



# QUANTA LABORATORIES

3199 De La Cruz Boulevard • Santa Clara, CA 95054-2483  
TEL: (408) 988-0770 FAX: (408) 988-0762  
E-MAIL: [test@quantalabs.com](mailto:test@quantalabs.com)

## *Certificate of Conformance*

This is to certify that the results from the test(s) requested by  
POWER INTEGRATIONS are on file under  
Quanta Laboratories Job No. QL-08-070 and conform  
to the specification(s) stated in P.O. No. 33489

These results apply to the following equipment and are  
available for review upon request.

Model No.: E-SIP HEAT SINK CLIPS (5 UNITS)

S/N: N/A

**\*\*\* VIBRATION & SHOCK TESTS \*\*\***

  
Quanta Laboratories

1-28-08  
Date

# SINE SWEEP VIBRATION TEST DATA



3199 De La Cruz Blvd, Santa Clara, CA 95054  
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<b>CLIENT:</b> POWER INTEGRATIONS			<b>P.O. NO:</b> 33489	
<b>Model No.</b> E-SIP HEAT SINK CLIPS (5 UNITS)			<b>JOB NO:</b> QL-08-070	
<b>SPECIFICATION:</b> POWER INTEGRATION'S SPECIFICATION			<b>PAGE</b> 1 <b>OF</b> 1	
DATE	S/N	AXIS	FREQUENCIES & LEVELS	REMARKS
1/23/2008	N/A	X	<b>5-500Hz:</b> 5-500Hz @ 0.75G Sweep Rate: 1 Oct/Min TOTAL: One Sweep Cycle DURATION: 13 minutes/axis  DWELL: 182.23Hz;293.8Hz; 392.0Hz DURATION: 15MIN.	THE TEST COMPLETED TO THE SPECIFICATION REQUIREMENT.
		Y	<b>5-500Hz:</b> 5-500Hz @ 0.75G Sweep Rate: 1 Oct/Min TOTAL: One Sweep Cycle DURATION: 13 minutes/axis  DWELL: 473.68Hz DURATION: 15MIN.	
		Z	<b>5-500Hz:</b> 5-500Hz @ 0.75G Sweep Rate: 1 Oct/Min TOTAL: One Sweep Cycle DURATION: 13 minutes/axis  DWELL: 273.36Hz; 378.13Hz; 385.0Hz DURATION: 15MIN.	
 DEFINITION OF AXES	<b>TEST CONDUCTOR:</b> <i>Ym G. Sun</i>		<b>DATE:</b> 1-23-2008	
	<b>TEST ENGINEER:</b> <i>Sunlin</i>		<b>DATE:</b> 1-23-2008	
	<b>WITNESS:</b> <i>[Signature]</i>		<b>DATE:</b>	
	<b>Q. A. ENGINEER:</b> <i>[Signature]</i>		<b>DATE:</b> 1-23-2008	

# RANDOM VIBRATION TEST DATA



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CLIENT: POWER INTEGRATIONS			P.O. NO: 33489	
SPECIMEN: E-SIP HEAT SINK CLIPS (5 UNITS)			JOB NO: QL-08-070	
SPECIFICATION: POWER INTEGRATION'S SPECIFICATION			PAGE 1 OF 1	
DATE	S/N	AXIS	FREQUENCIES & LEVELS	REMARKS
01/23/08	N/A	X	5-500 HZ :  5-350Hz @ 0.0002 G <sup>2</sup> /HZ 500Hz @ 0.0001 G <sup>2</sup> /HZ TOTAL: 0.3 G RMS DURATION: 10 MIN/AXIS	THE TEST COMPLETED TO THE SPECIFICATION REQUIREMENT.
		Y		
		Z		
 DEFINITION OF AXES		TEST CONDUCTOR:		DATE: 01-23-2008
		TEST ENGINEER:		DATE: 01-23-2008
		WITNESS:		DATE:
		Q. A. ENGINEER:		DATE: 01-23-2008

# RANDOM VIBRATION TEST DATA



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CLIENT: POWER INTEGRATIONS				P.O. NO: 33489
SPECIMEN: E-SIP HEAT SINK CLIPS (5 UNITS)				JOB NO: QL-08-070
SPECIFICATION: POWER INTEGRATION'S SPECIFICATION				PAGE 1 OF 1
DATE	S/N	AXIS	FREQUENCIES & LEVELS	REMARKS
01/23/08	N/A	X	5-500 HZ : 5-100Hz @ 0.02 G <sup>2</sup> /HZ 137-350Hz @ 0.0107 G <sup>2</sup> /HZ 500Hz @ 0.0052 G <sup>2</sup> /HZ TOTAL: 2.41 G RMS DURATION: 20 MIN/AXIS	THE TEST COMPLETED TO THE SPECIFICATION REQUIREMENT.
		Y		
		Z		
 DEFINITION OF AXES	TEST CONDUCTOR: <i>YM G. Sun</i>		DATE: 01-23-2008	
	TEST ENGINEER: <i>[Signature]</i>		DATE: 01-23-2008	
	WITNESS: <i>[Signature]</i>		DATE:	
	Q. A. ENGINEER: <i>[Signature]</i>		DATE: 01-23-2008	

# SHOCK TEST DATA



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CLIENT: POWER INTEGRATIONS					P.O. NO: 33489	
SPECIMEN: E-SIP HEAT SINK CLIPS (5 UNITS)					JOB NO: QL-08-070	
SPECIFICATION: POWER INTEGRATION'S SPECIFICATION			WAVE FORM: HALF SINE		PAGE 1 OF 1	
DATE	S/N	AXIS	LEVEL (G)	DURATION (MS)	NO. OF SHOCKS	REMARKS
1-23-2008	N/A	+X	HALF SINE SHOCK TEST: 6G, 3MS. TOTAL: 18 SHOCKS		3	TEST COMPLETED TO THE SPEC. REQUIREMENTS.
		-X			3	
		+Y			3	
		-Y			3	
		+Z			3	
		-Z			3	
		 DEFINITION OF AXES			TEST CONDUCTOR:	
TEST ENGINEER:				DATE:	1-23-2008	
WITNESS:				DATE:		
Q. A. ENGINEER:				DATE:	1-23-2008	

# SHOCK TEST DATA



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CLIENT: POWER INTEGRATIONS					P.O. NO: 33489	
SPECIMEN: E-SIP HEAT SINK CLIPS (5 UNITS)					JOB NO: QL-08-070	
SPECIFICATION: POWER INTEGRATION'S SPECIFICATION			WAVE FORM: HALF SINE		PAGE 1 OF 1	
DATE	S/N	AXIS	LEVEL (G)	DURATION (MS)	NO. OF SHOCKS	REMARKS
1-23-2008	N/A	+X	HALF SINE SHOCK TEST: 30M/S <sup>2</sup> 11MS. TOTAL: 36 SHOCKS		6	TEST COMPLETED TO THE SPEC. REQUIREMENTS.
		-X			6	
		+Y			6	
		-Y			6	
		+Z			6	
		-Z			6	
		 DEFINITION OF AXES			TEST CONDUCTOR: <i>Ym G. Sun</i>	
TEST ENGINEER: <i>[Signature]</i>	DATE: 1-23-2008					
WITNESS: <i>[Signature]</i>	DATE:					
Q. A. ENGINEER: <i>[Signature]</i>	DATE: 1-23-2008					

# EQUIPMENT LIST FOR VIBRATION & SHOCK TEST



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CLIENT	POWER INTEGRATIONS			JOB NO.	QL-08-070	
				P.O. NO.	33489	
MFR	DESCRIPTION	RANGE	EQUIP. USED	ASSET NO.	SERIAL NO.	CALIBRATION DUE DATE
DACTRON	DSP	0.1Hz - 3 KHz RES. 0.1dB		QL-0665	5542452	
				QL-0650	8204911	
			X	QL-0659	6313890	01/11/2009
				QL-0655	7385467	
				QL-0738	5963740	
				SEISMIC QL-0517 QL-0518	8177263 6904178	
LING ELECTRONICS	5/6-1 AMPLIFIER A-175 SHAKER (SILVER)	5Hz - 3 KHz	X	QL-0016	1672	TIME OF TEST
	5/6-5 AMPLIFIER(AGREE)		QL-0015	67		
	20/35 AMPLIFIER B-300 SHAKER (GREEN)		QL-0511	241		
	35/70 AMPLIFIER		QL-0151	30		
	60/100 AMPLIFIER B335 SHAKER (GOLD)		QL-0013	80		
	DMA-48 SOLID STATE AMPLIFIER		QL-0150	34		
	8024-SOLID STATE AMP #2 B335 SHAKER ( BLUE)		QL-0014	22		
	B-300 SHAKER (BLUE)		QL-0135	153		
	B-300 SHAKER (AGREE)		QL-0504	46		
	B335 SHAKER (RED)		QL-0510	12		
	B335 SHAKER (GREEN)		QL-0509	92		
			QL-0512	52		
	QL-0216	43				
	QL-0256	03				
	QL-0253	91				
MTS	2456 HYDR. SHAKER 406 CONTROL UNIT 436 CONTROL UNIT	1 Hz - 500 Hz 6" MAX DIS		QL-0003	160	
				QL-0006	863	
				QL-0007	3964	
TEAM CORP	SYSTEM 7269 HYDR. SHAKER	13" MAX DIS		QL-0522	533	
DYTRAN	ACCELEROMETER 3141A ACCELEROMETER 3055A2	F.S. 50 g's SENS. 100 mV/G	X	QL-0		
				QL-0697	425	02/03/08
	ACCELEROMETER 3030A4 ACCELEROMETER 3141A ACCELEROMETER 3031AG ACCELEROMETER 3101B	F.S. 500 g's SENS. 10 mV/G		QL-0		
				QL-		
				QL-		
				QL-		
PCB	ACCELEROMETER 353B17	F.S. 500 g's SENS. 10 mV/G		QL-		
			X	QL-0730	107555	02/22/08
			X	QL-0727	107552	02/22/08
			X	QL-0731	107556	02/22/08

# Power integrations

## Vibration & Shock Test



X--Axis



Y--Axis



Z--Axis



# SHOCK TEST DATA



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CLIENT: POWER INTEGRATIONS		P.O. NO: 33489
SPECIMEN: E-SIP HEAT SINK CLIPS (5 UNITS)		JOB NO: QL-08-070
SPECIFICATION: POWER INTEGRATION'S SPECIFICATION	WAVE FORM: SQUARE WAVE	PAGE 1 OF 1

DATE	S/N	AXIS	LEVEL (G) 40-45	DURATION (MS) 15	NO. OF SHOCKS	REMARKS
1-24-2008	N/A	+X	TRAPEZOIDAL SHOCK TEST: PEAK: 50G, FAIRED:40-45G DURATION: 11 MS		3	TEST COMPLETED TO THE SPEC. REQUIREMENTS.
		-X			3	
		+Y			3	
		-Y			3	
		Z			6	

<p>DEFINITION OF AXES</p>	TEST CONDUCTOR: <i>Ym G Sun</i>	DATE: 1-24-2008
	TEST ENGINEER: <i>[Signature]</i>	DATE: 1-24-2008
	WITNESS: <i>[Signature]</i>	DATE:
	Q. A. ENGINEER: <i>[Signature]</i>	DATE: 1-24-2008

# EQUIPMENT LIST FOR SHOCK/DROP TEST



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CLIENT:	POWER INTEGRATIONS			P.O.:	33489	
				JOB NO.	QL-08-070	
MFGR	DESCRIPTION	RANGE	EQUIP. USED	ASSET NO.	SERIAL NO.	CALIBRATION DUE DATE
AVCO	SM105-8 SHOCK TESTER	3000 G MAX		QL-050	1978	
MTS	SHOCK TABLE MODEL # 846.240	70" DROP MAX DV=8 m/sec	X	QL-009		TIME OF TEST
LAB	DROP TESTER MODEL: 2D-500	24" TO 68"		QL-169		
LANSMONT CORPORATION	TEST PARTNER SOFTWARE VER. 2	3000 G MAX	X	QL-0479 QL-0494		TIME OF TEST
	3031A ACCELEROMETER	F.S. 500 g's SENS. 10 mV/g		QL- QL- QL-		
	3013A ACCELEROMETER TRI-AXIAL	F.S. 500 g's SENS. 10 mV/g		QL- QL- QL-		
	3151A ACCELEROMETER TRI-AXIAL	F.S. 200 g's SENS. 50 mV/g		QL- QL- QL-		
DYTRAN	3132A ACCELEROMETER	F.S. 50 g's SENS. 100 mV/g		QL- QL-		
	3141A ACCELEROMETER	F.S. 50 g's SENS. 100 mV/g	X	QL-0194	101	10/16/08
	3200A5T ACCELEROMETER	F.S. 5000 g's SENS. 1 mV/g		QL- QL- QL-		
	3030A4 ACCELEROMETER	F.S. 500 g's SENS. 10 mV/g		QL- QL- QL-		



**QUINTA**  
**LABORATORIES**

SANTA CLARA, CALIFORNIA

# Power Integrations

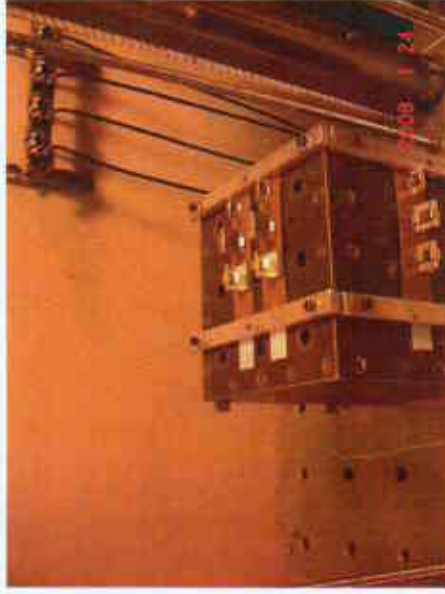
## Shock Test



± X-AXIS



± Y-AXIS



Z-AXIS

JOB NO. : QL-08-070

1-24-2008

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**QUANTA**  
LABORATORIES

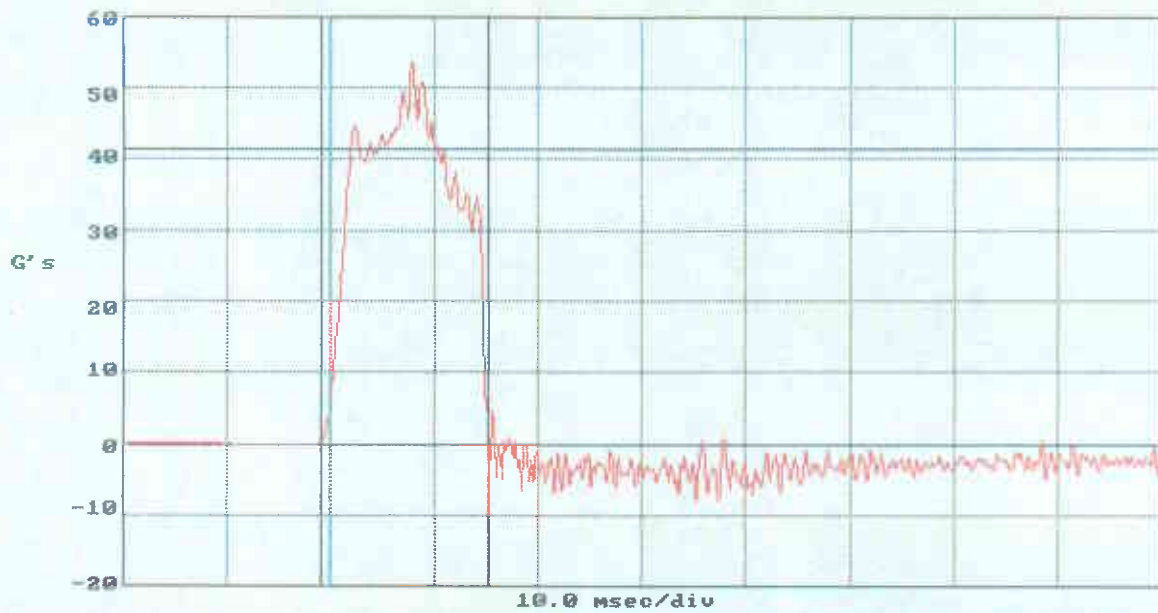
**TEST PARTNER**

**POWER INTEGRATIONS**  
New Data

11:27:19 AM  
01-24-2008

Channel 1

Faired Acc:	41.660	g
Peak Acc:	54.040	g
Min Acc:	-3.040	g
Duration:	1.500	ms
Delta V:	221.000	In/sec
Filter:	500	Hz



**NOTES:** TRAPEZOID SHOCK TEST  
JOB NO : QL-08-070  
MODEL : e-SIP HEATSINK CLIPS  
AXIS : Z;-X;-Y

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**QUANTA**  
LABORATORIES

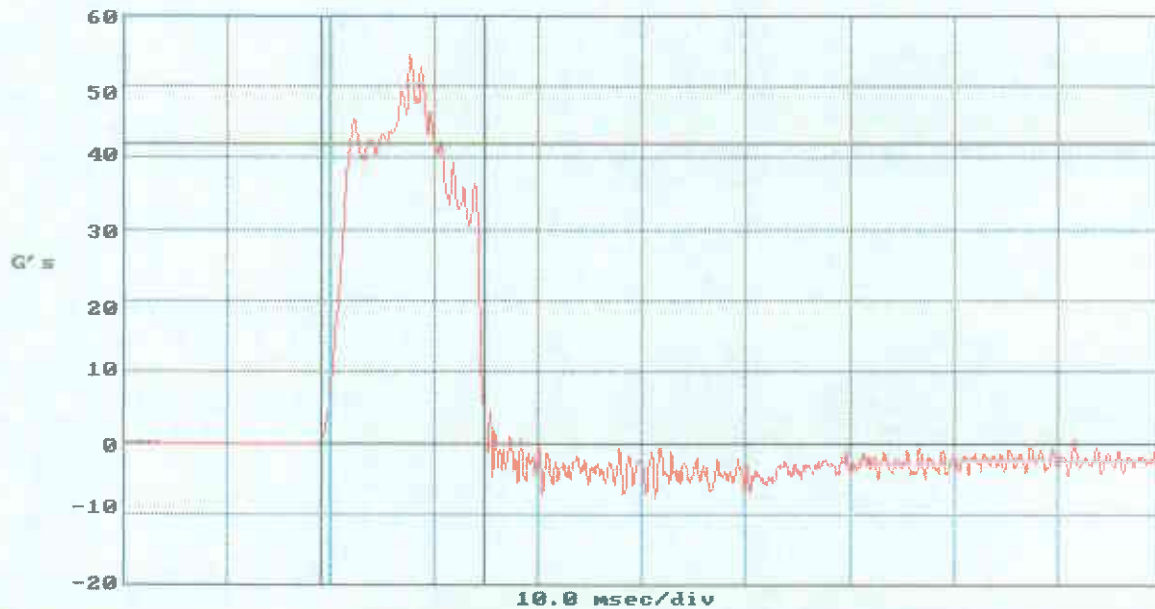
**TEST PARTNER**

**POWER INTEGRATIONS**  
New Data

11:18:58 AM  
01-24-2008

**Channel 1**

Faired Acc:	42.00	g
Peak Acc:	154.00	g
Min Acc:	-7.00	g
Duration:	15.00	msec
Delta U:	221.38	In/S
Filter:	500	Hz



**NOTES: TRAPEZOID SHOCK TEST**  
**JOB NO : QL-08-070**  
**MODEL : e-SIP HEATSINK CLIPS**  
**AXIS : Z;+X;+Y**

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QUANTA  
LABORATORIES

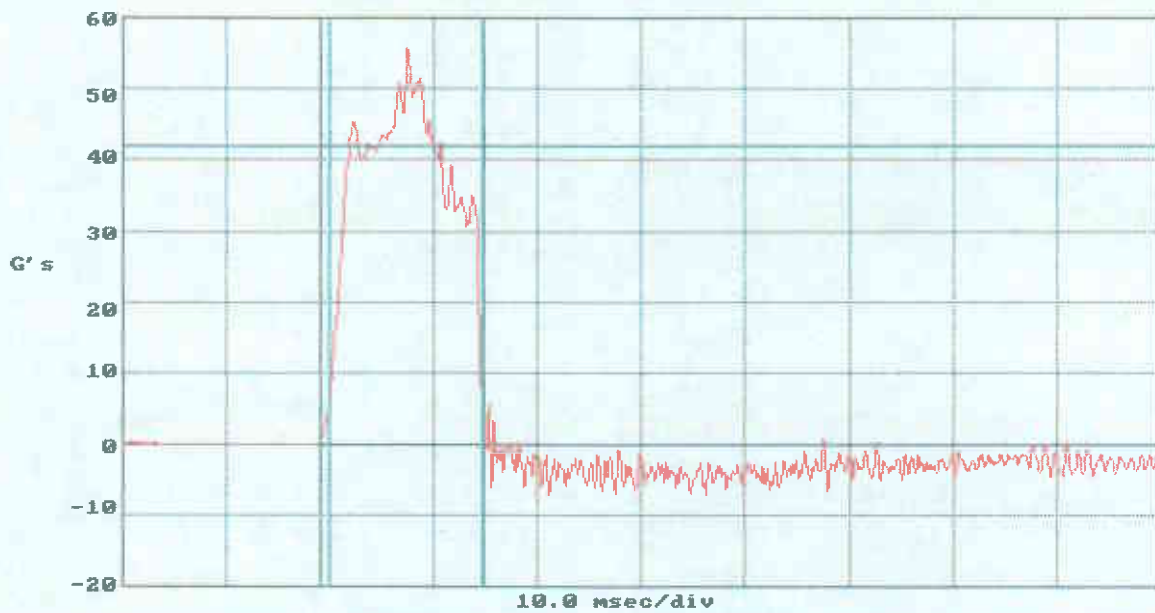
TEST PARTNER

POWER INTEGRATIONS  
New Data

11:08:55 AM  
01-24-2008

Channel 1

Faired Acc:	42.10	ms
Peak Acc:	102.00	ms
Min Acc:	-14.30	ms
Duration:	220.93	Hz
Delta U:	500	In/Sec
Filter:		



NOTES: TRAPEZOID SHOCK TEST  
JOB NO : QL-08-070  
MODEL : e-SIP HEATSINK CLIPS  
AXIS : -Y;Z;-X

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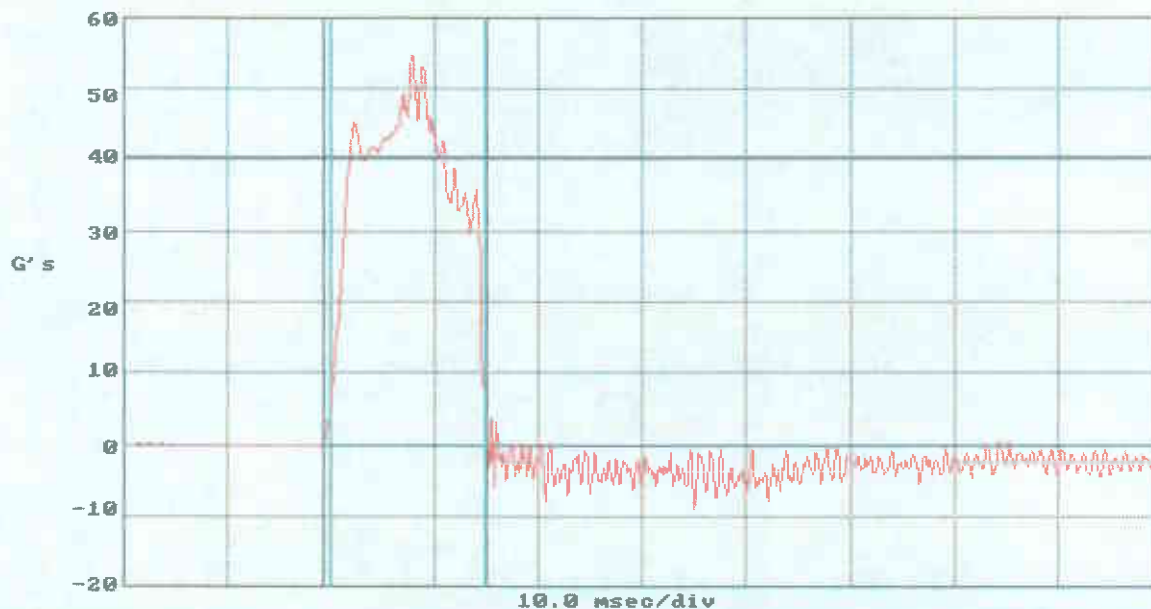
TEST PARTNER

POWER INTEGRATIONS  
New Data

11:01:37 AM  
01-24-2008

Channel 1

Faired Acc:	40.48	C:	mm
Peak Acc:	54.74	C:	mm
Min Acc:	-6.96	C:	mm
Duration:	15.90	msec	
Delta V:	221.17	In/S	
Filter:	500	Hz	



NOTES: TRAPEZOID SHOCK TEST  
JOB NO : QL-08-070  
MODEL : e-SIP HEATSINK CLIPS  
AXIS : +Y;Z;+X

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**QUANTA**  
LABORATORIES

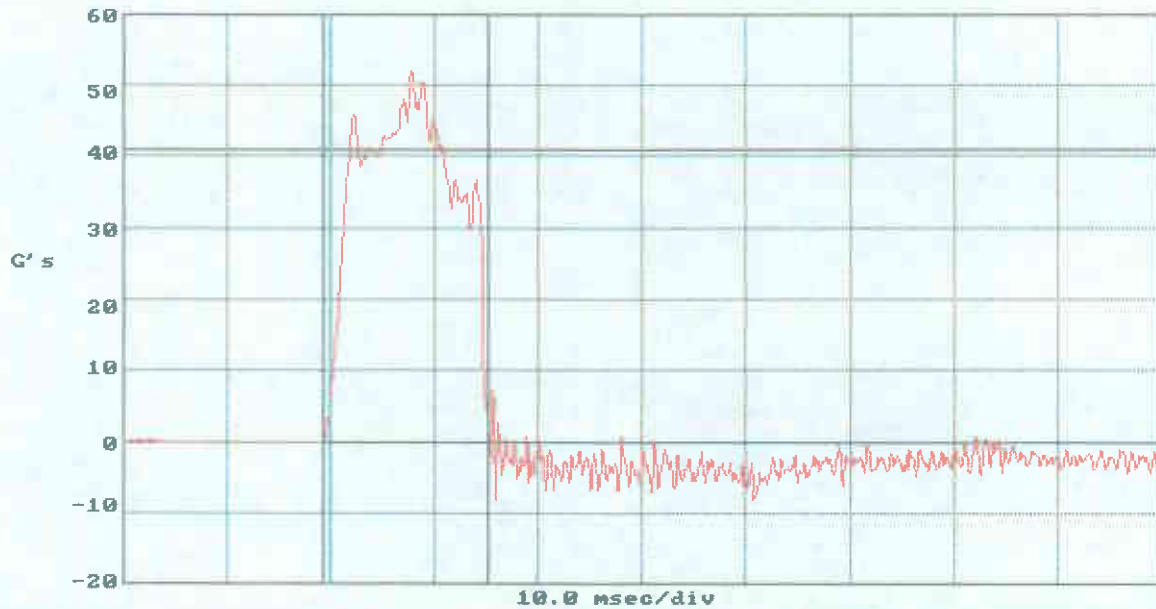
**TEST PARTNER**

**POWER INTEGRATIONS**  
New Data

10:49:16 AM  
01-24-2008

Channel 1

Faired Acc:	41.07	MS/C
Peak Acc:	100.00	G
Min Acc:	0.00	C
Duration:	1.000	SEC
Delta U:	220	IN
Filter:	500	HZ



**NOTES: TRAPEZOID SHOCK TEST**  
JOB NO : QL-08-070  
MODEL : e-SIP HEATSINK CLIPS  
AXIS : -X;-Y;+Z



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QUANTA  
LABORATORIES

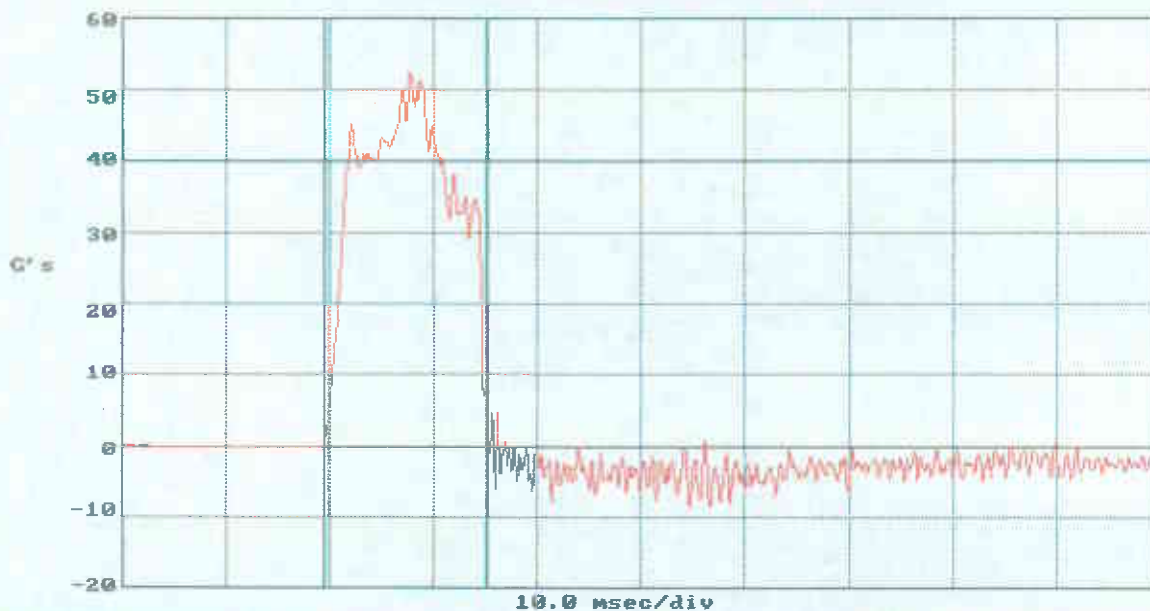
TEST PARTNER

POWER INTEGRATIONS  
New Data

10:32:09 AM  
01-24-2008

Channel 1

Faired Acc:	40.07	C/s
Peak Acc:	50.47	C/s
Min Acc:	-1.61	C/s
Duration:	15.10	msec
Delta V:	220.69	In/S
Filter:	500	Hz



NOTES: TRAPEZOID SHOCK TEST  
JOB NO : QL-08-070  
MODEL : e-SIP HEATSINK CLIPS  
AXIS : +X; +Y; +Z