range.
Good Return Loss, 25 dB typ.	Efficient power utilization with minimal signal power reflected back to source
200mA DC continuous	Ideal for DC injection applications requiring high current levels.
Rugged Construction	Withstands harsh environmental conditions for high reliability and long life of use.

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RF Choke

50Ω 5 to 1220 MHz

ADCH-1220+

Generic photo used for illustration purposes only

CASE STYLE: CD637

+RoHS Compliant

The +Suffix identifies RoHS Compliance. See our web site for RoHS Compliance methodologies and qualifications

Available Tape and Reel at no extra cost

Reel Size	Devices/Reel
13"	900

Maximum Ratings

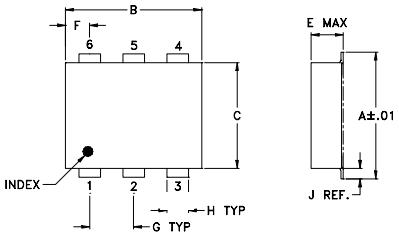
Operating Temperature	-40°C to 85°C
Storage Temperature	-55°C to 100°C
DC Current	300mA

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

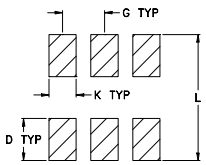
Pin Connections

RF-IN & DC	1
RF GROUND	4
NOT USED	2,3,5,6

Outline Drawing



PBC Land Pattern



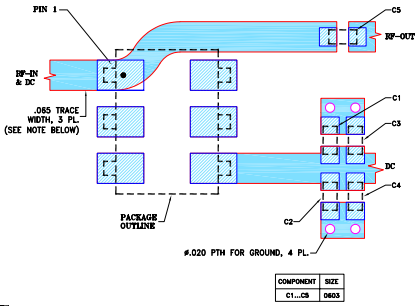
Suggested Layout,
Tolerance to be within ±.002

Outline Dimensions (inch / mm)

A	B	C	D	E	F	G
.272	.310	.220	.100	.206	.055	.100
6.91	7.87	5.59	2.54	5.23	1.40	2.54

H	J	K	L	wt
.030	.026	.065	.300	grams
0.76	0.66	1.65	7.62	0.40

Demo Board MCL P/N: TB-1167+
Suggested PCB Layout (PL-699)



NOTES:
1. TRACE WIDTH IS SHOWN FOR ROGERS RO4350B WITH DIELECTRIC THICKNESS .030±.0015"; COPPER: 1/2 OZ. FOR OTHER MATERIALS TRACE WIDTH MAY NEED TO BE MODIFIED.
2. CHIP COMPONENT FOOT PRINTS SHOWN FOR REFERENCE. FOR COMPONENT VALUES REFER TO TB-ADCH-1220+.
3. UNIT LAND PATTERN WAS OPTIMIZED FOR BETTER PERFORMANCE.
4. BOTTOM COPPER 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

Features

- low parasitic capacitance 0.1 pf typ.
- effective parallel resistance, Rch 800 ohm typ.
- aqueous washable
- protected by US Patent, 6,133,525

Applications

- biasing amplifiers
- biasing of laser diodes
- biasing of active antennas

Electrical Specifications at 25°C

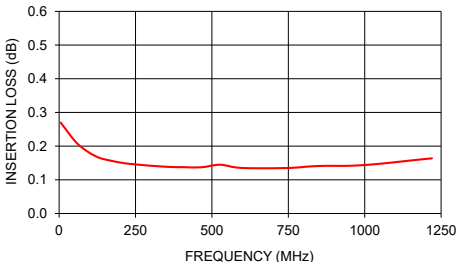
Parameter	Condition (MHz)	Min.	Typ.	Max.	Unit
Insertion Loss	5-10	—	0.3	0.8	dB
	10-1220	—	0.2	0.5	
VSWR*	5-10	—	1.64	—	:1
	10-1220	—	1.1	1.29	
DC Current	—	—	—	200	mA
Inductance	@ 0 mA	—	3.4	—	µH

* tested with circuit shown below, Zo=50 ohms

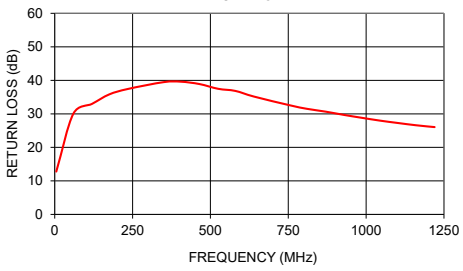
Typical Performance Data

FREQUENCY (MHz)	INSERTION LOSS (dB)	RETURN LOSS (dB)
5	0.27	12.78
60	0.21	30.08
120	0.17	32.99
175	0.16	35.80
235	0.15	37.43
350	0.14	39.47
405	0.14	39.60
465	0.14	38.89
525	0.14	37.48
580	0.14	36.84
640	0.13	35.16
755	0.14	32.56
810	0.14	31.50
870	0.14	30.66
930	0.14	29.67
985	0.14	28.84
1045	0.15	27.97
1100	0.15	27.30
1160	0.16	26.60
1220	0.16	26.05

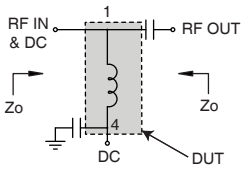
ADCH-1220+
INSERTION LOSS



ADCH-1220+
RETURN LOSS



TEST CIRCUIT*



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/MCLStore/terms.jsp

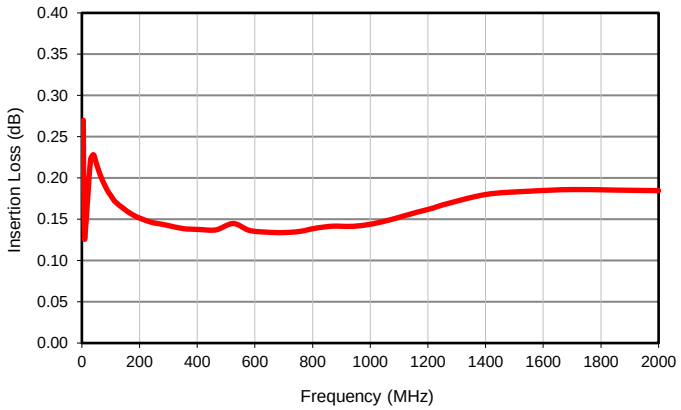
RF Choke ADCH-1220+

Typical Performance Data

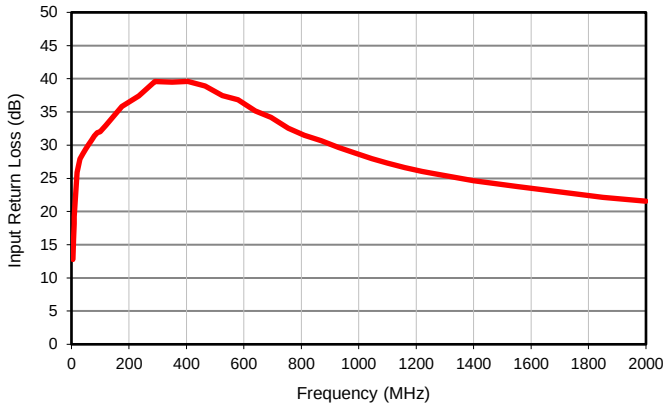
FREQUENCY (MHz)	AVERAGE INSERTION LOSS (dB)	INPUT RETURN LOSS (dB)
5	0.27	12.78
7	0.16	15.82
9	0.13	18.18
10	0.13	19.23
20	0.17	25.91
30	0.22	27.93
40	0.23	28.68
50	0.22	29.39
60	0.21	30.08
70	0.20	30.71
80	0.19	31.39
90	0.18	31.86
100	0.18	32.03
120	0.17	32.99
175	0.16	35.80
235	0.15	37.43
290	0.14	39.59
350	0.14	39.47
405	0.14	39.60
465	0.14	38.89
525	0.14	37.48
580	0.14	36.84
640	0.13	35.16
695	0.13	34.20
755	0.14	32.56
810	0.14	31.50
870	0.14	30.66
930	0.14	29.67
985	0.14	28.84
1045	0.15	27.97
1100	0.15	27.30
1160	0.16	26.60
1220	0.16	26.05
1250	0.17	25.82
1400	0.18	24.64
1550	0.18	23.77
1700	0.19	22.97
1850	0.19	22.12
2000	0.18	21.56

Typical Performance Data

Average Insertion Loss



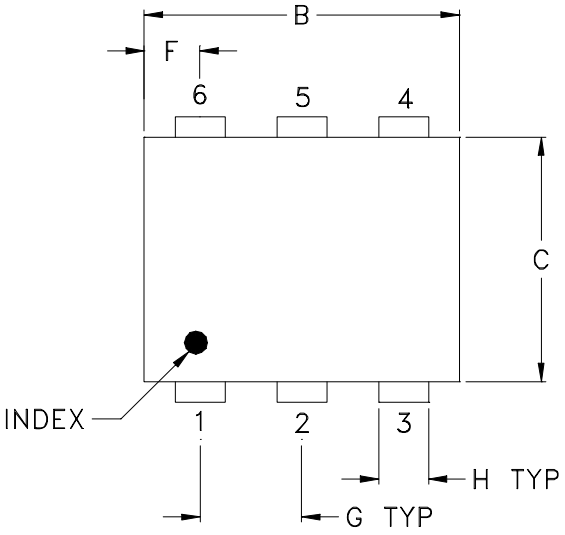
Input Return Loss

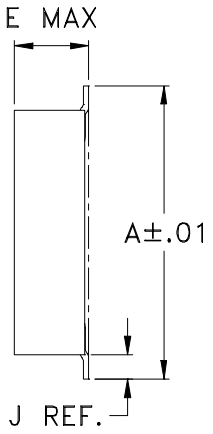


Case Style CD

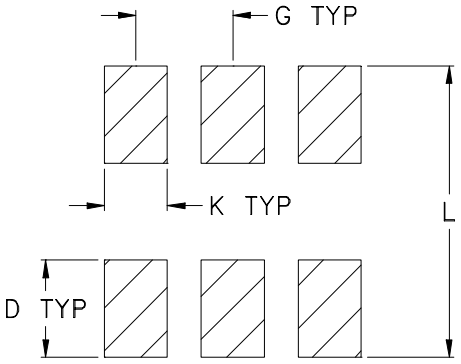
CD541
CD542
CD636
CD637

Outline Dimensions





PCB Land Pattern



Suggested Layout,
Tolerance to be within ±.002

CASE#	A	B	C	D	E	F	G	H	J	K	L	WT, GRAM
CD541	.272 (6.91)	.310 (7.87)	.220 (5.58)	.100 (2.54)	.082 (2.08)	.055 (1.40)	.100 (2.54)	.030 (0.76)	.026 (0.66)	.065 (1.65)	.300 (7.62)	.15
CD542					.112 (2.84)							.20
CD636					.162 (4.11)							.25
CD637					.206 (5.23)							.40

Dimensions are in inches (mm). Tolerances: 2 Pl. ± .01; 3 Pl. ± .005

Notes:

1. Case material: Plastic.
2. Termination finish:
   For RoHS Case Styles: Tin plate over Nickel plate. All models, (+) suffix.
   For RoHS-5 Case Styles: Tin-Lead plate. All models, no (+) suffix.

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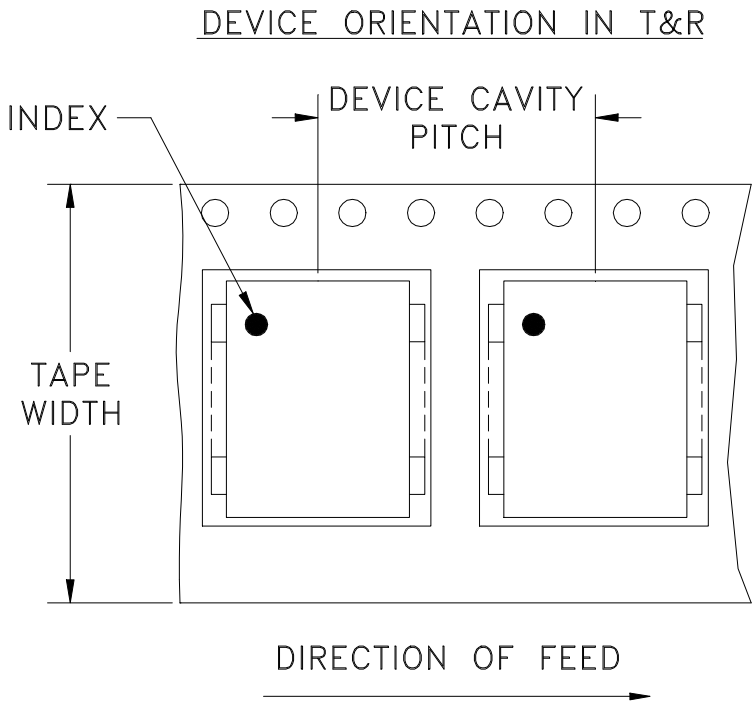

Tape Width, mm	Device Cavity Pitch, mm	Reel Size, inches	Devices per Reel
16	12	13	900

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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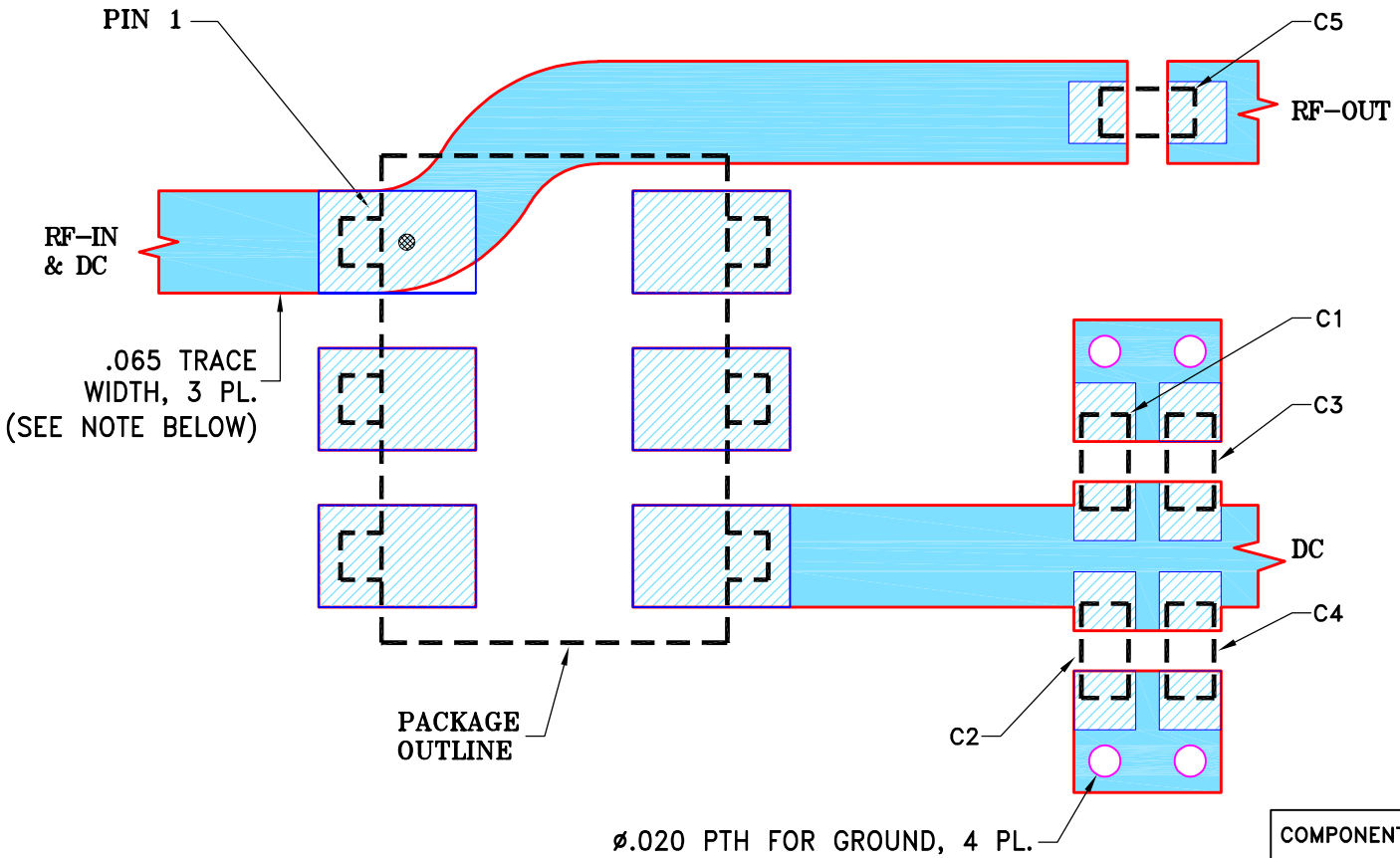
THIRD ANGLE PROJECTION

REVISIONS					
REV	ECN No.	DESCRIPTION	DATE	DR	AUTH
OR	ECO-006963	NEW RELEASE	03/19/21	ITG	IL

SUGGESTED MOUNTING CONFIGURATION FOR CD637 CASE STYLE



COMPONENT	SIZE
C1...C5	0603

NOTES:

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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	03/18/21
TOLERANCES ON:	CHECKED	GF	03/18/21
2 PL DECIMALS ±	APPROVED	IL	03/19/21
3 PL DECIMALS ± .005			
ANGLES ±			
FRACTIONS ±			

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

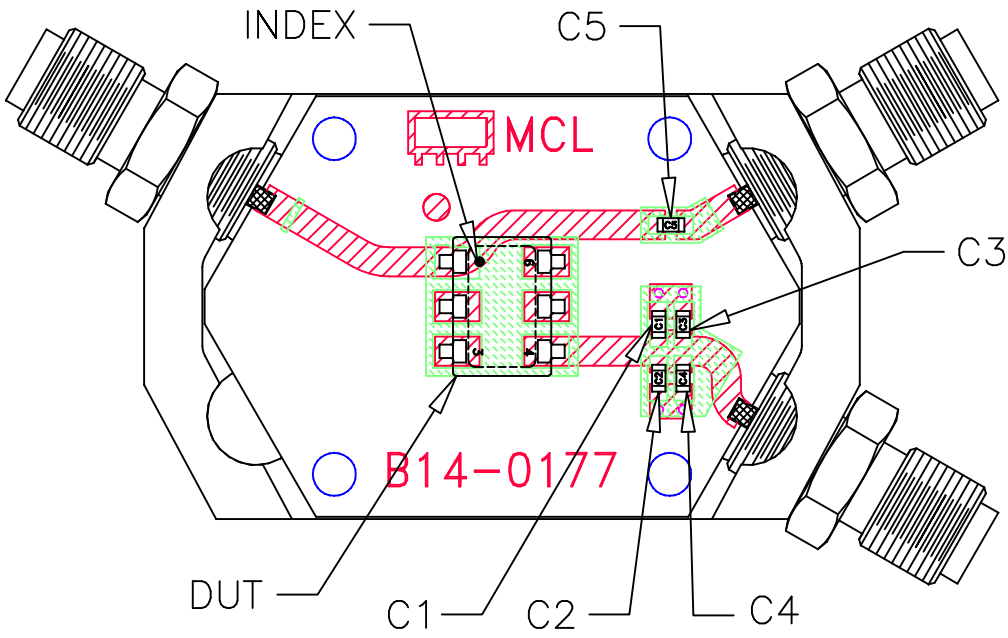
Mini-Circuits® 13 Neptune Avenue Brooklyn NY 11235

PL, CD637, TB-ADCH-1220+

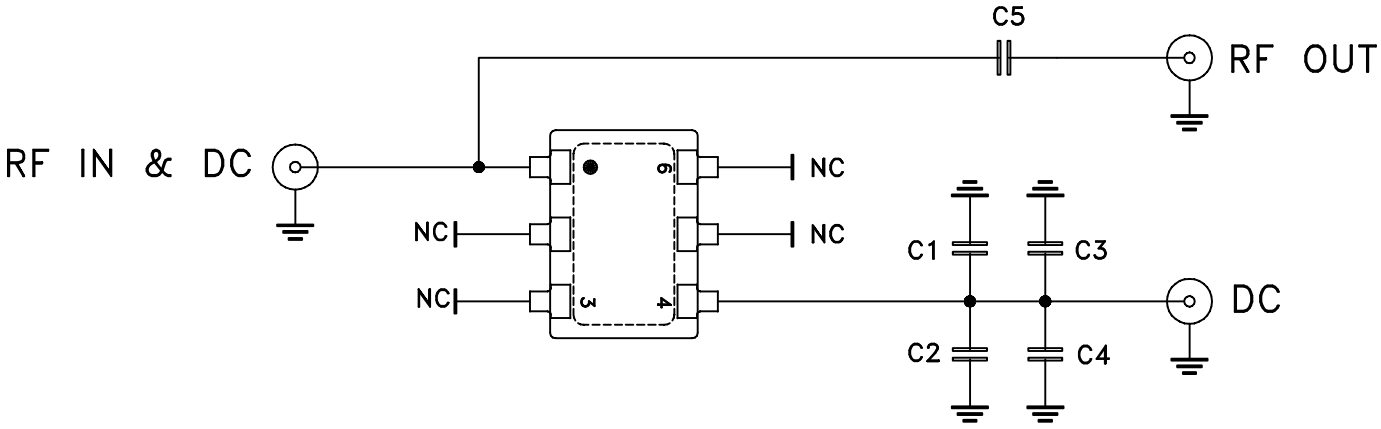
SIZE	CODE IDENT	DRAWING NO:	REV:
A	15542	98-PL-699	OR

FILE:	SCALE:	SHEET:
98PL699	8:1	1 OF 1

Evaluation Board and Circuit



TB-1167+



COMPONENT	VALUE	SIZE
DUT	MCL ADCH-1220+	7.87X6.91 mm
C1,C2	Capacitor 82 pF	0603
C3,C4,C5	Capacitor .1uF	

SCHEMATIC DIAGRAM

Notes:

1. SMA Female connectors.
2. PCB Material: Rogers RO4350 or equivalent, Dielectric Constant=3.5, Thickness=.030 inch.

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Environmental Specifications ENV02T1

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	-55° to 100° C Ambient Environment	Individual Model Data Sheet
Humidity	90 to 95% RH, 240 hours, 50°C	MIL-STD-202, Method 103, Condition A, Except 50°C and end-point electrical test done within 12 hours
Thermal Shock	-55° to 100°C, 100 cycles	MIL-STD-202, Method 107, Condition A-3, except +100°C
Solder Reflow Heat	Sn-Pb Eutetic Process: 225°C peak Pb-Free Process 245° - 250°C peak	J-STD-020, Table 4-1, 4-2 and 5-2, Figure 5-1
Solderability	10X Magnification	J-STD-002, 95% Coverage
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
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