

DC Pass

Power Splitter/Combiner ZN3PD-02183-S+

3 Way-0° 50Ω 2 to 18 GHz

The Big Deal

- Ultra-wideband, 2 to 18 GHz
- Low insertion loss, 0.9 dB
- Good power handling, 25W as a splitter
- Low unbalance, 0.2 dB, 4°
- High isolation, 24 dB



CASE STYLE: UU2412

Product Overview

Mini-Circuits' ZN3PD-02183-S+ is a 3-way 0° ultra-wideband splitter/combiner supporting a wide range of applications from 2 to 18 GHz. This model is capable of handling up to 25W RF input power as a splitter with low insertion loss across its full frequency range, providing excellent signal power transmission from input to output. It delivers nearly equal output signals with low amplitude unbalance and low phase unbalance, with excellent isolation minimizing interference between channels. The ZN3PD-02183-S+ comes housed in a rugged, compact aluminum alloy case measuring 2.46 x 4.46 x 0.38" with SMA-Female connectors.

Key Features

Feature	Advantages
Ultra-wideband, 2 to 18 GHz	A single model supports bandwidth requirements for a wide variety of applications.
High power handling, 25W as a splitter	The ZN3PD-02183-S+ is suitable for systems with a wide range of power requirements.
Low insertion loss, 0.9 dB	The combination of 25W power handling and low insertion loss makes this model a suitable candidate for distributing signals while maintaining excellent transmission of signal power.
Low unbalance: • 0.2 dB amplitude unbalance • 4° phase unbalance	Produces nearly equal output signals, ideal for parallel path and multichannel systems.
High isolation, 24 dB	Minimizes interference between ports.
DC Passing, 600mA (200mA each port)	Supports applications where DC power is needed through the RF line.

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



3 Way-0° 50Ω 2 to 18 GHz

Maximum Ratings

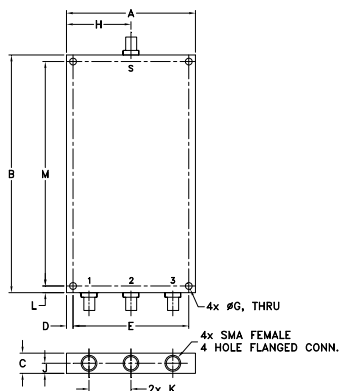
Operating Temperature	-55°C to 100°C
Storage Temperature	-55°C to 100°C
Power Input (as a splitter)*	25W max.
Internal Dissipation	0.25W max.
DC Current	600 mA (200mA for each port)

Permanent damage may occur if any of these limits are exceeded.
*Assume output match of 2.0:1 or better.

Coaxial Connections

SUM PORT	S
PORT 1	1
PORT 2	2
PORT 3	3

Outline Drawing

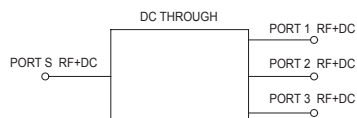


Outline Dimensions (inch/mm)

A	B	C	D	E	F	G
2.46	4.46	.38	.13	2.210	--	.129
62.48	113.28	9.65	3.30	56.13	--	3.28

H	J	K	L	M	N	wt
1.23	.19	.800	.13	4.210	--	grams
31.24	4.83	20.32	3.30	106.93	--	grams

Electrical Schematic



Features

- wideband, 2000 to 18000 MHz
- low insertion loss, 1.2 dB typ.
- low amplitude unbalance, 0.2 dB typ.
- low phase unbalance, 4.0 deg. typ.
- high isolation, 22 dB typ.
- DC Pass from sum port to all output ports

Applications

- EW, ECM
- test equipment
- test lab
- ISM



Generic photo used for illustration purposes only

CASE STYLE: UU2412

Connectors	Model
SMA-Female	ZN3PD-02183-S+

+RoHS Compliant

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

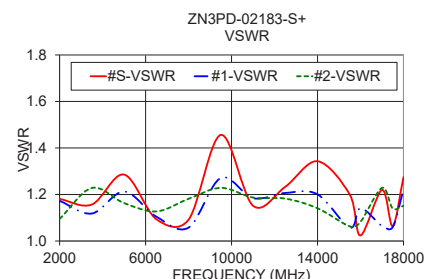
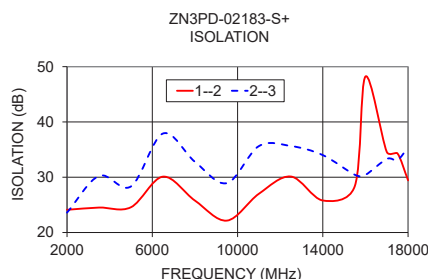
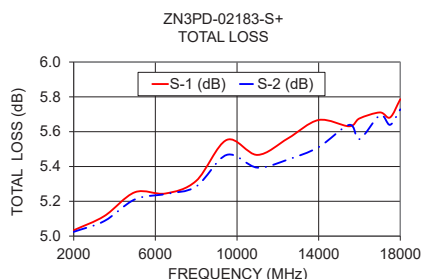
Electrical Specifications at 25°C

Parameter	Frequency (GHz)	Min.	Typ.	Max.	Unit
Frequency Range		2		18	GHz
Insertion Loss Above 4.8 dB	2 - 18	—	0.9	1.9	dB
Isolation	2 - 18	16	24		dB
Phase Unbalance	2 - 18	—	4.0	8.0	Degree
Amplitude Unbalance	2 - 18	—	0.2	0.9	dB
VSWR (Port S)	2 - 18	—	1.5	1.85	:1
VSWR (Port 1-3)	2 - 18	—	1.35	1.50	:1

Typical Performance Data

Freq. (MHz)	Total Loss ¹ (dB)			Amp. Unbal. (dB)	Isolation (dB)		Phase Unbal. (deg.)	VSWR S	VSWR 1	VSWR 2	VSWR 3
	S-1	S-2	S-3		1-2	2-3					
2000	5.03	5.02	5.00	0.02	24.10	23.59	0.55	1.18	1.17	1.09	1.14
3500	5.12	5.09	5.10	0.03	24.51	30.24	0.59	1.16	1.12	1.23	1.12
5000	5.25	5.21	5.23	0.05	24.57	28.33	0.90	1.29	1.21	1.16	1.18
6500	5.24	5.24	5.22	0.01	30.10	37.90	1.21	1.09	1.10	1.13	1.06
8000	5.32	5.29	5.30	0.05	25.77	32.79	0.91	1.09	1.06	1.18	1.04
9500	5.55	5.47	5.54	0.12	22.15	28.94	0.89	1.46	1.27	1.23	1.24
11000	5.47	5.39	5.49	0.07	27.00	35.63	1.02	1.15	1.18	1.19	1.28
12500	5.56	5.44	5.58	0.09	30.12	35.65	0.39	1.23	1.21	1.18	1.29
14000	5.67	5.51	5.65	0.09	25.79	34.00	0.46	1.34	1.20	1.14	1.11
15500	5.63	5.64	5.63	0.03	28.39	30.44	0.28	1.20	1.06	1.06	1.10
16000	5.68	5.56	5.62	0.07	48.22	30.43	0.29	1.02	1.14	1.08	1.04
17000	5.71	5.69	5.70	0.03	34.58	33.31	0.60	1.22	1.06	1.23	1.17
17500	5.68	5.64	5.69	0.04	34.32	33.12	0.92	1.06	1.06	1.14	1.17
18000	5.79	5.73	5.76	0.01	29.43	35.38	0.78	1.27	1.22	1.15	1.23

1. Total Loss = Insertion Loss + 4.8dB splitter loss.



Notes

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3 Way-0° Power Splitter/Combiner

ZN3PD-02183-S+

Typical Performance Data

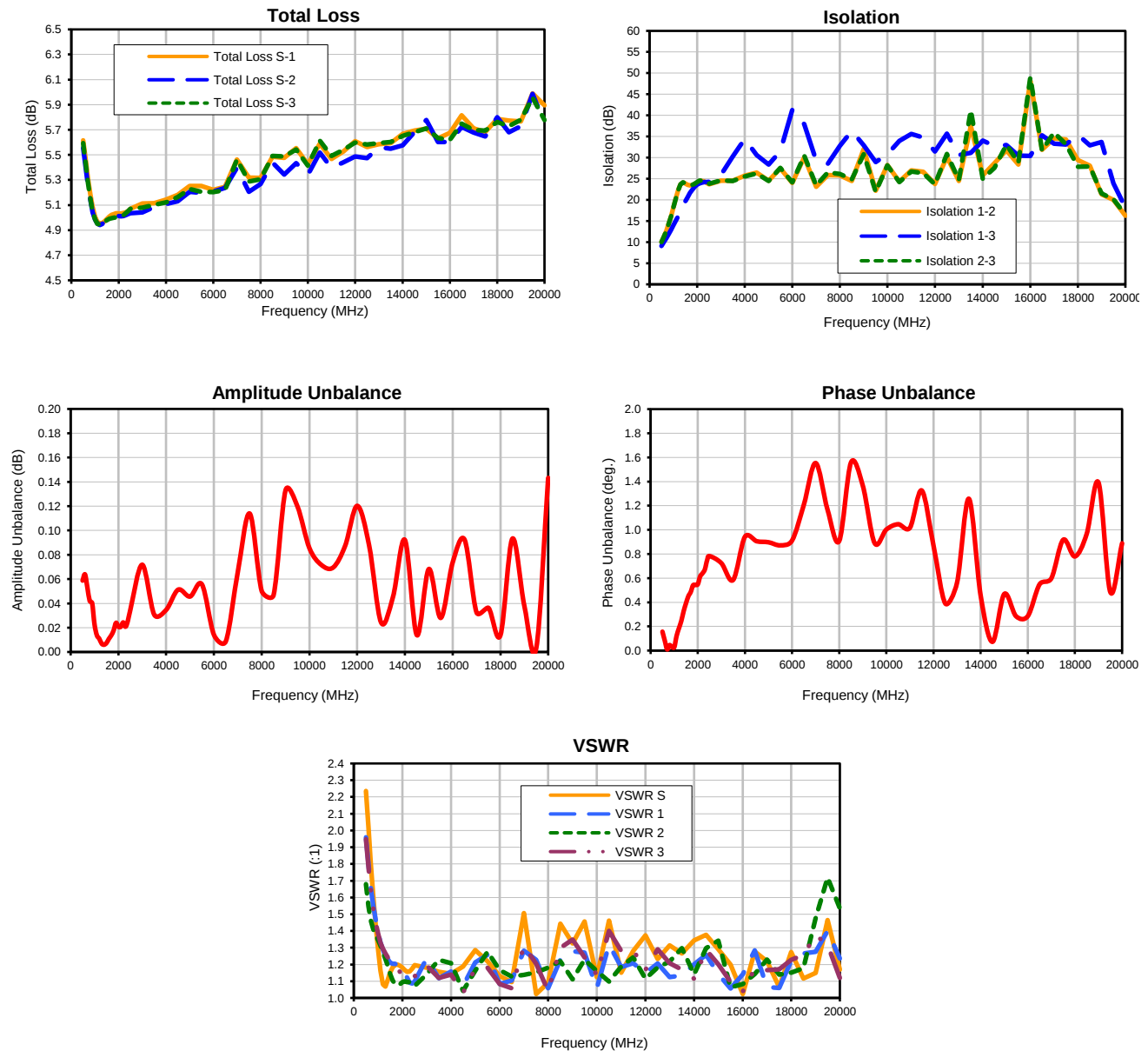
FREQ. (MHz)	TOTAL LOSS ¹ (dB)			AMP. UNBAL. (dB)	ISOLATION (dB)			PHASE UNBAL. (deg.)	FREQ. (MHz)	VSWR (:1)			
	S-1	S-2	S-3		1-2	1-3	2-3			S	1	2	3
500	5.62	5.56	5.59	0.06	10.02	9.09	10.00	0.16	500	2.24	1.96	1.68	1.95
600	5.46	5.40	5.43	0.06	11.26	9.97	11.23	0.08	600	2.02	1.80	1.55	1.78
700	5.31	5.26	5.28	0.05	12.65	10.89	12.61	0.01	700	1.81	1.66	1.47	1.65
800	5.18	5.14	5.15	0.04	14.23	11.86	14.19	0.05	800	1.61	1.55	1.41	1.54
900	5.08	5.04	5.05	0.04	16.06	12.86	16.01	0.03	900	1.43	1.47	1.37	1.45
1000	5.01	4.98	4.99	0.02	18.11	13.92	18.07	0.03	1000	1.28	1.39	1.34	1.38
1100	4.97	4.95	4.95	0.01	20.31	15.02	20.27	0.12	1100	1.16	1.33	1.31	1.33
1200	4.95	4.94	4.94	0.01	22.34	16.17	22.31	0.18	1200	1.08	1.29	1.27	1.29
1300	4.96	4.95	4.95	0.01	23.69	17.34	23.70	0.24	1300	1.07	1.25	1.23	1.26
1400	4.97	4.96	4.96	0.01	24.09	18.49	24.14	0.33	1400	1.11	1.23	1.19	1.24
1500	4.99	4.98	4.98	0.01	23.86	19.62	23.94	0.39	1500	1.15	1.21	1.14	1.22
1600	5.01	5.00	4.99	0.01	23.54	20.68	23.63	0.45	1600	1.18	1.20	1.10	1.21
1700	5.02	5.01	5.00	0.01	23.39	21.64	23.48	0.48	1700	1.20	1.20	1.08	1.19
1800	5.03	5.01	5.00	0.02	23.47	22.45	23.58	0.54	1800	1.20	1.19	1.08	1.17
1900	5.04	5.01	5.00	0.02	23.73	23.10	23.85	0.54	1900	1.19	1.19	1.08	1.16
2000	5.03	5.01	5.00	0.02	24.10	23.59	24.24	0.55	2000	1.18	1.17	1.09	1.14
2100	5.03	5.01	5.01	0.02	24.39	23.91	24.54	0.61	2100	1.17	1.14	1.10	1.13
2200	5.04	5.01	5.02	0.02	24.46	24.10	24.62	0.64	2200	1.16	1.12	1.10	1.12
2300	5.04	5.02	5.04	0.02	24.32	24.21	24.49	0.67	2300	1.16	1.09	1.09	1.12
2400	5.05	5.03	5.05	0.03	23.98	24.23	24.14	0.75	2400	1.17	1.09	1.09	1.12
2500	5.07	5.03	5.07	0.03	23.67	24.27	23.80	0.78	2500	1.20	1.10	1.07	1.13
3000	5.11	5.04	5.08	0.07	24.55	25.86	24.60	0.72	3000	1.18	1.24	1.14	1.19
3500	5.12	5.08	5.10	0.03	24.51	30.24	24.46	0.59	3500	1.16	1.12	1.23	1.12
4000	5.14	5.11	5.12	0.03	25.70	34.44	25.55	0.94	4000	1.15	1.16	1.21	1.14
4500	5.18	5.13	5.16	0.05	26.42	30.63	26.27	0.91	4500	1.19	1.07	1.04	1.03
5000	5.25	5.21	5.23	0.05	24.57	28.33	24.49	0.90	5000	1.29	1.21	1.16	1.18
5500	5.25	5.20	5.21	0.06	27.44	31.50	27.58	0.87	5500	1.22	1.26	1.28	1.18
6000	5.22	5.21	5.20	0.01	24.02	41.31	24.13	0.91	6000	1.13	1.08	1.17	1.08
6500	5.24	5.24	5.22	0.01	30.10	37.90	30.45	1.21	6500	1.09	1.10	1.13	1.06
7000	5.46	5.40	5.46	0.07	23.06	29.31	23.41	1.55	7000	1.51	1.28	1.14	1.31
7500	5.32	5.20	5.29	0.11	25.89	28.53	26.53	1.17	7500	1.02	1.23	1.15	1.20
8000	5.32	5.27	5.30	0.05	25.77	32.79	26.12	0.91	8000	1.09	1.06	1.18	1.04
8500	5.49	5.44	5.49	0.05	24.48	36.32	24.85	1.56	8500	1.44	1.23	1.22	1.30
9000	5.48	5.34	5.49	0.13	32.04	32.94	30.80	1.37	9000	1.33	1.28	1.11	1.35
9500	5.55	5.43	5.54	0.12	22.15	28.94	21.90	0.89	9500	1.46	1.27	1.23	1.24
10000	5.43	5.34	5.41	0.09	28.26	30.76	28.15	1.00	10000	1.12	1.06	1.16	1.14
10500	5.59	5.52	5.61	0.07	24.35	33.93	24.23	1.05	10500	1.46	1.32	1.10	1.40
11000	5.47	5.40	5.49	0.07	27.00	35.63	26.73	1.02	11000	1.15	1.18	1.19	1.28
11500	5.53	5.44	5.54	0.09	26.67	34.73	26.33	1.33	11500	1.28	1.21	1.24	1.28
12000	5.61	5.49	5.60	0.12	23.78	31.44	23.67	0.87	12000	1.37	1.15	1.11	1.17
12500	5.56	5.47	5.58	0.09	30.12	35.65	30.87	0.39	12500	1.23	1.21	1.18	1.29
13000	5.59	5.56	5.59	0.02	24.46	30.58	24.74	0.56	13000	1.31	1.12	1.22	1.21
13500	5.59	5.55	5.60	0.05	37.42	31.13	41.23	1.26	13500	1.27	1.13	1.30	1.17
14000	5.67	5.57	5.65	0.09	25.79	34.00	25.02	0.46	14000	1.34	1.20	1.14	1.11
14500	5.69	5.68	5.68	0.01	28.69	32.79	27.58	0.07	14500	1.38	1.26	1.30	1.29
15000	5.71	5.78	5.71	0.07	31.71	33.00	33.03	0.47	15000	1.29	1.14	1.34	1.20
15500	5.63	5.60	5.63	0.03	28.39	30.44	28.84	0.28	15500	1.20	1.06	1.06	1.10
16000	5.68	5.60	5.62	0.07	48.22	30.43	49.02	0.29	16000	1.02	1.14	1.08	1.04
16500	5.82	5.72	5.75	0.09	31.85	35.25	31.69	0.55	16500	1.28	1.28	1.14	1.17
17000	5.71	5.68	5.70	0.03	34.58	33.31	35.93	0.60	17000	1.22	1.06	1.23	1.17
17500	5.68	5.65	5.69	0.04	34.32	33.12	33.20	0.92	17500	1.06	1.06	1.14	1.17
18000	5.79	5.80	5.76	0.01	29.43	35.38	27.84	0.78	18000	1.27	1.22	1.15	1.23
18500	5.77	5.68	5.73	0.09	28.10	32.87	27.89	0.97	18500	1.12	1.26	1.18	1.26
19000	5.77	5.73	5.78	0.04	21.28	33.66	21.50	1.39	19000	1.15	1.28	1.48	1.38
19500	5.99	5.99	5.96	0.00	20.00	23.90	20.13	0.49	19500	1.46	1.40	1.72	1.32
20000	5.89	5.75	5.78	0.14	16.23	18.16	16.47	0.89	20000	1.17	1.24	1.53	1.12

¹Total Loss = Insertion Loss + 4.8dB Splitter Loss

3 Way-0° Power Splitter/Combiner

ZN3PD-02183-S+

Typical Performance Curves



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IF/RF MICROWAVE COMPONENTS

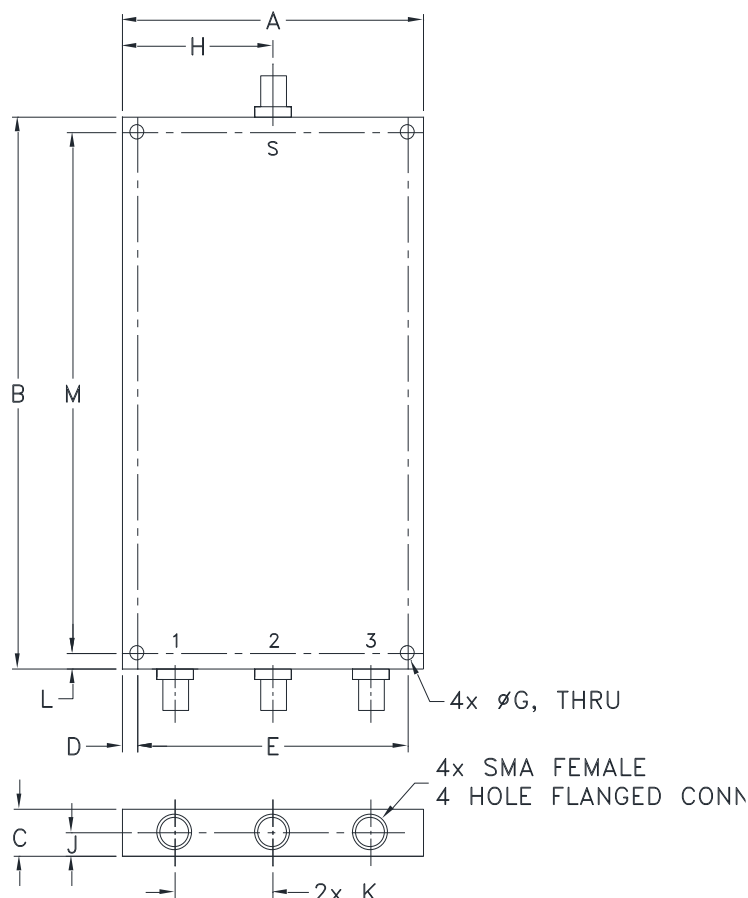
REV. OR
ZN3PD-02183-S+
5/12/2017
Page 1 of 1

Case Style

UU

Outline Dimensions

UU2412



CASE#	A	B	C	D	E	F	G	H	J	K	L	M
UU2412	2.46 (62.48)	4.46 (113.28)	.38 (9.65)	.13 (3.18)	2.210 (56.13)	-- --	.129 (3.28)	1.23 (31.24)	.19 (4.83)	.800 (20.32)	.13 (3.18)	4.210 (106.93)

CASE#	N	WT. GRAMS
UU2412	-- --	340

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

Notes:

- Case material: Aluminum alloy.
- Case finish:
For RoHS Case Styles: Blue Painting Pantone 286.
- Refer to the individual model data sheet for the type of connectors available.

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RF/IF MICROWAVE COMPONENTS



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
Barometric Pressure	100,000 Feet	MIL-STD-202, Method 105, Condition D
Humidity	90% RH, 65°C Units may require bake-out after humidity to restore full performance.	MIL-STD-202, Method 103
Thermal Shock	-65° to 125°C, 5 cycles	MIL-STD-202, Method 107, Condition B
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	100g, 6ms sawtooth, 3 shocks each direction 3 axes (total 18)	MIL-STD-202, Method 213, Condition I