



TEST REPORT FOR ELECTROSTATIC DISCHARGE IMMUNITY

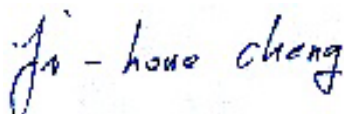
Report No.: **09-03-MAS-130-01**

Client: **RF Monolithics, Inc**
Product: **315 MHz SAW Filter**
Model No.: **SF1143B-2**
Date test item received: 2009/03/17
Date test campaign completed: 2009/03/17
Date of issue: 2009/03/23

The test result only corresponds to the tested sample. It is not permitted to copy this report, in part or in full, without the permission of the test laboratory.

Total number of pages of this test report: 05 pages

Test Engineer



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Laboratory Introduction: Electronics Testing Center, Taiwan is recognized, filed and mutual recognition arrangement as following:

- ① ISO9001: TüV Product Service
- ② ISO/IEC 17025: BSMI, CNLA, DGT, NVLAP, CCIBLAC, UL, Compliance
- ③ Filing: FCC, Industry Canada, VCCI
- ④ MRA: Australia, Hong Kong, New Zealand, Singapore, USA, Japan, Korea, China, APLAC through CNLA
- ⑤ FCC Registration Number: 90588, 91094, 91095



ELECTROSTATIC DISCHARGE IMMUNITY TEST

Test Date: Mar. 17, 2009

Test Equipment:	ESD Simulator\ ETS \ 910		
Climatic Condition	Ambient Temperature: <u>20</u> °C		Relative Humidity: <u>43</u> %RH
	Atmospheric Pressure: <u>996</u> mbar		
Test Set-up	Table-top Equipment		
Operating Conditions of The Device	static		

Energy-Storage Capacitor : <u>100</u> pF Discharge Resistor : <u>1.5k</u> Ω Discharge Times : <u>1</u> times/each condition																
Times between each pulse: >0.1 sec																
Discharge Mode	Pulse output : #D GND: ALL OTHER PINTS															
	Pulse output : #I GND: ALL OTHER PINTS															
\ESD Voltage	<u>250</u> V		<u>500</u> V		<u>1</u> kV		<u>2</u> kV		<u>4</u> kV		<u>6</u> kV		<u>8</u> kV		<u> </u> kV	
\Result\Polarity	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-
#1~#3	A	A	--	--	--	--	--	--	--	--	--	--	--	--	--	--
#4~#6	--	--	A	A	--	--	--	--	--	--	--	--	--	--	--	--
#7~#9	--	--	--	--	A	A	--	--	--	--	--	--	--	--	--	--
#10~#12	--	--	--	--	--	--	A	A	--	--	--	--	--	--	--	--
#13~#15	--	--	--	--	--	--	--	--	A	A	--	--	--	--	--	--
#16~18	--	--	--	--	--	--	--	--	--	--	A	A	--	--	--	--
#19, #21, #31	--	--	--	--	--	--	--	--	--	--	--	--	A	A	--	--

Note: “A” means the EUT function was correct during the test.

EUT performace parameter was given in table 1 .(conformed with manufacturer)

Test condition of Energy-Storage Capacitor/ Discharge Resistor and discharge times are according in standard JESD22- A114E



Classification Criteria

All samples used must meet the test requirements of section 4 up to a particular voltage level in order for the part to be classified as meeting a particular sensitivity classification.(JESD22-A114E)

Criteria meet: <u>Class 3B</u>	Any part that passes after exposure to an ESD pulse of 8000 Volts.
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ELECTRONICS TESTING CENTER, TAIWAN

Report No.: 09-03-MAS-130-01

EMC TESTING DEPARTMENT

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Test Date: Mar. 17, 2009

Test Equipment: ESD Simulator\ ETS \ 910	
Climatic Condition	Ambient Temperature: <u>20</u> °C Relative Humidity: <u>43</u> %RH
	Atmospheric Pressure: <u>996</u> mbar
Test Set-up	Table-top Equipment
Operating Conditions of The Device	static

Energy-Storage Capacitor : <u>200</u> pF Discharge Resistor : <u>0</u> Ω Discharge Times : <u>1</u> times/each condition								
Times between each pulse: >0.5 sec								
Discharge Mode	Pulse output : #D GND: OTHER ALL PINTS							
	Pulse output : #I GND: OTHER ALL PINTS							
\ESD Voltage	<u>100</u> V		<u>200</u> V		<u>400</u> V		<u>--</u> V	
\Result\Polarity	+	-	+	-	+	-	+	-
#22~#24	A	A	--	--	--	--	--	--
#25~#27	--	--	A	A	--	--	--	--
#28~#30	--	--	--	--	A	A	--	--

Note: “A” means the EUT function was correct during the test.

EUT performace parameter was given in table 1 .(conformed with manufacturer)

Test condition of Energy-Storage Capacitor/ Discharge Resistor and discharge times are according in standard JESD22-A115-A

Classification Criteria

All samples used must meet the test requirements of section 4 up to a particular voltage level in order for the part to be classified as meeting a particular sensitivity classification.(JESD22-A115-A)

Criteria meet: <u>Class C</u>	Any part that passes after exposure to an ESD pulse of 400 Volts.
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Table 1. EUT performance parameter(measured after test)

No.	INLOSS	DELAYPP	FQBW(1)	DBBW(1)	RJFR(1)	RJAMP(1)	RJFR(2)	RJAMP(2)	AMPRIP
1	13.976	39.4	314.824	14.857	304.6	31.358	327.08	32.211	0.765
2	14.382	43.29	314.848	14.863	304.52	34.675	325.74	34.598	0.795
3	14.169	40.74	314.9	14.861	303.62	40.193	326.02	40.256	0.754
4	13.477	44.43	314.926	14.827	304.58	39.147	327.26	40.615	0.704
5	13.682	48.45	314.919	14.765	304.74	39.332	325.86	40.475	0.72
6	14.138	59.65	314.88	14.898	304.6	34.547	325.78	33.746	0.872
7	14.476	27.25	314.841	14.925	303.66	35.224	326.92	35.05	0.925
8	13.888	29.26	314.856	14.72	303.6	39.014	330.76	40.626	0.481
9	13.624	28.07	314.924	14.802	304.6	35.186	325.8	36.784	0.623
10	13.347	43.04	314.903	14.755	302.38	35.891	328.08	34.549	0.659
11	14.505	38.33	314.824	14.864	304.36	35.57	327.96	36.228	0.724
12	13.369	30.8	314.78	14.608	303.46	35.998	326.84	34.279	0.389
13	14.785	36.06	314.944	14.984	304.84	30.332	328.24	31.828	0.711
14	14.74	34.14	314.792	14.813	304.88	31.247	328.14	32.889	0.646
15	15.336	60.65	314.745	14.7	303.84	34.981	324.98	34.882	0.681
16	14.644	49.11	314.88	14.903	304.76	34.223	325.62	34.749	0.771
17	14.283	30.74	314.999	14.921	304.92	30.319	325.86	32.11	0.677
18	14.458	33.16	314.825	14.78	304.7	36.587	328.16	37.594	0.817
19	15.334	35.92	314.747	15.075	304.76	34.86	325.46	34.916	0.796
21	15.313	48.72	314.755	15.028	304.8	33.724	327.96	32.989	0.787
31	14.662	38.48	314.928	14.929	304.92	35.217	328.02	36.016	0.722
22	14.404	31.9	314.808	14.848	303.82	40.689	327.26	40.696	0.789
23	14.723	48.73	314.802	14.829	304.74	43.241	324.94	42.244	0.645
24	14.394	39.21	314.833	14.83	302.44	41.374	324.94	43.263	0.695
25	13.578	34.74	314.85	14.774	302.34	38.364	326.08	38.542	0.686
26	14.421	41.22	314.754	14.815	303.44	39.668	325.96	41.105	0.781
27	14.016	39.4	314.739	14.537	304.7	37.233	325.98	38.871	0.601
28	14.405	37.56	314.93	14.917	304.58	37.373	330.42	39.289	0.677
29	14.325	45.04	314.941	14.887	304.64	34.753	325.96	34.763	0.868
30	13.466	37.23	314.854	14.79	304.64	35.847	327.18	36.733	0.527