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**FINAL PRODUCT/PROCESS CHANGE NOTIFICATION #16819**

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**Issue Date:** 22-Feb-2012

**TITLE:** Qualification of Serial SPI EEPROM devices CAT25128 and CAT25256 for fabrication at ON Semiconductor's Gresham, Oregon Wafer Fab.

**PROPOSED FIRST SHIP DATE:** 15-Jun-2012

Customers needing additional time to qualify Gresham die will be given 60 more days.

**AFFECTED CHANGE CATEGORY(S):** CAT25128 and CAT25256 (all Packages, all Temperatures)

**FOR ANY QUESTIONS CONCERNING THIS NOTIFICATION:**

Contact your local ON Semiconductor Sales Office or Denisa Stefan <[denisa.stefan@onsemi.com](mailto:denisa.stefan@onsemi.com)>

**SAMPLES:** Samples available per "[Affected Device List](#)" table on Page 5

Contact your local ON Semiconductor Sales Office

**ADDITIONAL RELIABILITY DATA:** Available

Contact your local ON Semiconductor Sales Office or Tony Luciani <[tony.luciani@onsemi.com](mailto:tony.luciani@onsemi.com)>

**NOTIFICATION TYPE:**

Final Product/Process Change Notification (FPCN)

Final change notification sent to customers. FPCNs are issued at least 90 days prior to implementation of the change.

ON Semiconductor will consider this change approved unless specific conditions of acceptance are provided in writing within 30 days of receipt of this notice. To do so, contact <[quality@onsemi.com](mailto:quality@onsemi.com)>.

**DESCRIPTION AND PURPOSE:**

ON Semiconductor is pleased to announce that, as part of its ongoing effort to improve product availability, the Serial SPI EEPROM devices CAT25128 and CAT25256 are now qualified for production in the 0.18  $\mu\text{m}$  CMOS EE process at ON Semiconductor's 8-inch Wafer Fab in Gresham, Oregon, USA. The Gresham Wafer Fab is ISO9001:2008, ISO/TS16949:2009 and ISO14001:2004 certified. Wafers for these devices will also continue to be supplied by our foundry partner OKI Semiconductor, Japan from a 6-inch line running a 0.35  $\mu\text{m}$  CMOS EE process.

This will provide increased die capacity, improved product performance (higher speed) while maintaining 100% backward compatibility to the previous CAT25128/25256 die revisions.

This notification and acceptance thereof, allows for the use of either Gresham or OKI die in future shipments under the same OPN.



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**RELIABILITY DATA SUMMARY:**

**QTP: 10006, CAT24M01 Rev A, 24C512 Rev A, 24C256 Rev E, 24C128 Rev C, CAT 25512 Rev A, CAT25128 Rev E**

Product	Qual Lot Number	Assy Lot	Wfr Lot
CAT24M01	lot 1	EBR 031335	GAM28922.1_7
CAT24M01	lot 2	EBR 034455	GAM44932.4_1
CAT24M01	lot 3	EBR 035061	GAM42911.4_2
CAT24M01	lot 4	EBR 035556	GAM43923.4_8
CAT24M01	lot 5	N/A	GAM43923.4_7
CAT24C512	lot 6	EBR030681	GAM21908.2_4
CAT24C256	lot 7	EBR 030137	GAM21907.2_w3
CAT24C128	lot 8	EBR033621	GAM33919_w18
CAT25512	lot 9	EBR038393	GAN12911.1_22
CAT25128	lot 10	EBR40723	GAN30519.1

		Package	Lot Number	Samples	168hrs	408hrs	1000hrs			
<b>HTOL</b> High Temp Op Life (3x77)	408hrs, 150C release	SOIC	lot 1	77	PASS	PASS	PASS			
	Per JA108		lot 2	77	PASS	PASS	PASS			
	Cycling Precon to 1M		lot 3	77	PASS	PASS	PASS			
	Tritemp test before and after		lot 6	77	PASS	PASS	PASS			
			lot 7	77	PASS	PASS	PASS			
			lot 9	77	PASS	PASS	PASS			
			lot 10	77	PASS	PASS	PASS			
		Package	Lot Number	Samples	24hrs					
<b>ELFR</b> Early Life Failure Rate	Per AEC-Q100-008	SOIC	lot 1	800	PASS					
	HTOL conditions, 24hrs, 150C		lot 2	800	PASS					
			lot 3	800	PASS					
			lot 6	800	PASS					
	Room/Hot testing before and after		lot 7	800	PASS					
			lot 10	800	PASS					
		Package	Lot Number	Samples	100k	200k	300k	400k	500k	
<b>EDR</b> Per JESD22-A103/Q100-005 Room/Hot test before and after	<b>NVM Endurance</b> 1M Cycles	SOIC	lot 2	77	PASS	PASS	PASS	PASS	PASS	
			lot 3	77	PASS	PASS	PASS	PASS	PASS	
			lot 4	77	PASS	PASS	PASS	PASS	PASS	
			lot 9	77	PASS	PASS	PASS	PASS	PASS	
			lot 10	77	PASS	PASS	PASS	PASS	PASS	
			Package	Lot Number	Samples	600k	700k	800k	900k	1M
			SOIC	lot 2	77	PASS	PASS	PASS	PASS	PASS
				lot 3		PASS	PASS	PASS	PASS	PASS
				lot 4	77	PASS	PASS	PASS	PASS	PASS
				lot 9	77	PASS	PASS	PASS	PASS	PASS
		lot 10		77	PASS	PASS	PASS	PASS	PASS	
		Package	Lot Number	Samples	1 M					
<b>Wafer Level Endurance</b> 1M Cycles		Wafer	Lot Number	Samples						
			lot 4	77	PASS					



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RELIABILITY DATA – QTP 10006 – Cont'd

EDR	NVM Data Retention	Data	Lot Number	Samples	168hrs	336hrs	500hrs	1000hrs	
Per Q100-005 Room/Hot test before and after	Package Level 1000hrs, 150C	"00"	lot 2	77	PASS	PASS	PASS	PASS	
			lot 3	77	PASS	PASS	PASS	PASS	
	lot 9		77	PASS	PASS	PASS	PASS		
	lot 10		77	PASS	PASS	PASS	PASS		
	Cycling Precon to 1M	Wafer Level	"FF"	lot 2	77	PASS	PASS	PASS	PASS
				lot 3	77	PASS	PASS	PASS	PASS
			lot 9	77	PASS	PASS	PASS	PASS	
			lot 10	77	PASS	PASS	PASS	PASS	
	Bake at 225C, 100hrs		"00"	lot 5	77	PASS			
Endurance Preconditioning: 1M Cycles	"FF"	lot 5	77	PASS					

ESD	Human Body Model	Package	Lot Number	ss	500V	1000V	1500V	2000V
AEC Q100-002 1 lot, 3 units per level		SOIC	lot 4	5/level	PASS	PASS	PASS	PASS
			lot 6	5/level	PASS	PASS	PASS	PASS
			lot 7	5/level	PASS	PASS	PASS	PASS
			lot 8	5/level	PASS	PASS	PASS	PASS
			lot 9	5/level	PASS	PASS	PASS	PASS
			lot 10	5/level	PASS	PASS	PASS	PASS

ESD	Machine Model	Package	Lot Number	ss	100V	150V	200V	300V
AEC Q100-003 1 lot, 3 units per level		SOIC	lot 4	5/level	PASS	PASS	PASS	PASS
			lot 6	5/level	PASS	PASS	PASS	PASS
			lot 7	5/level	PASS	PASS	PASS	PASS
			lot 8	5/level	PASS	PASS	PASS	PASS
			lot 9	5/level	PASS	PASS	PASS	PASS
			lot 10	5/level	PASS	PASS	PASS	PASS

LU	Latch Up	Package	Lot Number	ss	100ma	
(1 x 6)	per AEC-Q100-004 Room / Hot testing after LU test	SOIC	lot 4	6	25C	125C
			lot 6	6	PASS	PASS
			lot 7	6	PASS	PASS
			lot 8	6	PASS	PASS
			lot 9	6	PASS	PASS
			lot 10	6	PASS	PASS

CHAR	Per AEC-Q003	Package	Lot Number	ss	Result
Characterization (3 x 30)		SOIC	lot 2	30	PASS
			lot 3	30	PASS
			lot 4	30	PASS
			lot 6	30	PASS
			lot 7	30	PASS
			lot 8	30	PASS
			lot 9	30	PASS
			lot 10	30	PASS

The Qualification report is available upon request.

**FINAL PRODUCT/PROCESS CHANGE NOTIFICATION #16819****ELECTRICAL CHARACTERISTIC SUMMARY:**

The new Gresham die (Product Rev. E) is 100% compatible to the corresponding OKI die in the sense of meeting existing data sheet specifications. In addition the Gresham die (Rev E) supports a faster SPI protocol: 20MHz / Vcc=5V, Industrial and 10MHz for VCC down to 2.5 / Extended Temperature.

The product DC / AC specifications, including package availability and Ordering information are available at:

[http://www.onsemi.com/pub\\_link/Collateral/CAT25128-D.PDF](http://www.onsemi.com/pub_link/Collateral/CAT25128-D.PDF)

[http://www.onsemi.com/pub\\_link/Collateral/CAT25256-D.PDF](http://www.onsemi.com/pub_link/Collateral/CAT25256-D.PDF)

A detailed characterization report for each product is available upon request.

**CHANGED PART IDENTIFICATION:**

While both Gresham and OKI die will be offered under the same OPN, new package marking will be used only for Gresham die, with OKI die marking continuing unchanged. The Gresham die marking reflects the integration of former CSI (Catalyst) into ON Semiconductor, and provides for easier identification of device and die revision, especially for smaller packages with less room for marking.

Die origin will also be identified on the packaging box label by the 2-digit wafer fabrication country code of CS: US for Gresham and CS: Japan for OKI.

The top package marking format for the new Gresham die versus current marking for the OKI die is shown in the Appendix.



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List of Affected General Parts:

Part Number (OPN)	Samples Availability	Comments
CAT25128VI-GT3	2/28/2012	
CAT25128VI-G	2/28/2012	
CAT25128VI-GT3D	2/28/2012	Obsolete; use CAT25128VI-GT3
CAT25128VE-GT3	2/28/2012	
CAT25128YI-GT3	2/28/2012	
CAT25128YI-G	2/28/2012	
CAT25128YE-GT3	2/28/2012	
CAT25128HU4I-GT3	2/28/2012	New OPN- Gresham die
CAT25128HU4E-GT3	2/28/2012	New OPN- Gresham die
CAT25128VP2I-GT3	4/30/2012	Not recommended new designs
CAT25128VP2E-GT3	4/30/2012	Not recommended new designs
CAT25128VP2IGT3D	4/30/2012	Obsolete
CAT25128XI-T2	4/30/2012	
CAT25128XE-T2	4/30/2012	
CAT25128LI-G	4/30/2012	
CAT25128LE-G	4/30/2012	

Part Number (OPN)	Samples Availability	Comments
CAT25256VI-GT3	2/28/2012	
CAT25256VI-G	2/28/2012	
CAT25256VE-GT3	2/28/2012	
CAT25256YI-GT3	2/28/2012	
CAT25256YI-GT3C	2/28/2012	Obsolete; use CAT25256YI-GT3
CAT25256YI-G	2/28/2012	
CAT25256YE-GT3	2/28/2012	
CAT25256HU4I-GT3	2/28/2012	New OPN- Gresham die
CAT25256HU4E-GT3	2/28/2012	New OPN- Gresham die
CAT25256ZD2I-GT2	N/A	Not recommended new designs
CAT25256XI-T2	4/30/2012	
CAT25256XI-T2C	4/30/2012	Obsolete; use CAT25256XI-T2
CAT25256XI	4/30/2012	
CAT25256XE-T2	4/30/2012	
CAT25256XE	4/30/2012	
CAT25256LI-G	4/30/2012	
CAT25256LI-GC	4/30/2012	Obsolete; use CAT25256LI-G
CAT25256LE-G	4/30/2012	



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Appendix – PART IDENTIFICATION

CAT25128 Package Marking – Gresham die versus actual OKI die

OKI 0.35 (Rev. D )	GRESHAM (Rev. E)
<b>CAT25128 SOIC-8(V,X)</b>	
<p>1: Assembly Location Code                  2: Lead Finish (NiPdAu)                  3: Product Revision                  4-9: Product Code                  10: Temp Range                  11: Production Year                  12: Production Month                  13-16: Assembly Lot Number</p>	<p>1-5: Product Code                  6: Product Revision                  7: Assembly Location Code                  8: Production Year                  9: Production Month                  10-12: Assembly Lot Number                  ●: Pb-free microdot</p>
<b>CAT25128 TSSOP-8(Y)</b>	
<p>1-3: Product Code                  4: Assembly Location Code                  5: Lead Finish (NiPdAu)                  6: Production Year                  7: Production Month                  8-10: Assembly Lot Number</p>	<p>1-3: Product Code                  4: Product Revision                  5: Assembly Location Code                  6: Production Year                  7: Production Month                  8-10: Assembly Lot Number                  ●: Pb-free microdot</p>



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CAT25128 Package Marking – Gresham die versus actual OKI die, Cont'd

OKI 0.35 (Rev. D)	GRESHAM (Rev. E)
<b>CAT25128 PDIP-8(L)</b>	
<p>1: Assembly Location Code                  2: Lead Finish (NiPdAu)                  3: Product Revision                  4-9: Product Code                  10: Temp Range                  11: Production Year                  12: Production Month                  13-16: Assembly Lot Number</p>	<p>1-5: Product Code                  6: Product Revision                  7: Assembly Location Code                  8-10: Assembly Lot Number                  11-12: Production Year                  13-14: Production Week                  15: Pb-free designator</p>
<b>CAT25128 TDFN-8(VP2)</b>	
<p>1-2: Device code                  3: Assembly location code                  4-6: Assembly Lot Number                  7: Production Year                  8: Production Month</p>	<p>1-3: Product Code                  4: Assembly Location Code                  5-6: Assembly Lot Number                  7: Production Year                  8: Production Month                  ●: Pb-free microdot</p>



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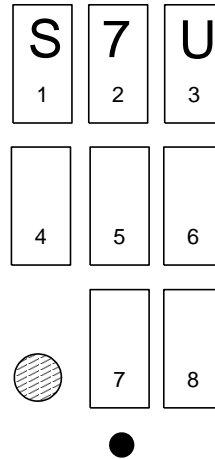
CAT25128 Package Marking – Gresham die versus actual OKI die, Cont'd

OKI 0.35 (Rev. D)

GRESHAM (Rev. E)

CAT25128 UDFN-8(HU4)

Not existing



- 1-3: Product Code
- 4: Assembly Location Code
- 5-6: Assembly Lot Number
- 7: Production Year
- 8: Production Month
- : Pb-free microdot





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CAT25256 Package Marking – Gresham die versus actual OKI die

OKI 0.35 (Rev. C)	GRESHAM (Rev. E)
<b>CAT25256 SOIC-8 (V,X)</b>	
<p>1: Assembly Location Code                  2: Lead Finish (NiPdAu)                  3: Product Revision                  4-9: Product Code                  10: Temp Range                  11: Production Year                  12: Production Month                  13-16: Assembly Lot Number</p>	<p>1-5: Product Code                  6: Product Revision                  7: Assembly Location Code                  8: Production Year                  9: Production Month                  10-12: Assembly Lot Number                  ●: Pb-free microdot</p>
<b>CAT25256 TSSOP-8 (Y)</b>	
<p>1-3: Product Code                  4: Assembly Location Code                  5: Lead Finish (NiPdAu)                  6: Production Year                  7: Production Month                  8-10: Assembly Lot Number</p>	<p>1-3: Product Code                  4: Product Revision                  5: Assembly Location Code                  6: Production Year                  7: Production Month                  8-10: Assembly Lot Number                  ●: Pb-free microdot</p>



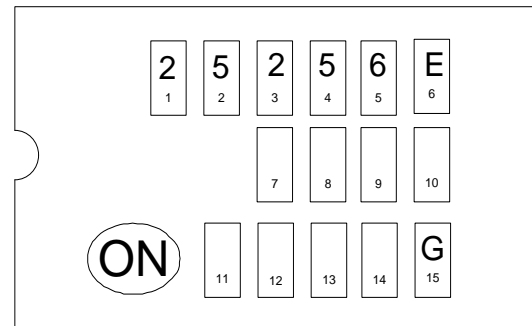
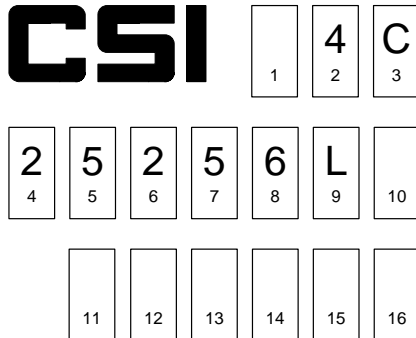
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CAT25256 Package Marking – Gresham die versus actual OKI die, Cont'd

OKI 0.35 (Rev. C)

GRESHAM (Rev. E)

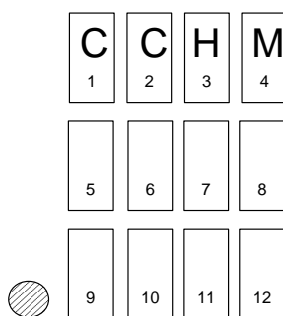
CAT25256 PDIP-8 (L)



- 1: Assembly Location Code
- 2: Lead Finish (NiPdAu)
- 3: Product Revision
- 4-9: Product Code
- 10: Temp Range
- 11: Production Year
- 12: Production Month
- 13-16: Assembly Lot Number

- 1-5: Product Code
- 6: Product Revision
- 7: Assembly Location Code
- 8-10: Assembly Lot Number
- 11-12: Production Year
- 13-14: Production Week
- 15: Pb-free designator

CAT25256 TDFN-8 (ZD2)



Not offered

- CCHM: Device code
- 5: Assembly location code
- 6-8: Last three digits of assembly lot number
- 9: Production Year (1 digit)
- 10: Production Month (1 digit): 1-9, (Jan-Sep) O, N, D (Oct-Dec)
- 11-12: Two digit country of origin code (TH: Thailand, MY: Malaysia)



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CAT25128 Package Marking – Gresham die versus actual OKI die, Cont'd

OKI 0.35 (Rev. C)	GRESHAM (Rev. E)
<b>CAT25256 UDFN-8 (HU4)</b>	
Not existing	<p>The diagram shows a grid of 8 marking positions on a die. Positions 1, 2, and 3 are the top row containing 'S', '8', and 'U' respectively. Positions 4, 5, and 6 are the middle row, currently empty. Positions 7 and 8 are the bottom row, currently empty. A hatched circle is located to the left of position 7, and a solid black dot (microdot) is located below position 7.</p>
	<p>1-3: Product Code 4: Assembly Location Code 5-6: Assembly Lot Number 7: Production Year 8: Production Month ●: Pb-free microdot</p>