PRODUCT ADVISORY NOTICE

KEEPING YOU INFORMED OF PRODUCT CHANGES

To: **All Customers, Sales Representatives and Distributors**

Date: **August 17, 2009**

Subject: **SMT Optics added to 62A22 Manufacturing Process**

Grayhill has recently completed qualification of the 62A22 Series encoder utilizing surface mount technology optics. Currently, Grayhill uses die and wire bond optics in the manufacturing of the 62A22. Because of the opportunity to increase capacity, Grayhill will introduce surface mount optics in its production process on August 17, 2009.

The initial test reports are complete and available on http://www.grayhill.com/about/PAN.aspx. As additional tests are completed, reports will be housed in the same place.

Samples of the 62A22 series with the surface mount optics are available upon request.

The following part numbers have been affected:

62A22-01-CH	62A22-01-060S
62A22-01-P	62A22-01-080S
62A22-01-020C	62A22-01-090CH
62A22-01-020CH	62A22-01-090S
62A22-01-020S	62A22-01-100C
62A22-01-020SH	62A22-01-100CH
62A22-01-025C	62A22-01-100S
62A22-01-030CH	62A22-01-100SH
62A22-01-030S	62A22-01-120C
62A22-01-035C	62A22-01-120S
62A22-01-040C	62A22-01-190CH
62A22-01-040S	62A22-01-190SH
62A22-01-050C	62A22-01-240C
62A22-01-050CH	62A22-01-240S
62A22-01-050S	62A22-01-250S
62A22-01-060C	

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62A22-02-P	62A22-02-060S
62A22-02-020C	62A22-02-060SH
62A22-02-020CH	62A22-02-080C
62A22-02-020S	62A22-02-080S
62A22-02-020SH	62A22-02-085C
62A22-02-025C	62A22-02-090C
62A22-02-025CH	62A22-02-100C
62A22-02-030C	62A22-02-100CH
62A22-02-030CH	62A22-02-100S
62A22-02-030S	62A22-02-100SH
62A22-02-030SH	62A22-02-120C
62A22-02-035C	62A22-02-130C
62A22-02-035CH	62A22-02-135C
62A22-02-035S	62A22-02-140C
62A22-02-040C	62A22-02-150S
62A22-02-040CH	62A22-02-160C
62A22-02-040S	62A22-02-160S
62A22-02-040SH	62A22-02-200C
62A22-02-045CH	62A22-02-240C
62A22-02-045S	62A22-02-250CH
62A22-02-050C	62A22-02-250S
62A22-02-050CH	
62A22-02-050S	
62A22-02-050SH	
62A22-02-055C	
62A22-02-060C	
62A22-02-060CH	

Please contact your Grayhill, Inc. sales associate for further information.

62A22 SMT Testing Summary

Test	Test Completion	Results	Notes
Thermal Shock			Not powered
per PS62	6/9/09	Pass	5 cycles, -55°C, +100°C
per MIL-202 test A	6/10/09	Pass	5 cycles, -55°C, +105°C
per MIL-202 test A-1	6/16/09	Pass	25 cycles, -55°C, +105°C
per MIL-202 test A-2	6/20/09	Pass	50 cycles, -55°C, +105°C
per MIL-202 test B	6/22/09	Pass	5 cycles, -65°C, +125°C
per MIL-202 test B-1	6/24/09	Pass	25 cycles, -65°C, +125°C
per MIL-202 test B-2	6/29/09	Pass	50 cycles, -65°C, +125°C
Humidity 85/85			85% humidity at 85°C, powered (2.2k pull-ups, high-high state to induce dendrite growth)
250 hours	6/29/09	Pass	
350 hours	7/10/09	Pass	
700 hours	7/22/09	Pass	2 Encoders damaged during setup.
1000 hours	8/4/09	Pass	
LED Degradation			85°C, powered (2.2k pull-ups, low - low state)
1000 hours	8/7/09	Pass	
Mechanical Shock			Not powered
half-sine per PS62	7/10/09	Pass	100g 6ms half sine
sawtooth per PS62	7/13/09	Pass	100g 6ms sawtooth
Vibration			Not powered
per PS62	6/23/09	Pass	15g sine 10-2000 hz
Temperature Soak			Not powered
85C for 24 hours	6/4/09	Pass	
-55C for 24 hours	6/10/09	Pass	

Humidity Voltage Readings

Periodic readings in mV
Low states A and B outputs
Supply = 5.0V, 2.2K pull-up resistors

	250 hours 6/29/09		350 hours 7/10/09		700 hours 7/22/09		1000 hours 8/4/09	
Encoder	**A**	**B**	**A**	**B**	**A**	**B**	**A**	**B**
41	169	159	169	160	23	21	23	21
42	170	157	170	156	29	26	29	26
43	170	157	168	155	34	30	33	29
44	163	154	164	155	22	20	22	20
45	163	153	163	154	22	20	22	20
46	163	150	160	147	22	20	21	19
47	171	160	174	162	26	24	26	24
48	172	157	330	156	Damaged during setup.			
49	160	147	163	149	21	19	21	19
50	166	155	168	157	22	20	22	21
51	164	156	172	163	22	21	22	21
52	172	159	171	160	23	21	23	21
53	167	156	70	70	23	21	23	21
54	169	158	169	159	23	21	22	20
55	162	151	171	161	24	22	24	22
56	167	156	174	163	Damaged during setup.			
57	162	151	163	153	30	26	30	26
58	165	156	167	158	22	20	22	20
59	170	158	171	159	23	21	23	20
60	168	155	166	153	23	20	23	21
	Note: wrong pull-up resistors used							

LED Degradation - Voltage Readings

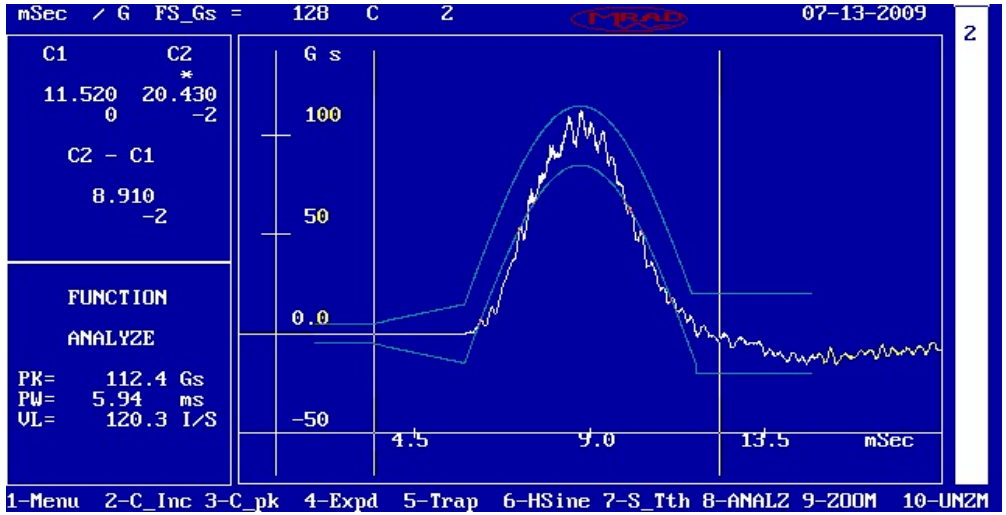
Periodic readings in mV
Low states A and B outputs
Supply = 5.0V, 2.2K pull-up resistors

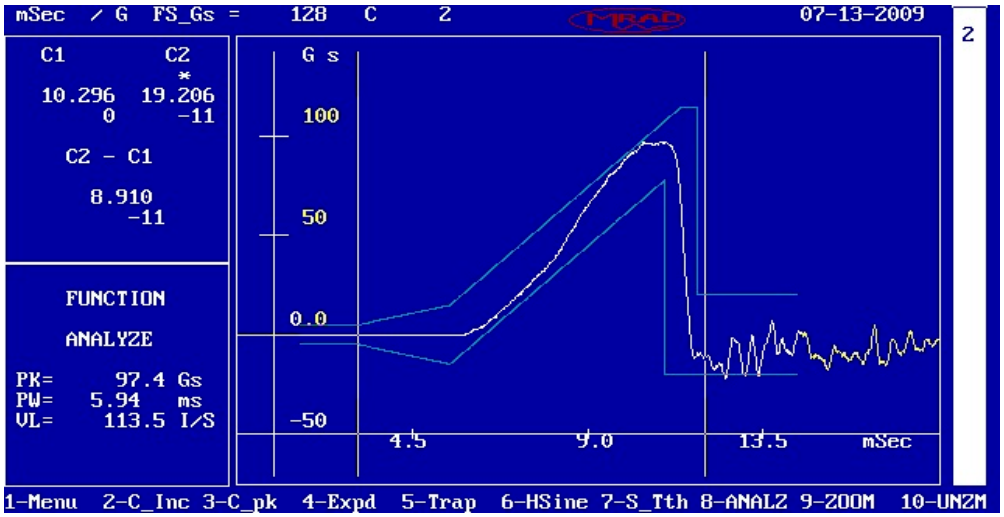
Test Duration: 1000 hours
Completion: 8/7/09

Encoder	Channel A	Channel B
61	23	21
62	22	20
63	22	20
64	22	20
65	22	20
66	23	21
67	22	20
68	22	20
69	22	20
70	23	21
71	22	20
72	22	20
73	23	20
74	22	20
75	22	20
76	23	20
77	23	21
78	23	20
79	23	21
80	22	20

Mechanical Shock

Sample	100g 6ms half-sine	Results	100g 6ms sawtooth	Results
81	7/10/09	Pass	7/13/09	Pass
82	7/10/09	Pass	7/13/09	Pass
83	7/10/09	Pass	7/13/09	Pass
84	7/10/09	Pass	7/13/09	Pass
85	7/10/09	Pass	7/13/09	Pass
86	7/10/09	Pass	7/13/09	Pass
87	7/10/09	Pass	7/13/09	Pass
88	7/10/09	Pass	7/13/09	Pass
89	7/10/09	Pass	7/13/09	Pass
90	7/10/09	Pass	7/13/09	Pass
91	7/10/09	Pass	7/13/09	Pass
92	7/10/09	Pass	7/13/09	Pass
93	7/10/09	Pass	7/13/09	Pass
94	7/10/09	Pass	7/13/09	Pass
95	7/10/09	Pass	7/13/09	Pass
96	7/10/09	Pass	7/13/09	Pass
97	7/10/09	Pass	7/13/09	Pass
98	7/10/09	Pass	7/13/09	Pass
99	7/10/09	Pass	7/13/09	Pass
100	7/10/09	Pass	7/13/09	Pass



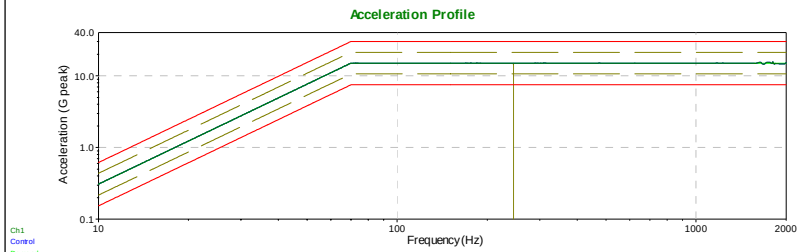


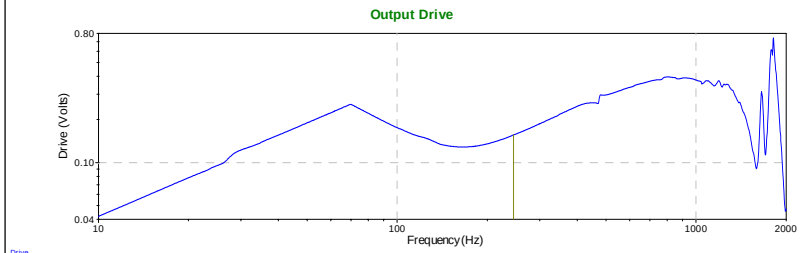
Vibration

Sample	Sine 15g 10-2000	Results
101	6/18/09	Damaged (ribbon cable broken from setup)
102	6/18/09	Pass
103	6/18/09	Pass
104	6/18/09	Pass
105	6/18/09	Pass
106	6/20/09	Pass
107	6/20/09	Pass
108	6/20/09	Pass (ribbon cable partly broken from setup)
109	6/20/09	Pass (ribbon cable partly broken from setup)
110	6/20/09	Pass
111	6/20/09	Pass (ribbon cable partly broken from setup)
112	6/20/09	Pass (ribbon cable partly broken from setup)
113	6/20/09	Pass
114	6/20/09	Pass
115	6/20/09	Pass
116	6/23/09	Pass
117	6/23/09	Pass
118	6/23/09	Pass
119	6/23/09	Pass
120	6/23/09	Pass

Customer: 62A SMT
Job#: 15 g vibration X-axis

Data: C:\VibrationVIEW\Data\2009-06\62A SMT\2009Jun20-0723-0001.vsd
Test: C:\VibrationVIEW\Profiles\Sine 15G 10 to 2000.vsp
Data stored on Jun 20, 2009 11:23:21
15 g Sinusoidal Sweep 10 to 2000 hz - Second set - Transverse axis -
End of Timed Test





Breakpoint table

Start Freq.	Amplitude	End Freq.	Amplitude
10 Hz	0.06 in	69.9276 Hz	0.06 in
69.9276 Hz	15 G	2000 Hz	15 G

Test level schedule:

	Duration	Level
1)	4:00:00	100 %

** Test started Jun 20, 2009 07:23:13, running for 4:00:08
** Current level: 1, running at 100 %, 4:00:00 of 4:00:00 complete

Current Measurements:

Demand: 15 G at 245.01 Hz
Control: 15.01 G
Control Vel.: 3.764 in/s
Control Disp.: 0.004889 in

Ch1: 15.0062 G
Ch2: 0.0148813 G
Ch3: 8.57732e-005 G
Ch4: 0.000187157 G

Drive voltage: 0.1557 Volts peak