

DC Pass

Power Splitter/Combiner

ZN8PD-02183+

8 Way-0° 50Ω 2000 to 18000 MHz

The Big Deal

- Ultra-wideband, 2 to 18 GHz
- Low insertion loss, 1.4 dB
- Good power handling, 20W as a splitter
- Low unbalance, 0.3 dB, 5.0°
- High isolation, 20 dB



CASE STYLE: UU2415

Product Overview

Mini-Circuits' ZN4PD-02183+ is a 8way 0° ultra-wideband splitter/combiner supporting a wide range of applications from 2 to 18 GHz. This model is capable of handling up to 20W 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, and excellent isolation minimizing interference between channels. The ZN8PD-02183+ comes housed in a rugged, compact aluminum alloy case measuring 4.46 x 5.75 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 including EW, ECM, test instrumentation, ISM and more.
High power handling, 20W as a splitter	The ZN8PD-02183+ is suitable for systems with a wide range of power requirements.
Low insertion loss, 1.4 dB	The combination of 20W power handling and low insertion loss makes this model a suitable candidate for distributing signals while maintaining excellent transmission of signal power.
Low unbalance: • 0.3 dB amplitude unbalance • 5.0° phase unbalance	Produces nearly equal output signals, ideal for parallel path and multichannel systems.
High isolation, 20 dB	Minimizes interference between ports.
DC Passing, 1.2A (150mA 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



Power Splitter/Combiner

ZN8PD-02183+

8 Way-0° 50Ω 2000 to 18000 MHz

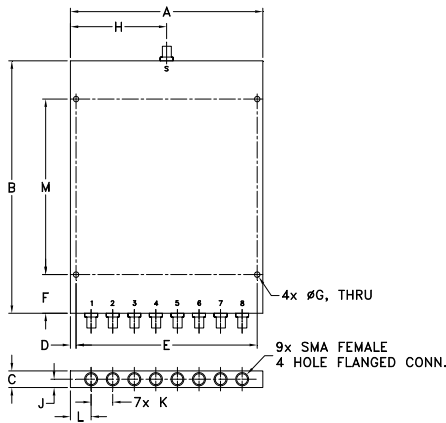
Maximum Ratings

Operating Temperature	-55°C to 100°C
Storage Temperature	-55°C to 100°C
Power Input (as a splitter)	20W max.
Internal Dissipation	0.5W max.
DC Current	1.2A (150mA for each port)

Coaxial Connections

SUM PORT	S
PORT 1,2,3,4,5,6,7,8	1,2,3,4,5,6,7,8

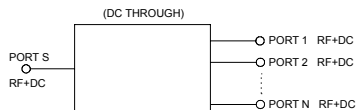
Outline Drawing



Outline Dimensions (inch mm)

A	B	C	D	E	F	G
4.46	5.75	.38	.13	4.200	.88	.125
113.28	146.05	9.65	3.30	106.68	22.35	3.18
H	J	K	L	M	N	wt
2.23	.19	.500	.48	4.000	--	grams
56.64	4.83	12.70	12.19	101.60	--	800

Electrical Schematic



Features

- wideband, 2000 to 18000 MHz
- low insertion loss, 1.4 dB typ.
- low amplitude unbalance, 0.3 dB typ.
- low phase unbalance, 5.0 deg. typ.
- high isolation, 20 dB typ.
- DC Pass from sum port to all output ports

Applications

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



CASE STYLE: UU2415

Connectors	Model
SMA-Fem	ZN8PD-02183-S+

+RoHS Compliant

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

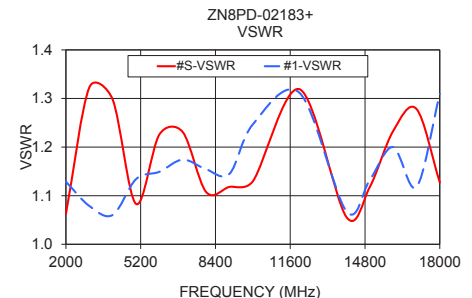
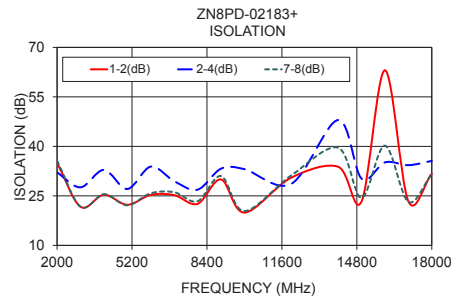
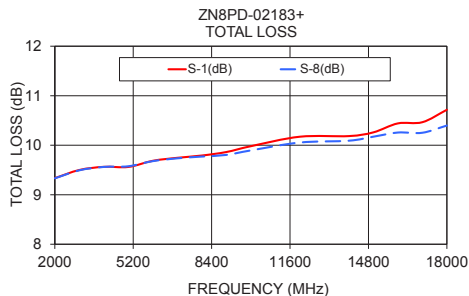
Electrical Specifications at 25°C

Parameter	Frequency (MHz)	Min.	Typ.	Max.	Unit
Frequency Range		2000	—	18000	MHz
Insertion Loss (above theoretical 9.0 dB)	2000 - 18000	—	1.4	2.4	dB
Isolation	2000 - 18000	16	20	—	dB
Phase Unbalance	2000 - 18000	—	5	10	Degree
Amplitude Unbalance	2000 - 18000	—	0.3	1.0	dB
VSWR (Port S)	2000 - 18000	—	1.38	1.9	:1
VSWR Output (Port 1-8)	2000 - 18000	—	1.28	1.5	:1

Typical Performance Data

Freq. (MHz)	Total Loss ¹ (dB)						Amp. Unb. (dB)				Isolation (dB)				Phase Unb. (deg.)	VSWR S	VSWR 1	VSWR 8
	S-1	S-2	S-3	S-4	S-6	S-8					1-2	2-3	3-4	6-7				
2000	9.34	9.34	9.35	9.34	9.33	9.33	0.00	35.02	32.10	31.97	35.68				0.48	1.06	1.13	1.10
3000	9.50	9.51	9.51	9.51	9.50	9.49	0.01	21.70	27.59	27.50	21.69				0.67	1.32	1.08	1.10
4000	9.56	9.57	9.58	9.58	9.56	9.56	0.01	25.34	32.88	32.93	25.50				0.93	1.30	1.06	1.11
5000	9.56	9.57	9.58	9.59	9.56	9.58	0.01	22.30	27.08	27.11	22.14				1.17	1.08	1.13	1.15
6000	9.69	9.70	9.70	9.69	9.68	9.68	0.01	25.30	33.87	34.05	25.79				1.45	1.23	1.15	1.17
7000	9.75	9.76	9.76	9.75	9.74	9.74	0.01	25.23	29.46	29.25	26.10				1.70	1.23	1.17	1.21
8000	9.79	9.80	9.82	9.79	9.78	9.77	0.00	22.58	26.88	26.66	23.36				2.07	1.11	1.15	1.15
9000	9.86	9.85	9.87	9.86	9.82	9.81	0.01	29.98	33.23	33.72	31.00				2.34	1.12	1.15	1.08
10000	9.98	9.93	9.93	9.92	9.93	9.90	0.05	19.93	33.09	33.68	20.39				2.57	1.13	1.25	1.21
12000	10.17	10.11	10.19	10.13	10.09	10.05	0.06	30.52	28.63	28.78	31.19				2.74	1.32	1.31	1.21
14000	10.18	10.14	10.19	10.15	10.12	10.09	0.05	33.83	47.98	50.85	39.59				3.19	1.06	1.07	1.02
15000	10.26	10.21	10.27	10.28	10.19	10.17	0.05	23.27	30.25	30.64	24.36				3.48	1.12	1.13	1.13
16000	10.44	10.34	10.39	10.38	10.32	10.26	0.10	63.06	35.15	36.03	40.21				3.78	1.23	1.20	1.21
17000	10.47	10.38	10.46	10.42	10.33	10.25	0.08	23.35	34.30	33.94	23.19				3.99	1.28	1.12	1.07
18000	10.72	10.55	10.70	10.62	10.53	10.40	0.17	31.70	35.59	37.92	31.63				3.60	1.13	1.31	1.22

1. Total Loss = Insertion Loss + 9dB splitter loss.



Notes

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Page 2 of 2

8 Way-0° Power Splitter/Combiner

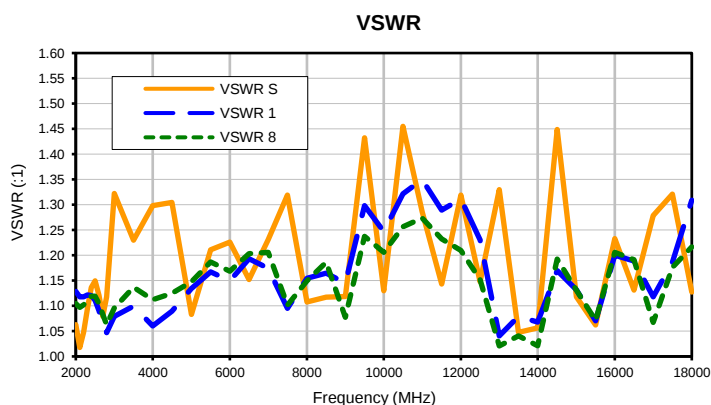
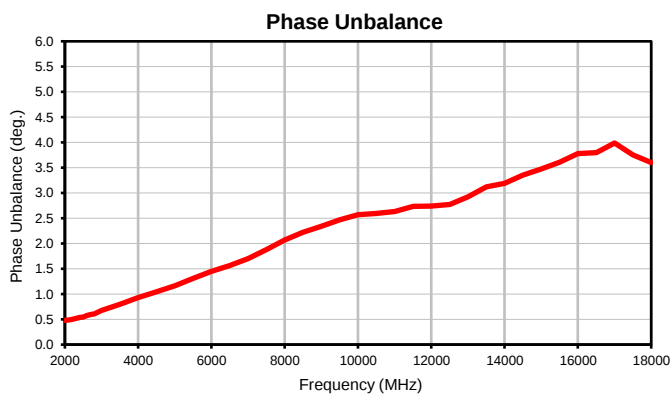
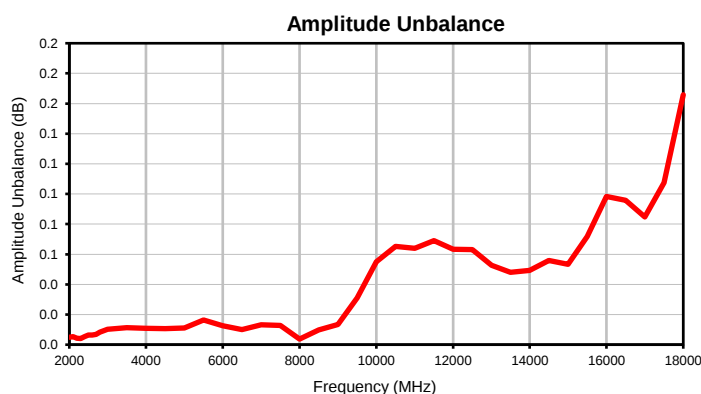
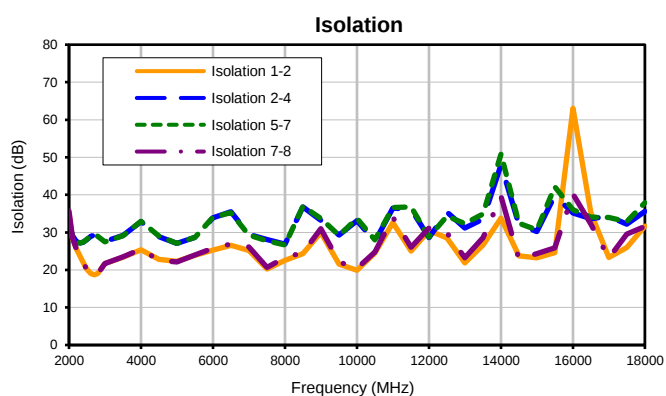
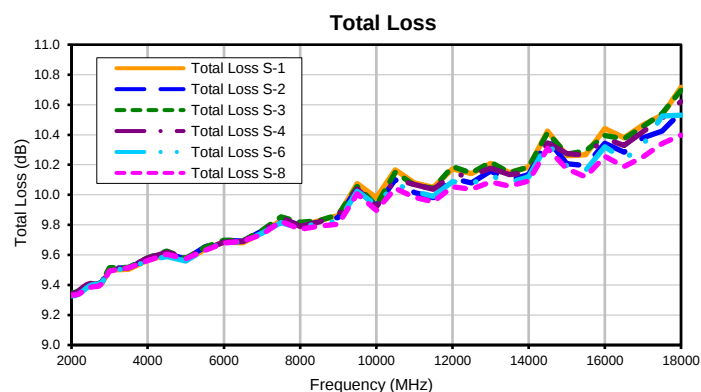
ZN8PD-02183-S+

Typical Performance Data

FREQ.	TOTAL LOSS ¹						AMP. UNBAL.	ISOLATION				PHASE UNBAL.	FREQ.	VSWR		
(MHz)	(dB)						(dB)	(dB)				(deg.)	(MHz)	(:1)		
	S-1	S-2	S-3	S-4	S-6	S-8		1-2	2-4	5-7	7-8			S	1	8
2000	9.34	9.34	9.35	9.34	9.33	9.33	0.00	35.02	32.10	31.97	35.68	0.48	2000	1.06	1.13	1.10
2100	9.34	9.34	9.35	9.34	9.33	9.33	0.01	28.38	29.09	29.04	28.48	0.49	2100	1.02	1.12	1.10
2200	9.35	9.35	9.36	9.36	9.34	9.34	0.00	25.64	27.62	27.62	25.62	0.50	2200	1.05	1.12	1.10
2300	9.37	9.37	9.38	9.39	9.36	9.36	0.00	23.72	27.14	27.17	23.64	0.52	2300	1.09	1.12	1.11
2400	9.38	9.39	9.40	9.40	9.38	9.37	0.01	21.84	27.38	27.44	21.75	0.54	2400	1.14	1.12	1.12
2500	9.39	9.40	9.41	9.41	9.40	9.39	0.01	20.18	28.10	28.17	20.07	0.55	2500	1.15	1.11	1.12
2600	9.39	9.40	9.41	9.41	9.40	9.39	0.01	19.08	28.92	28.99	18.98	0.58	2600	1.12	1.09	1.10
2700	9.39	9.40	9.41	9.40	9.40	9.39	0.01	18.70	29.31	29.35	18.60	0.59	2700	1.08	1.07	1.08
2800	9.41	9.42	9.43	9.42	9.42	9.41	0.01	19.05	29.01	28.98	18.96	0.60	2800	1.12	1.05	1.06
3000	9.50	9.51	9.51	9.51	9.50	9.49	0.01	21.70	27.59	27.50	21.69	0.67	3000	1.32	1.08	1.10
3500	9.50	9.52	9.52	9.52	9.51	9.51	0.01	23.40	29.18	29.15	23.49	0.80	3500	1.23	1.10	1.14
4000	9.56	9.57	9.58	9.58	9.56	9.56	0.01	25.34	32.88	32.93	25.50	0.93	4000	1.30	1.06	1.11
4500	9.60	9.61	9.63	9.62	9.59	9.60	0.01	22.85	28.90	29.03	22.53	1.04	4500	1.30	1.09	1.12
5000	9.56	9.57	9.58	9.59	9.56	9.58	0.01	22.30	27.08	27.11	22.14	1.17	5000	1.08	1.13	1.15
5500	9.64	9.65	9.65	9.64	9.64	9.63	0.02	23.95	28.68	28.72	23.97	1.31	5500	1.21	1.17	1.19
6000	9.69	9.70	9.70	9.69	9.68	9.68	0.01	25.30	33.87	34.05	25.79	1.45	6000	1.23	1.15	1.17
6500	9.68	9.69	9.69	9.69	9.69	9.69	0.01	26.60	35.53	35.23	26.92	1.57	6500	1.15	1.19	1.20
7000	9.75	9.76	9.76	9.75	9.74	9.74	0.01	25.23	29.46	29.25	26.10	1.70	7000	1.23	1.17	1.21
7500	9.83	9.84	9.85	9.85	9.81	9.82	0.01	20.26	28.11	27.78	20.68	1.88	7500	1.32	1.09	1.10
8000	9.79	9.80	9.82	9.79	9.78	9.77	0.00	22.58	26.88	26.66	23.36	2.07	8000	1.11	1.15	1.15
8500	9.83	9.82	9.83	9.82	9.82	9.79	0.01	24.34	36.79	36.96	24.63	2.22	8500	1.12	1.16	1.19
9000	9.86	9.85	9.87	9.86	9.82	9.81	0.01	29.98	33.23	33.72	31.00	2.34	9000	1.12	1.15	1.08
9500	10.08	10.04	10.06	10.04	10.02	10.01	0.03	21.54	29.28	29.18	22.11	2.47	9500	1.43	1.30	1.24
10000	9.98	9.93	9.93	9.92	9.93	9.90	0.05	19.93	33.09	33.68	20.39	2.57	10000	1.13	1.25	1.21
10500	10.17	10.10	10.15	10.10	10.07	10.04	0.07	24.52	27.57	28.04	24.76	2.59	10500	1.46	1.32	1.26
11000	10.08	10.02	10.07	10.07	10.02	9.98	0.06	32.65	36.48	36.61	34.05	2.63	11000	1.29	1.35	1.27
11500	10.05	9.98	10.04	10.04	9.99	9.95	0.07	25.04	36.17	36.77	26.06	2.73	11500	1.14	1.29	1.23
12000	10.17	10.11	10.19	10.13	10.09	10.05	0.06	30.52	28.63	28.78	31.19	2.74	12000	1.32	1.31	1.21
12500	10.14	10.08	10.15	10.13	10.07	10.04	0.06	28.49	35.44	34.32	29.85	2.77	12500	1.15	1.23	1.15
13000	10.21	10.16	10.22	10.18	10.13	10.09	0.05	21.84	31.17	32.35	23.20	2.92	13000	1.33	1.04	1.02
13500	10.15	10.10	10.15	10.13	10.08	10.06	0.05	26.61	33.58	34.93	28.58	3.12	13500	1.05	1.08	1.04
14000	10.18	10.14	10.19	10.15	10.12	10.09	0.05	33.83	47.98	50.85	39.59	3.19	14000	1.06	1.07	1.02
14500	10.43	10.37	10.41	10.35	10.34	10.31	0.06	23.71	32.09	32.44	22.94	3.36	14500	1.45	1.17	1.19
15000	10.26	10.21	10.27	10.28	10.19	10.17	0.05	23.27	30.25	30.64	24.36	3.48	15000	1.12	1.13	1.13
15500	10.27	10.20	10.29	10.26	10.16	10.12	0.07	24.63	39.81	42.16	25.84	3.61	15500	1.06	1.07	1.07
16000	10.44	10.34	10.39	10.38	10.32	10.26	0.10	63.06	35.15	36.03	40.21	3.78	16000	1.23	1.20	1.21
16500	10.38	10.28	10.37	10.33	10.24	10.19	0.10	35.20	33.60	34.07	32.21	3.80	16500	1.13	1.19	1.19
17000	10.47	10.38	10.46	10.42	10.33	10.25	0.08	23.35	34.30	33.94	23.19	3.99	17000	1.28	1.12	1.07
17500	10.53	10.42	10.54	10.51	10.53	10.34	0.11	25.93	32.21	32.89	29.56	3.75	17500	1.32	1.19	1.18
18000	10.72	10.55	10.70	10.62	10.53	10.40	0.17	31.70	35.59	37.92	31.63	3.60	18000	1.13	1.31	1.22

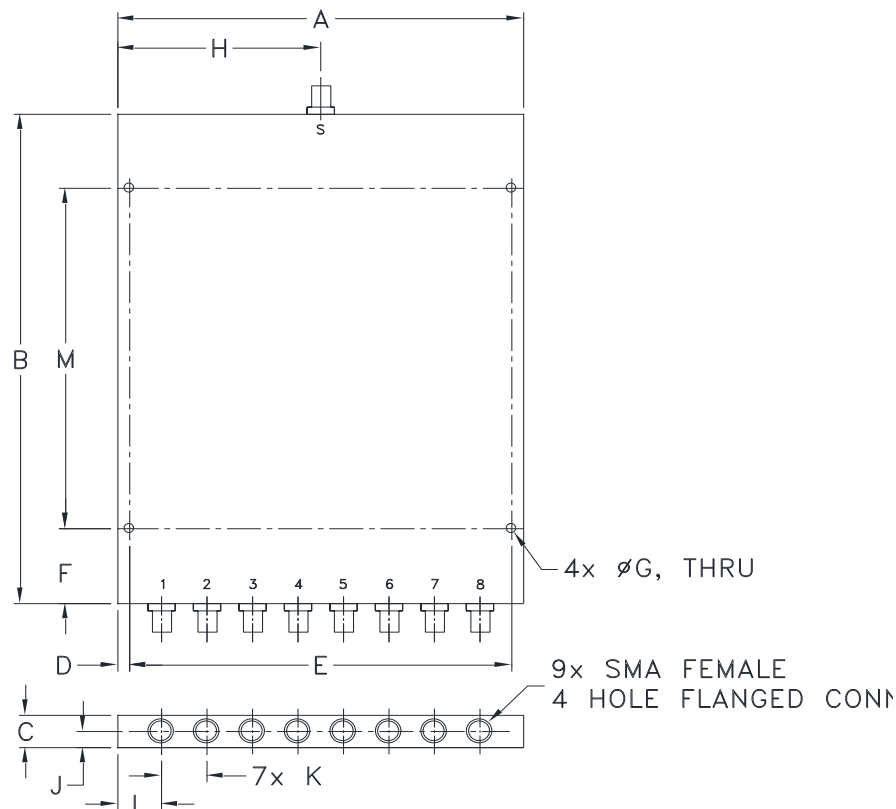
¹Total Loss = Insertion Loss + 9dB Splitter Loss

Typical Performance Curves



Outline Dimensions

UU2415



CASE#	A	B	C	D	E	F	G	H	J	K	L	M
UU2415	4.46 (113.28)	5.75 (146.05)	.38 (9.65)	.13 (3.18)	4.200 (106.68)	.88 (22.35)	.125 (3.18)	2.23 (56.64)	.19 (4.83)	.500 (12.70)	.48 (12.19)	4.000 (101.60)

CASE#	N	WT. GRAMS
UU2415	--	800

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.



P.O. Box 350166, Brooklyn, New York 11235-0003 (718) 934-4500 Fax (718) 332-4661 For detailed performance specs & shopping online see Mini-Circuits web site



The Design Engineers Search Engine Provides ACTUAL Data Instantly From MINI-CIRCUITS At: www.minicircuits.com

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