



PRODUCT / PROCESS CHANGE NOTIFICATION

PCN-000656

Date: 22-Oct-2020

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☒	Semtech Corporation, 200 Flynn Road, Camarillo CA 93012
☐	Semtech Canada Corporation, 4281 Harvester Road, Burlington, Ontario L7L 5M4 Canada
☐	Semtech Irvine, 5141 California Ave., Suite 100, Irvine CA 92617
☐	Semtech Neuchatel Sarl, Route des Gouttes d'Or 40, CH-2000 Neuchatel Switzerland
☐	Semtech Bristol - EMEA Limited, Block B, St James Court, Great Park Road, Bristol BS32 4QJ, UK
☐	Semtech Corpus Christi SA de CV, Carretera Matamorros Edificio 7, Reynosa, Tamaulipas, Mexico 88780
☐	Semtech Plano, 1101 Resource Drive, Suite 121, Plano TX 75074
☐	

Change Details

Part Number(s) Affected:
SC202AMLTRT

Customer Part Number(s) Affected: ☒ N/A

Description, Purpose and Effect of Change:

NEPES informed us that they will discontinue the bumping process on 8" wafers used for SC202AMLTRT by June 2020.

Greatek has been selected as a replacement source for Cu pillar bumping

Greatek has been chosen because it is Semtech qualified bump house .

Bump specifications are identical between bumping houses, please refer to the attached delivery specification.

We just changed bumping from Napes to Greatek and keep the backend process at CARSEM

Change Classification	☒ Major ☐ Minor	Impact to Form, Fit, Function	☐ Yes ☒ No
Impact to Data Sheet	☐ Yes ☒ No	New Revision or Date	☒ N/A

Impact to Performance, Characteristics or Reliability:

This change does not affect product performance, characteristics, reliability

Implementation Date	Jan-22 nd 2021	Work Week	WW03'2021
Last Time Ship (LTS) Of unchanged product	NA	Affecting Lot No. / Serial No. (SN)	AER7089A AER7089B AER7089C
Sample Availability	Yes	Qualification Report Availability	Yes

Supporting Documents for Change Validation/Attachments:

- Qualification report.



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Issuing Authority		
Semtech Business Unit:	Power Management	
Semtech Contact Info:	Randy Biddle Senior Supplier Quality Engineer Semtech Corporation 200 Flynn Rd Camarillo, CA 93012 rbiddle@semtech.com	
FOR FURTHER INFORMATION & WORLDWIDE SALES COVERAGE: http://www.semtech.com/contact/index.html#support		

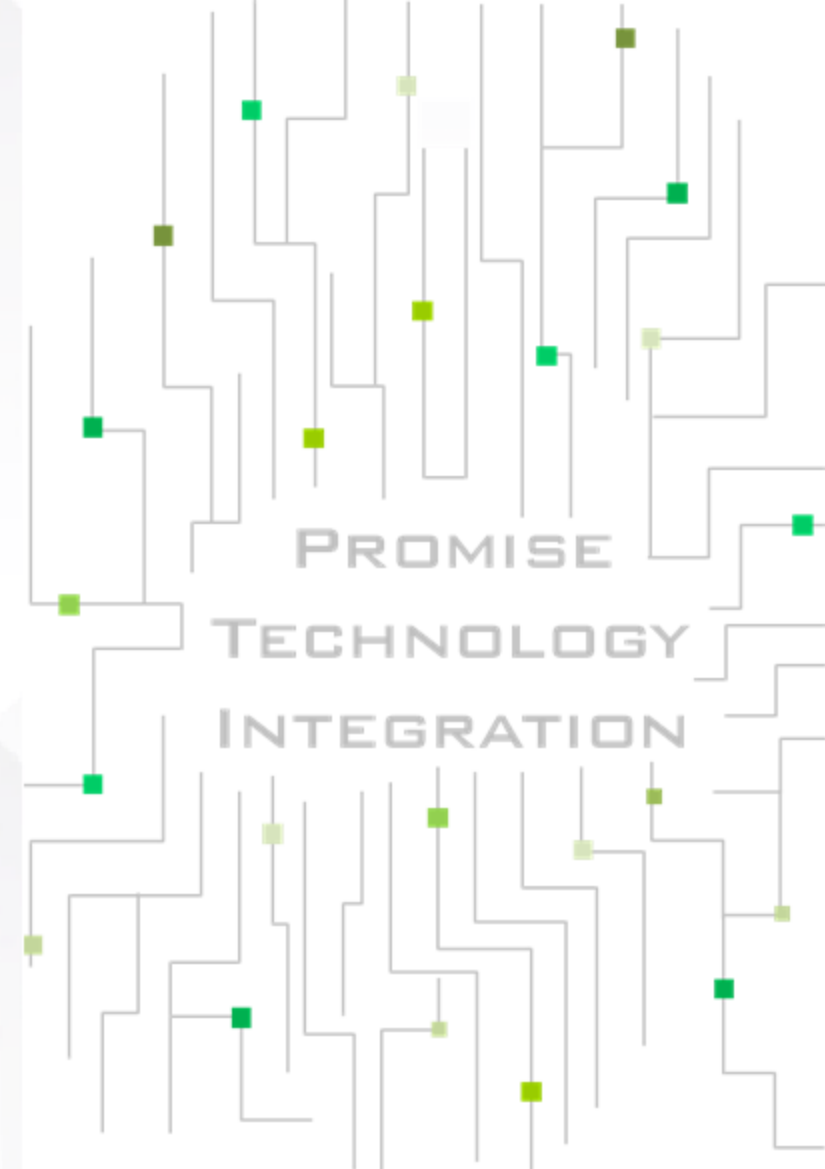


超豐電子股份有限公司
GREATEK ELECTRONICS INC.

Semtech SR191R6PD4L-03 CuP 2P2M Qual Report

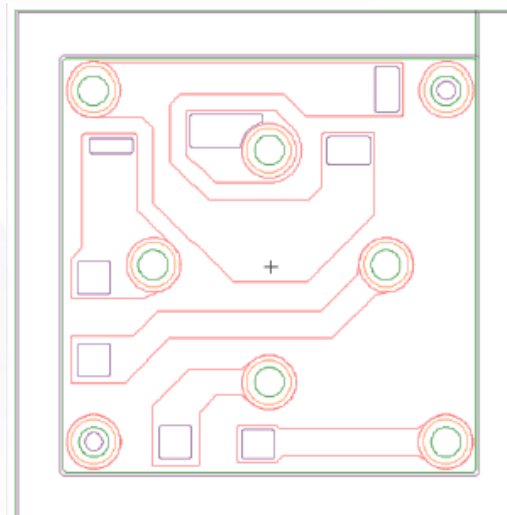
WLP PD Jeff Wu

www.greatek.com.tw



CuP 2P2M device information

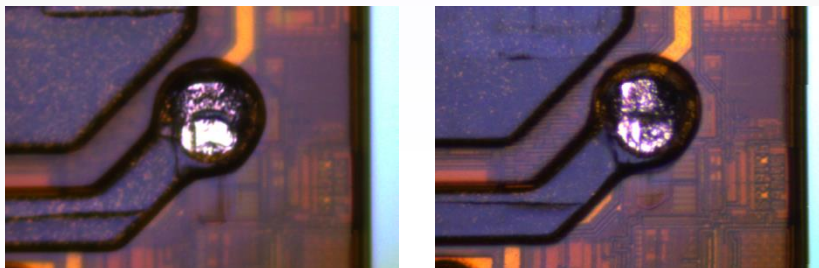
- GTK Device: SAG009
- Customer Device : SR191R6PD4L-03
- IC Tech: 350nm
- Wafer Size : 8
- Die size : 770 um x 770 um
- Scribe line width: 80 um x 80 um
- UBM structure: Ti / Cu
- Bump height: 110 um (Cu 70um + Sn 40um)
- Bump pitch : 297.8 um
- Bump Per chip : 8 ea
- Die per wafer : 38388 die /wafer



Lot – EP5546 / Wafer ID – EP5546-01

Stage	Process Area	Monitoring Items	Spec	Sampling	Data				
					Max.	Min.	Ave.	STD	PPK
Bumping	PI1	PI1 alignment	< 3	2wfrs/lot(First and last), 2dice/wfrs	0.50	0.10	0.30	0.16	5.51
		PI1 CD measurement	34 ± 5 um	2wfrs/lot(First and last) 5pts/wfrs	33.10	32.50	32.92	0.25	5.25
	RDL photo resist	RDL CD measurement	30 ± 4 um	2wfrs/lot(First and last), 5pts/wfrs	31.20	30.30	30.62	0.38	2.94
	Cu RDL Plating	RDL plating thickness	8 ± 1.6 um	1wfrs/lot, 5pts/wfrs	8.06	7.98	8.00	0.04	14.99
	PI2	PI2 CD measurement	54 ± 5 um	2wfrs/lot(First and last), 5pts/wfrs	54.90	54.50	54.70	0.20	7.17
	UBM Photo Resist	UBM CD measurement	80 ± 4 um	2wfrs/lot(First and last), 5pts/wfrs	81.30	80.00	80.42	0.53	2.27
FQC	BH inspection	Bump height (3D)	110 ± 11 um	2wfrs/lot(First and last), 7dice/wfrs, All bumps/die	116.07	110.28	112.10	1.97	1.50
		Coplanarity	< 16.5 um		3.89	1.61	2.64	0.71	6.55
	Bump shear	Shear force	> 5 g/mil^2	1wfrs/lot(Last), 4dice/wfrs, 2bumps/dice	11.82	8.72	10.56	1.12	1.65
	Solder composition	Ag composition	1.8 ± 0.5 %	1wfrs/lot(Last) 5pts/wfrs	1.71	1.63	1.67	0.03	3.90
	Leakage	Leakage probe test	< 100 pA	1wfrs/lot(Last) 2pts/wfrs	3.12	1.47	2.30	1.17	27.85
	2D AOI inspection	Bumping yield	> 98 %	All wfrs/lot, 100% good dice/wfrs	99.99%				

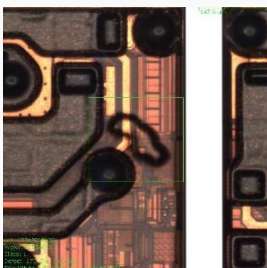
Bump Shear Pictures: All pass



FQC Report & Defect Pictures

		Code	Die Qnty	Category	Pareto(%)	Total Yield (%)	Bumping Yield (%)
1	Final Inspection	000	38373	Pass	99.96%	99.96%	99.99%
		017	3	Passivation defect	0.01%		
		052	1	Particle on pad (IQC)	0.00%		
		054	3	Passivation defect (IQC)	0.01%		
		055	2	Scratch (IQC)	0.01%		
		056	6	Foreign material / Particles (IQC)	0.02%		

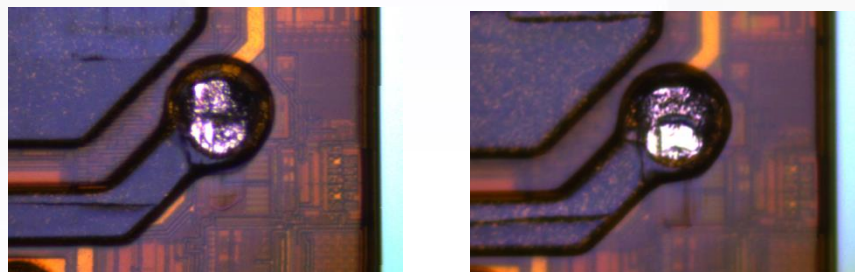
Passivation defect



Lot – EP5546 / Wafer ID – EP5546-02

Stage	Process Area	Monitoring Items	Spec	Sampling	Data				
					Max.	Min.	Ave.	STD	PPK
Bumping	PI1	PI1 alignment	< 3	2wfrs/lot(First and last), 2dice/wfrs	0.40	0.20	0.30	0.08	11.02
		PI1 CD measurement	34 ± 5 um	2wfrs/lot(First and last) 5pts/wfrs	35.60	35.20	35.44	0.17	7.09
	RDL photo resist	RDL CD measurement	30 ± 4 um	2wfrs/lot(First and last), 5pts/wfrs	32.90	32.50	32.74	0.15	2.77
	Cu RDL Plating	RDL plating thickness	8 ± 1.6 um	1wfrs/lot, 5pts/wfrs	8.00	7.76	7.82	0.10	4.73
	PI2	PI2 CD measurement	54 ± 5 um	2wfrs/lot(First and last), 5pts/wfrs	54.90	54.50	54.74	0.17	8.49
	UBM Photo Resist	UBM CD measurement	80 ± 4 um	2wfrs/lot(First and last), 5pts/wfrs	81.50	80.10	80.60	0.54	2.10
FQC	BH inspection	Bump height (3D)	110 ± 11 um	2wfrs/lot(First and last), 7dice/wfrs, All bumps/die	115.45	109.66	111.81	1.87	1.64
		Coplanarity	< 16.5 um		5.33	2.43	3.24	0.98	4.53
	Bump shear	Shear force	> 5 g/mil^2	1wfrs/lot(Last), 4dice/wfrs, 2bumps/dice	11.54	9.06	10.16	0.87	1.97
	Solder composition	Ag composition	1.8 ± 0.5 %	1wfrs/lot(Last) 5pts/wfrs	1.84	1.68	1.78	0.07	2.40
	Leakage	Leakage probe test	< 100 pA	1wfrs/lot(Last) 2pts/wfrs	2.93	1.28	2.10	1.17	27.90
	2D AOI inspection	Bumping yield	> 98 %	All wfrs/lot, 100% good dice/wfrs	99.90%				

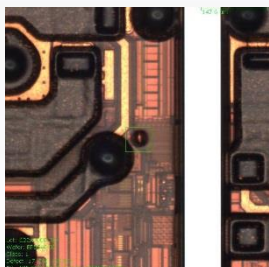
Bump Shear Pictures: All pass



FQC Report & Defect Pictures

1	Final Inspection	Code	Die Qnty	Category	Pareto(%)	Total Yield (%)	Bumping Yield (%)
		000	38347	Pass	99.89%	99.89%	99.90%
		017	40	Passivation defect	0.10%		
		056	1	Foreign material / Particles (IQC)	0.00%		

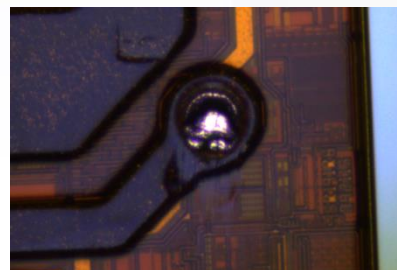
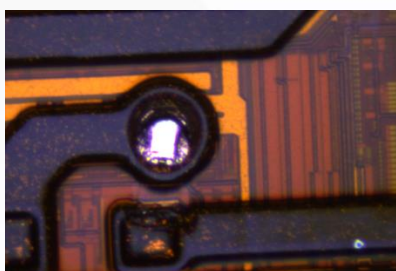
Passivation defect



Lot – EP5546 / Wafer ID – EP5546-03

Stage	Process Area	Monitoring Items	Spec	Sampling	Data				
					Max.	Min.	Ave.	STD	PPK
Bumping	PI1	PI1 alignment	< 3	2wfrs/lot(First and last), 2dice/wfrs	0.10	0.00	0.04	0.05	20.63
		PI1 CD measurement	34 ± 5 um	2wfrs/lot(First and last) 5pts/wfrs	34.40	33.84	34.03	0.23	7.25
	RDL photo resist	RDL CD measurement	30 ± 4 um	2wfrs/lot(First and last), 5pts/wfrs	31.00	30.60	30.84	0.17	6.29
	Cu RDL Plating	RDL plating thickness	8 ± 1.6 um	1wfrs/lot, 5pts/wfrs	7.88	7.75	7.79	0.05	8.83
	PI2	PI2 CD measurement	54 ± 5 um	2wfrs/lot(First and last), 5pts/wfrs	55.20	54.50	54.80	0.26	5.29
	UBM Photo Resist	UBM CD measurement	80 ± 4 um	2wfrs/lot(First and last), 5pts/wfrs	81.50	80.00	80.76	0.55	1.96
FQC	BH inspection	Bump height (3D)	110 ± 11 um	2wfrs/lot(First and last), 7dice/wfrs, All bumps/die	117.24	109.91	113.33	2.30	1.11
		Coplanarity	< 16.5 um		9.23	2.15	3.85	2.56	1.65
	Bump shear	Shear force	> 5 g/mil^2	1wfrs/lot(Last), 4dice/wfrs, 2bumps/dice	12.27	9.28	10.57	0.96	1.93
	Solder composition	Ag composition	1.8 ± 0.5 %	1wfrs/lot(Last) 5pts/wfrs	1.88	1.71	1.81	0.07	2.35
	Leakage	Leakage probe test	< 100 pA	1wfrs/lot(Last) 2pts/wfrs	2.85	1.04	1.94	1.28	25.48
	2D AOI inspection	Bumping yield	> 98 %	All wfrs/lot, 100% good dice/wfrs	99.46%				

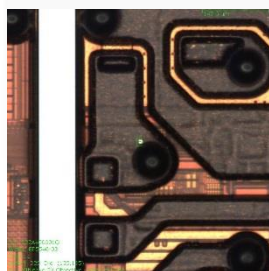
Bump Shear Pictures: All pass



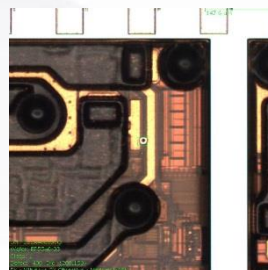
FQC Report & Defect Pictures

		Code	Die Qnty	Category	Pareto(%)	Total Yield (%)	Bumping Yield (%)
1	Final Inspection	000	38148	Pass	99.37%	99.37%	99.46%
		015	192	RDL defect	0.50%		
		017	17	Passivation defect	0.04%		
		054	11	Passivation defect (IQC)	0.03%		
		055	3	Scratch (IQC)	0.01%		
		056	17	Foreign material / Particles (IQC)	0.04%		

RDL Defect



Passivation defect





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Thank you