



Project Number:		Tracking Code: TC0918--2441_ReportRev2	
Requested by: Patrick Brumley		Date: 5/5/2009	Product Rev: N/A
Part #: VITA 42	Lot #: 1	Tech: Patrick Brumley & Russ Payton	Eng: Russ Payton
Part description: VITA 42			Qty to test: 1
Test Start: 4/23/2009	Test Completed: 4/29/2009		

MATED STACK HEIGHT REPORT

PART DESCRIPTION

VITA 42

CERTIFICATION

All instruments and measuring equipment were calibrated to National Institute for Standards and Technology (NIST) traceable standards according to ISO 10012-1 and ANSI/NCSL 2540-1, as applicable.

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APPLICABLE DOCUMENTS

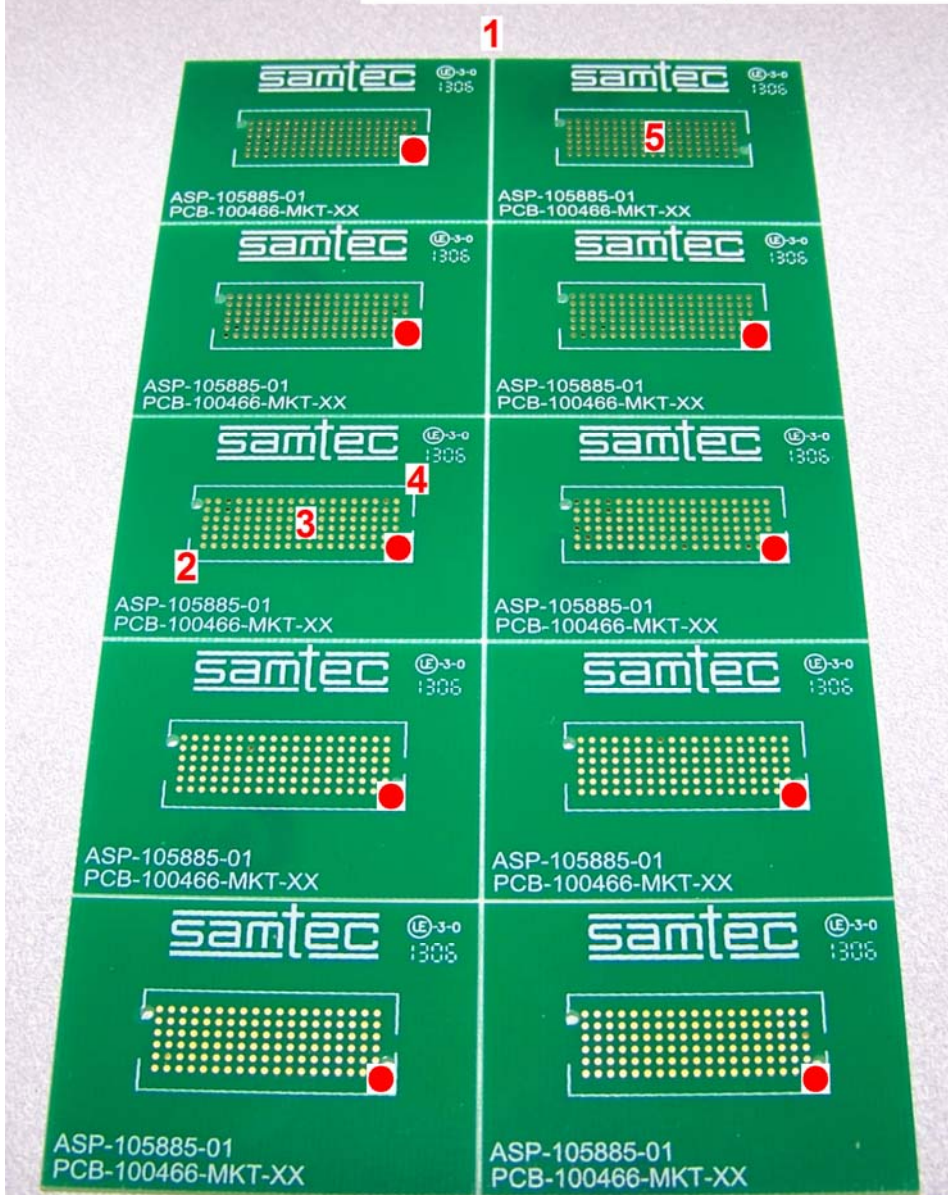
Standards: EIA Publication 364

TEST SAMPLES AND PREPARATION

- 1) All materials were manufactured in accordance with the applicable product specification.
- 2) All test samples were identified and encoded to maintain traceability throughout the test sequences.
- 3) Either an automated cleaning procedure or an ultrasonic cleaning procedure may be used.
- 4) The automated procedure is used with aqueous compatible soldering materials.
- 5) Any additional preparation will be noted in the individual test sequences.
- 6) Re-Flow Time/Temp: See accompanying profiles.

RESULTS

Thermocouple Placement



- 1 - Oven Air Thermocouple
- 2 - Edge Leads Thermocouple
- 3 - Center Leads Thermocouple
- 4 - Edge Leads Thermocouple
- 5 - PCB Temp. Thermocouple
- - Connector Placed for Thermal Profiling

ASP-103614-01:

PCB #: PCB-100466-MKT-XX
Stencil #: PCB-100466-MKT-XX Thickness: .006"
Solder Paste: Kester HydroMark 531 Water Soluble Sn63Pb37.
Thermal Profile: IPG00037_LEAD – Thermocouples Located Edge, Center and PCB.
 Straight Ramp.



IPG00037_LEAD

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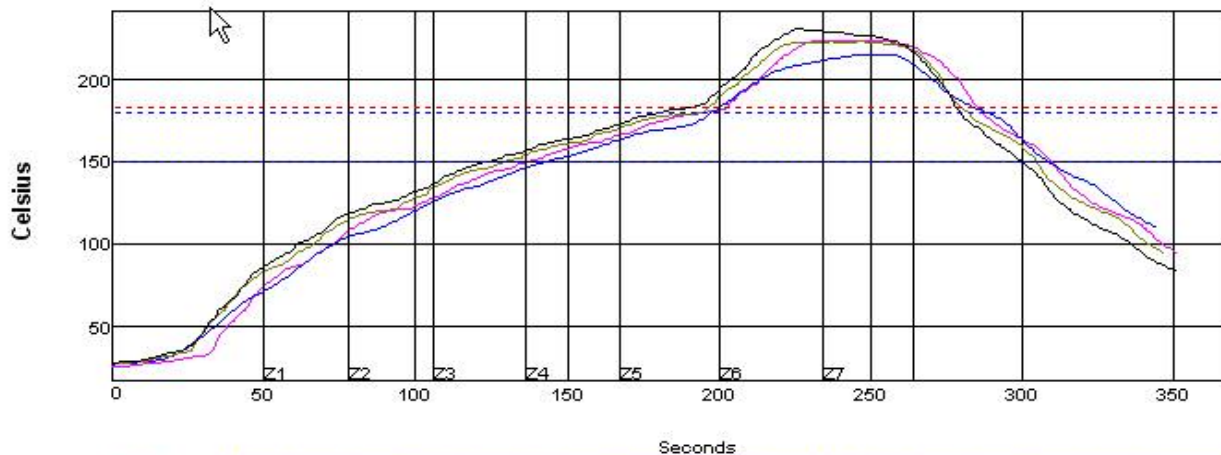


Company: Samtec NA
Oven Name: X2N70040

Site: Wave Solder (Key)
Process Window Name: Kester HydroMark 531 Water Soluble Paste

Setpoints (Celsius)

Zone	1	2	3	4	5	6	7
Top	125.0	145.0	170.0	175.0	190.0	255.0	220.0
Bottom	125.0	145.0	170.0	175.0	190.0	255.0	220.0
Conveyor Speed (inch/min): 23.50							



PWI= 184%	Max Rising Slope	Max Falling Slope	Soak Time 150-180C	Reflow Time /183C	Peak Temp
EDGE LEADS	2.20 76%	-2.01 19%	57.84 -114%	83.29 78%	224.34 91%
CENTER LEADS	1.45 16%	-1.54 57%	55.26 -132%	84.36 81%	215.51 -27%
EDGE LEADS	2.13 71%	-2.10 12%	64.06 -73%	83.38 78%	223.23 76%
PCB	2.14 71%	-2.26 -1%	57.41 -117%	89.23 97%	231.31 184%
Delta	0.75	0.72	8.80	5.94	15.80

Process Window:

Solder Paste: Kester HydroMark 531 Water Soluble Paste

Statistic Name	Low Limit	High Limit	Units
Max Rising Slope (Target=1.3) (Calculate Slope over 20 Seconds)	0.0	2.5	Degrees/Second
Max Falling Slope (Calculate Slope over 20 Seconds)	-3.5	-1.0	Degrees/Second
Soak Time 150-180C	60	90	Seconds
Time Above Reflow - 183C	30	90	Seconds
Peak Temperature	210	225	Degrees Celsius

ASP-103614-04:

PCB #: PCB-100466-MKT-XX
Stencil #: PCB-100466-MKT-XX **Thickness:** .006"
Solder Paste: Kester R520 Water Soluble SAC305.
Thermal Profile: IPG00037_LEAD_Free – Thermocouples Located Edge, Center and PCB. Straight Ramp



IPG00037_LEAD_FREE

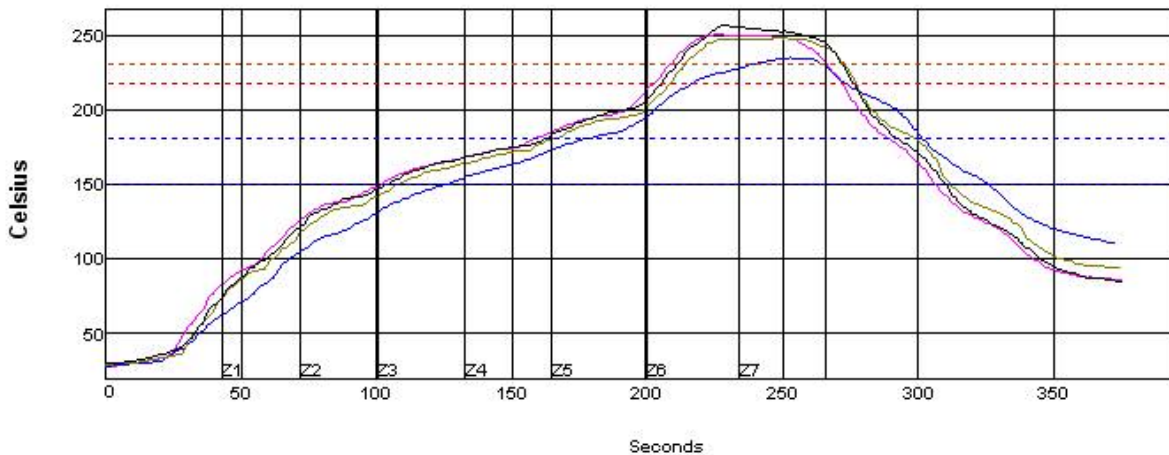
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Company: Samtec NA
Oven Name: X2N70040

Site: Wave Solder (Key)
Process Window Name: Kester R520A Lead-Free Water Soluble Paste

Setpoints (Celsius)							
Zone	1	2	3	4	5	6	7
Top	135.0	165.0	180.0	185.0	215.0	287.0	250.0
Bottom	135.0	165.0	180.0	185.0	215.0	287.0	250.0
Conveyor Speed (inch/min): 22.35							



	PW: 134%	Max Rising Slope	Max Falling Slope	Soak Time 160-180C	Reflow Time 217C	Peak Temp	Total Time 230C					
EDGE LEADS	2.44	82%	-3.43	-14%	66.77	-114%	70.17	-32%	260.46	66%	68.42	88%
CENTER LEADS	1.83	-16%	-1.78	38%	48.91	-134%	67.61	-117%	234.84	-101%	28.89	-120%
EDGE LEADS	2.34	78%	-3.46	-18%	66.60	-112%	68.80	-48%	248.28	33%	68.08	84%
PCB	2.18	68%	-2.87	-34%	68.08	-108%	71.48	-28%	268.73	117%	81.24	108%
Del	0.81		0.88		8.18		13.87		21.78		34.26	

Process Window:

Solder Paste: Kester R520A Lead-Free Water Soluble Paste

Statistic Name	Low Limit	High Limit	Units
Max Rising Slope (Target=1.8)	1.0	2.5	Degrees/Second
(Calculate Slope over 20 Seconds)			
Max Falling Slope	-3.5	-1.0	Degrees/Second
(Calculate Slope over 20 Seconds)			
Soak Time 150-180C	60	120	Seconds
Time Above Reflow - 217C	60	90	Seconds
Peak Temperature	235	255	Degrees Celsius
Total Time Above - 230C	30	60	Seconds

ASP-103612-04:

PCB #: PCB-100301-MKT-01
Stencil #: PCB-100301-MKT-XX Thickness: .006"
Solder Paste: Kester R520 Water Soluble SAC305.
Thermal Profile: IPG00037_LEAD_Free – Thermocouples Located Edge, Center and PCB. Straight Ramp



IPG00037_LEAD_FREE

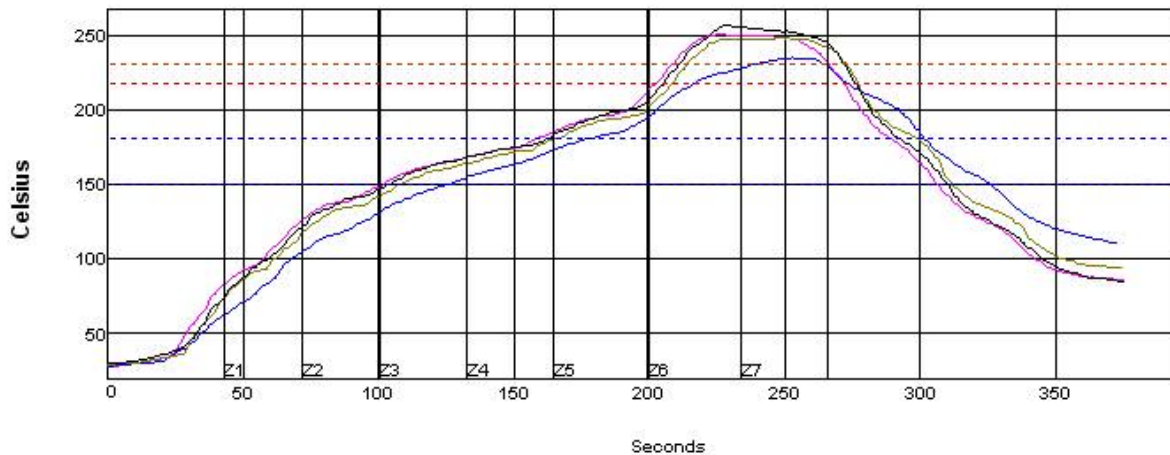
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Company: Samtec NA
Oven Name: X2N70040

Site: Wave Solder (Key)
Process Window Name: Kester R520A Lead-Free Water Soluble Paste

Setpoints (Celsius)							
Zone	1	2	3	4	5	6	7
Top	135.0	165.0	180.0	185.0	215.0	287.0	250.0
Bottom	135.0	165.0	180.0	185.0	215.0	287.0	250.0
Conveyor Speed (inch/min):	22.35						



PW: 134%	Max Rising Slope	Max Falling Slope	Soak Time 160-180C	Reflow Time @17C	Peak Temp	Total Time @230C
EDGE LEADS	2.44	-2.43	66.77	70.17	260.46	68.42
CENTER LEADS	1.83	-1.78	48.91	67.61	234.84	28.89
EDGE LEADS	2.34	-2.46	66.60	68.80	248.28	68.08
PCB	2.18	-2.87	68.08	71.48	266.73	81.24
Delb	0.81	0.88	8.18	13.87	21.78	34.26

Process Window:

Solder Paste: Kester R520A Lead-Free Water Soluble Paste

Statistic Name	Low Limit	High Limit	Units
Max Rising Slope (Target=1.8)	1.0	2.5	Degrees/Second
(Calculate Slope over 20 Seconds)			
Max Falling Slope	-3.5	-1.0	Degrees/Second
(Calculate Slope over 20 Seconds)			
Soak Time 150-180C	60	120	Seconds
Time Above Reflow - 217C	60	90	Seconds
Peak Temperature	235	255	Degrees Celsius
Total Time Above - 230C	30	60	Seconds

ASP-103612-05:

PCB #: PCB-100301-MKT-01
Stencil #: PCB-100301-MKT-XX Thickness: .006”
Solder Paste: Kester HydroMark 531 Water Soluble Sn63Pb37.
Thermal Profile: IPG00037_LEAD – Thermocouples Located Edge, Center and PCB. Straight Ramp.



IPG00037_LEAD

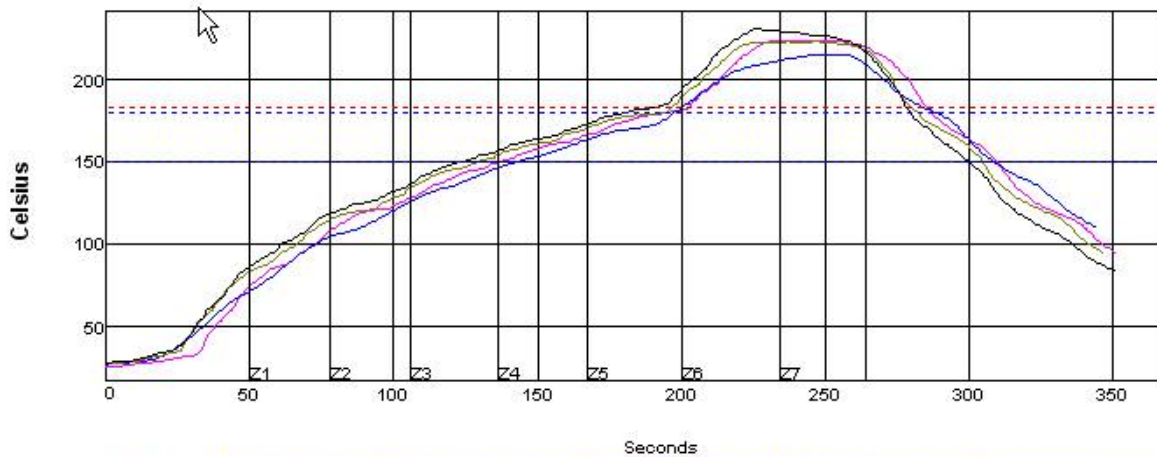
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Company: Samtec NA
Oven Name: X2N70040

Site: Wave Solder (Key)
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Setpoints (Celsius)							
Zone	1	2	3	4	5	6	7
Top	125.0	145.0	170.0	175.0	190.0	255.0	220.0
Bottom	125.0	145.0	170.0	175.0	190.0	255.0	220.0
Conveyor Speed (inch/min): 23.50							

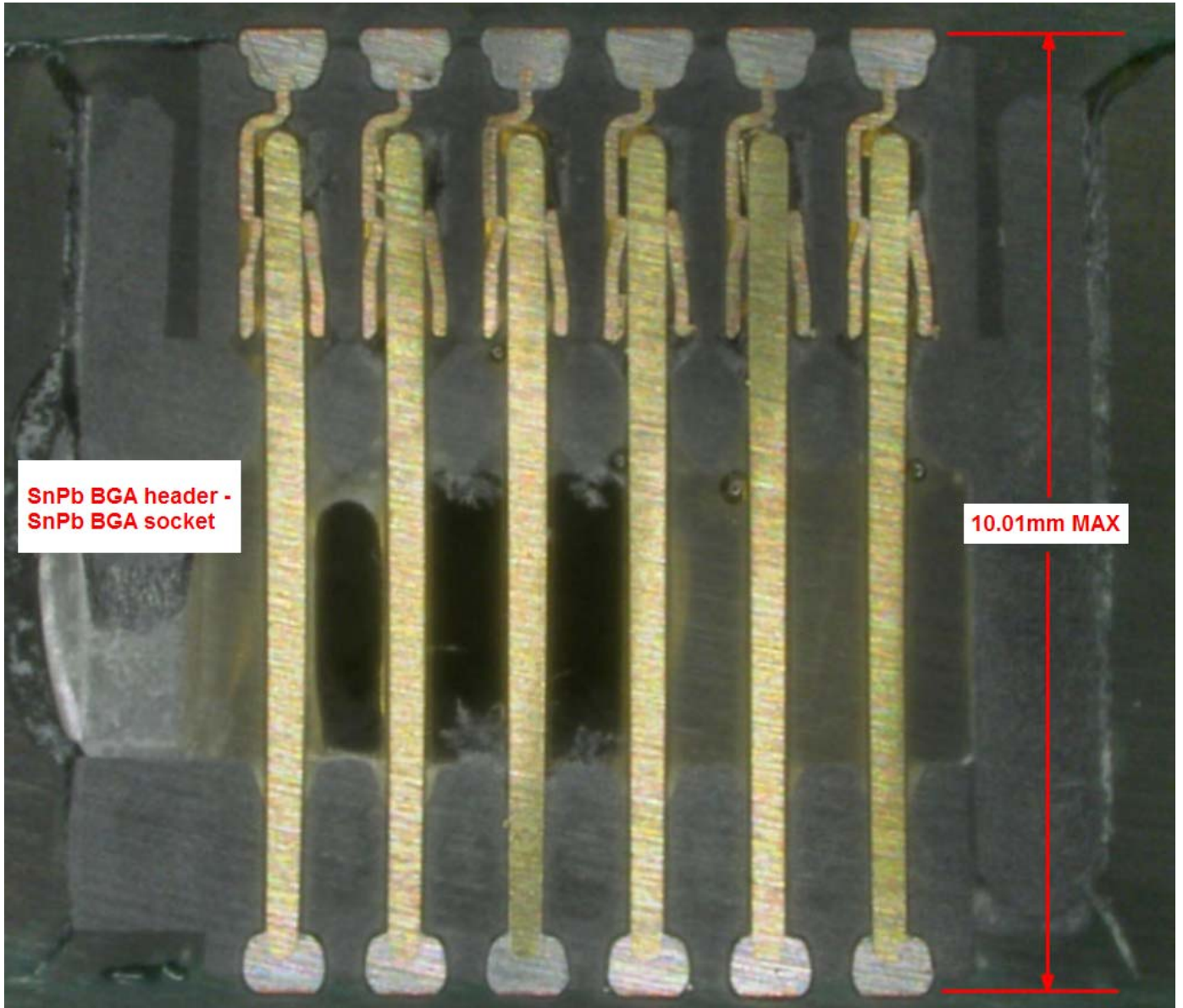


	PW= 184%	Max Rising Slope	Max Falling Slope	Soak Time 150-180C	Reflow Time /183C	Peak Temp				
EDGE LEADS	2.20	76%	-2.01	19%	57.84	-114%	83.29	78%	224.34	91%
CENTER LEADS	1.45	16%	-1.54	57%	55.26	-132%	84.36	81%	215.51	-27%
EDGE LEADS	2.13	71%	-2.10	12%	64.06	-73%	83.38	78%	223.23	76%
PCB	2.14	71%	-2.26	-1%	57.41	-117%	83.23	97%	231.31	184%
Delta	0.75		0.72		8.80		5.94		15.80	

Process Window:

Solder Paste: Kester HydroMark 531 Water Soluble Paste			
Statistic Name	Low Limit	High Limit	Units
Max Rising Slope (Target=1.3) (Calculate Slope over 20 Seconds)	0.0	2.5	Degrees/Second
Max Falling Slope (Calculate Slope over 20 Seconds)	-3.5	-1.0	Degrees/Second
Soak Time 150-180C	60	90	Seconds
Time Above Reflow - 183C	30	90	Seconds
Peak Temperature	210	225	Degrees Celsius

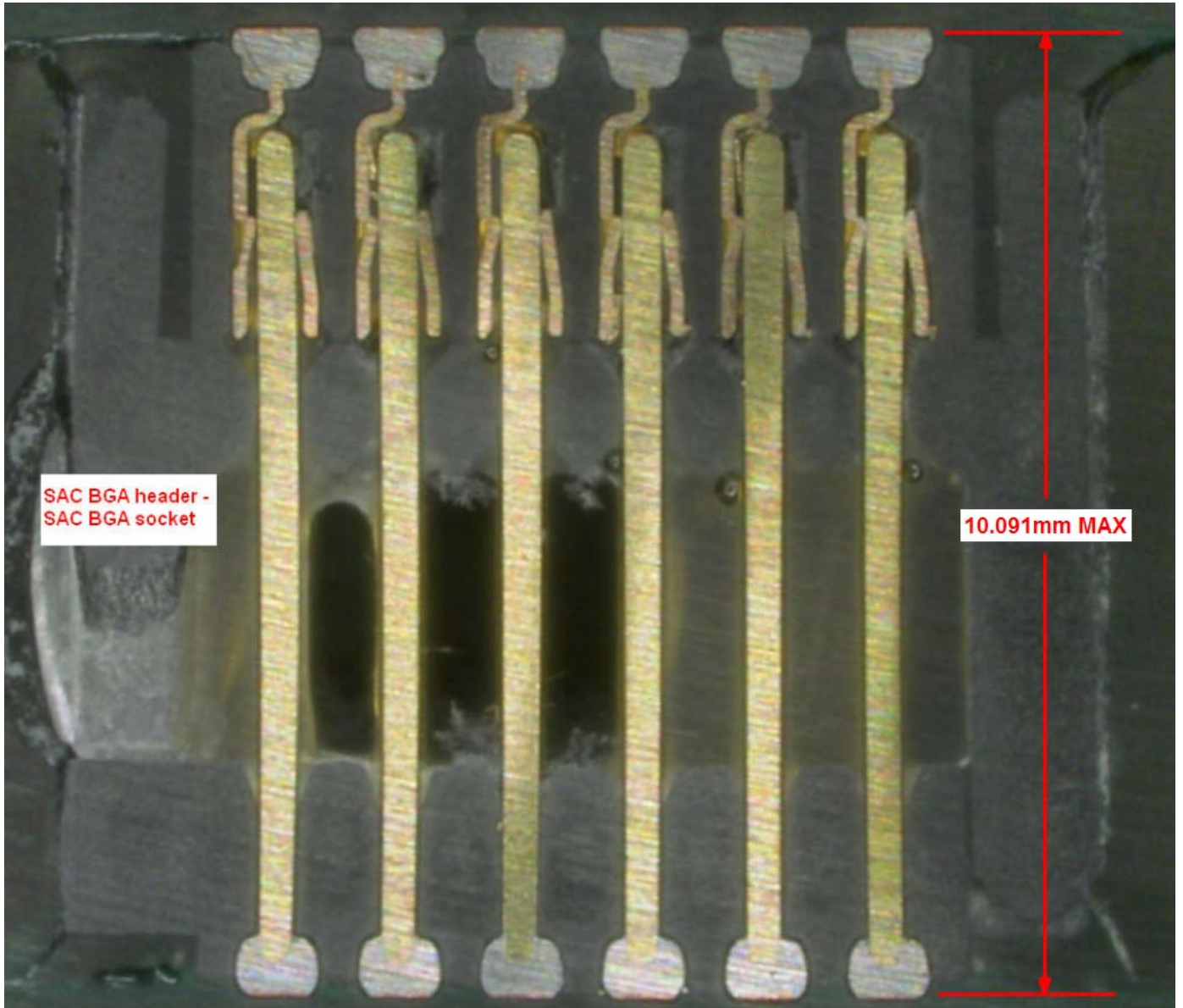
PICTURES



**SnPb BGA header -
SnPb BGA socket**

10.01mm MAX

PICTURES Continued



DATA

Stack Heights

*Mated stack height measurement excludes solder pad thickness.

Lead Female	Lead Male	Lead Free Female	Lead Male	Lead Free Female	Lead Free Male	Lead Female	Lead Free Male	
ASP-103612-05 / ASP-103614-01		ASP-103612-04 / ASP-103614-01		ASP-103612-04 / ASP-103614-04		ASP-103612-05 / ASP-103614-04		
mm	in	mm	in	mm	in	mm	in	
9.916	0.3904	9.916	0.3904	10.036	0.3951	10.066	0.3963	
9.939	0.3913	9.931	0.3910	10.041	0.3953	10.066	0.3963	
9.962	0.3922	9.942	0.3914	10.043	0.3954	10.071	0.3965	
9.975	0.3927	9.944	0.3915	10.043	0.3954	10.071	0.3965	
9.957	0.3920	9.944	0.3915	10.038	0.3952	10.061	0.3961	
9.987	0.3932	9.934	0.3911	10.028	0.3948	10.051	0.3957	
10.010	0.3941	9.929	0.3909	10.048	0.3956	9.990	0.3933	
9.987	0.3932	9.934	0.3911	10.048	0.3956	10.000	0.3937	
10.000	0.3937	9.944	0.3915	10.051	0.3957	10.008	0.3940	
9.970	0.3925	9.944	0.3915	10.051	0.3957	10.010	0.3941	
9.949	0.3917	9.934	0.3911	10.046	0.3955	10.020	0.3945	
9.954	0.3919	9.914	0.3903	10.033	0.3950	10.008	0.3940	
9.936	0.3912	10.013	0.3942	10.025	0.3947	10.036	0.3951	
9.947	0.3916	10.020	0.3945	10.038	0.3952	10.018	0.3944	
9.959	0.3921	10.020	0.3945	10.033	0.3950	10.033	0.3950	
9.926	0.3908	10.020	0.3945	10.038	0.3952	9.987	0.3932	
9.947	0.3916	10.018	0.3944	10.036	0.3951	10.015	0.3943	
9.903	0.3899	9.985	0.3931	10.028	0.3948	10.008	0.3940	
9.962	0.3922	9.977	0.3928	10.015	0.3943	9.964	0.3923	
9.964	0.3923	9.992	0.3934	10.028	0.3948	9.982	0.3930	
9.980	0.3929	9.992	0.3934	10.033	0.3950	9.985	0.3931	
9.929	0.3909	10.003	0.3938	10.036	0.3951	9.977	0.3928	
9.972	0.3926	9.987	0.3932	10.028	0.3948	10.008	0.3940	
9.970	0.3925	9.992	0.3934	10.023	0.3946	9.959	0.3921	
9.944	0.3915	9.967	0.3924	10.076	0.3967	10.020	0.3945	
9.944	0.3915	9.957	0.3920	10.076	0.3967	10.033	0.3950	
9.947	0.3916	9.972	0.3926	10.081	0.3969	10.041	0.3953	
9.931	0.3910	9.952	0.3918	10.086	0.3971	10.048	0.3956	
9.954	0.3919	9.970	0.3925	10.091	0.3973	10.048	0.3956	
9.949	0.3917	9.947	0.3916	10.081	0.3969	10.046	0.3955	
9.962	0.3922	9.992	0.3934	10.020	0.3945	10.025	0.3947	
9.972	0.3926	10.000	0.3937	10.056	0.3959	10.020	0.3945	
9.977	0.3928	9.992	0.3934	10.033	0.3950	10.028	0.3948	
9.980	0.3929	9.992	0.3934	10.048	0.3956	10.020	0.3945	
9.987	0.3932	9.992	0.3934	10.046	0.3955	10.015	0.3943	
9.911	0.3902	9.982	0.3930	10.025	0.3947	10.008	0.3940	
9.926	0.3908	10.020	0.3945			9.980	0.3929	
9.939	0.3913	10.020	0.3945			10.000	0.3937	
9.936	0.3912	10.025	0.3947			9.997	0.3936	
9.929	0.3909	10.030	0.3949			10.000	0.3937	
9.926	0.3908	10.023	0.3946			9.972	0.3926	
9.934	0.3911	10.020	0.3945			9.972	0.3926	
9.944	0.3915	9.985	0.3931			10.018	0.3944	
9.936	0.3912	10.008	0.3940			10.020	0.3945	
9.944	0.3915	10.010	0.3941			10.015	0.3943	
9.944	0.3915	10.018	0.3944			10.010	0.3941	
9.939	0.3913	10.010	0.3941			10.013	0.3942	
9.934	0.3911	10.000	0.3937			10.008	0.3940	
9.934	0.3911	9.990	0.3933			10.018	0.3944	
9.959	0.3921	9.990	0.3933			10.010	0.3941	
9.954	0.3919	9.987	0.3932			10.018	0.3944	
9.957	0.3920	9.987	0.3932			10.023	0.3946	
9.944	0.3915	9.982	0.3930			10.020	0.3945	
9.957	0.3920	9.977	0.3928			10.000	0.3937	
9.936	0.3912	9.980	0.3929			10.008	0.3940	
9.936	0.3912	9.992	0.3934			10.010	0.3941	
9.949	0.3917	9.992	0.3934			10.023	0.3946	
9.954	0.3919	9.992	0.3934			10.023	0.3946	
9.964	0.3923	9.990	0.3933			10.013	0.3942	
9.906	0.3900	9.992	0.3934			10.008	0.3940	
MIN	9.903	0.3899	9.914	0.3903	10.015	0.3943	9.959	0.3921
MAX	10.010	0.3941	10.030	0.3949	10.091	0.3973	10.071	0.3965
AVG	9.951	0.3918	9.983	0.3930	10.044	0.3954	10.015	0.3943

EQUIPMENT AND CALIBRATION SCHEDULES**Equipment #:** MV-05**Description:** 6" x 6" Video Measuring Machine**Manufacturer:** Micro-Vu**Model:** M3010838**Serial #:** V9343**Accuracy:** See Manual

... Last Cal: 02/05/2009, Next Cal: 02/05/2010