

Initial PCN

Key Foundry Co., Ltd. BEOL (Back End of Line) Process Change

Dear Customer,

This Initial PCN is a follow on to the Advance PCN-2020-141 announcement communicated in December 2020 by Cirrus Logic.

As originally described with the recent acquisition of MagnaChip (Site 4) by Key Foundry Co., Ltd., the BEOL (Back End of Line) process is being aligned and enhanced with the adoption of a new Process of Record (POR) for all products manufactured with technologies greater than 250 nano-meters:

Category	Module	Process	Current POR	New POR
Process Change	IMD Module (Inter-Metal Dielectric)	Gap Fill	SOG (Spin on Glass)	HDP CVD (Chemical Vapor Deposition)
		IMD Planarization	CMP	CMP
	Via Module	W Fill	W CVD	W CVD
		W (Tungsten) Removal	Etch Back	CMP (Chemical Mechanical Polish)

This Initial PCN notification describes and includes the details associated with the change and qualification process. The qualification process will be carried out at a technology level and will follow the Cirrus Logic qualification guidelines and meet the JEDEC standards as well as AEC-Q100 as applicable.

For convenience, the list of Cirrus Logic part numbers impacted by this process change are depicted in the Appendix A*.

Special Note 1: The orderable part numbers for this material will change and are depicted in Appendix B*. However, the symbolization on the physical part number will not change.

Special Note 2: Due to current capacity constraints, it is strongly recommended that desired sample quantities are communicated back to Cirrus Logic within 60 days of this notification.

If you have any questions, please contact your Sales Representative.

Sincerely,

Quality Systems Administrator
 Cirrus Logic Corporate Quality
 Phone: +1(512) 851-4000

* Cirrus Logic part numbers have been updated to reflect available material

PCN Number: PCN-2020-141

PCN Notification Date: 04/19/2021

Products Affected:

The devices listed on this page are the complete list of affected devices. According to our records, these are the devices that you have purchased within the past twenty-four (24) months. The corresponding customer part number is also listed, if available.

Technical details of this Process / Product Change follow on the next page(s).

Title:	Key Foundry Co., Ltd. BEOL (Back End of Line) Process Change				
Customer Contact:	Local Field Sales Representative	Phone:	(512) 851-4000	Dept:	Corporate Quality
Proposed 1st Ship Date:	Q3_2022	Estimated Sample Availability Date:		Q2_2022	
Change Type:					
Assembly Site		Assembly Process		Assembly Materials	
Wafer Fab Site	X	Wafer Fab Process		Wafer Fab Materials	
Wafer Bump Site		Wafer Bump Process		Wafer Bump Material	
Test Site		Test Process		Design	
Electrical Specification		Mechanical Specification	X	Part Number (Orderable Only-Reference Appendix B)	
Packing/Shipping/Labeling		Other			
Comments:	BEOL (Back End of Line) Process Change				

PCN Details

Description of Change:

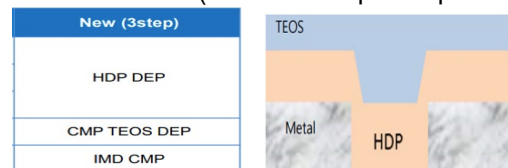
- BEOL (Back End of Line) Process Change:**

IMD Module Gap Fill

From: SOG (Spin On Glass)

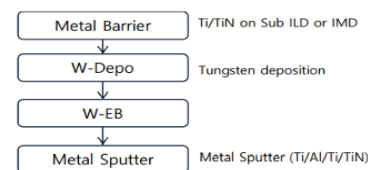


To: HDP CVD (Chemical Vapor Deposition)

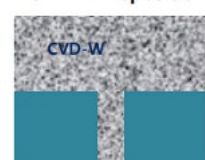


Via Module W(Tungsten) Removal

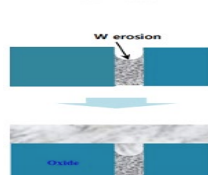
From: Etch Back



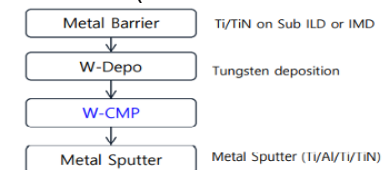
CVD-W Deposition



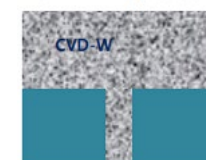
W etch back



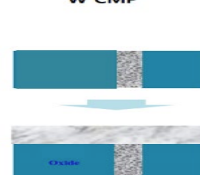
To: CMP (Chemical Mechanical Polish)



CVD-W Deposition



W CMP



PCN Number: PCN-2020-141

PCN Notification Date: 04/19/2021

Reason for Change:	
<p>Better process capability:</p> <p>Alignment and enhancement for all process technologies greater than 250 nanometers. Note: Key Foundry Co., Ltd. will not qualify a new SOG supplier.</p>	
Anticipated Impact on Form, Fit, Function, Quality or Reliability:	
<p>No anticipated adverse impact to the Quality and/or Reliability of said product as the given processes exist and are mature for existing smaller technologies.</p>	
Anticipated Impact on Material Declaration:	
<input checked="" type="checkbox"/> No Impact to the Material Declaration	<input type="checkbox"/> Material Declarations or Product Content reports are driven from production data and will be available following the production release.
Product Affected:	
<p>Reference Appendix A</p> <p>Special Note: The orderable part numbers for this material are depicted in Appendix B. However, the symbolization on the physical part number will not change. Datasheet(s) will be updated accordingly to reflect the orderable part number(s).</p>	
Changes To Product Identification Resulting From This PCN:	
<p>No change to product identification</p>	

Qualification Data:

This qualification has been specifically developed for the validation of this change. The qualification data validates that the proposed change meets the applicable released technical specifications.

Qualification Schedule	Start:	Q3_2021	End:	End of Q4_2021
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Qualification Device Matrix					
Detail Description	Device 1	Device 2	Device 3	Device 4	Device 5
Description:	Codec	Codec	ADC	Volume Control	Ethernet LAN Controller
Wafer Fab Site Code/Name:	YF (Key Foundries)	YF (Key Foundries)	YF (Key Foundries)	YF (Key Foundries)	YF (Key Foundries)
Wafer Technology:	0.30 um CMOS	0.35 um CMOS	0.35 um CMOS	0.35 um CMOS (HV)	0.50 um CMOS
Die Size:	6.27 mm	22.29 mm	6.42 mm	12.15 mm	20.34 mm
Package Type/Code:	24 QFN	64L QFP	24 TSSOP	48L QFP	100L QFP
Moisture Level:	MSL 3	MSL 3	MSL 3	MSL 3	MSL 3

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The Qualification Plans are designed using JEDEC and other applicable industry standards. An overall summary of the Qualification results will be submitted upon completion.

Device Matrix Qualification

Qualification: <input checked="" type="checkbox"/> Plan <input type="checkbox"/> Test Results			
Reliability Test	Standard	Conditions	Sample Size (PASS/FAIL)
PC + TC (MSL3 + Temperature Cycle)	JEDEC J-STD-020A + JESD22 A104	-65°C to +150°C for 500 cycles (77 units per qual matrix)	385 / #
HTSL (High Temperature Storage Life)	JESD22 A103	150°C for 1000 hrs (77 units per qual matrix)	385 / #
HTOL (High Temperature Operating Life)	JESD22 A108	125°C Ta for 1000 hours at Vmax (77 units per qual matrix)	385 / #
ELFR (Early Life Fail Rate)	JESD22 A108	125°C Ta for 48 hours at Vmax op	2400 / #
HBM (Human Body Model)	JESD22 A114	2000V (3 units per qual matrix)	15 / #
CDM (Charge Device Model)	JESD22 C101	500V / 750V (Corner Pins) (3 units per qual matrix)	15 / #
LU VDD (Latch Up VDD)	JESD78	1.5*Vnom (3 units per qual matrix)	15 / #
LU I/O (Latch Up Input/Output)	JESD78	200mA, 1A on high power pins (3 units per qual matrix)	15 / #
WBP (Wire Bond Pull)	MIL-STD-883 Method 2011	Paragraph 3 (Procedure) (5 units per qual matrix)	25 / #
Post Temp WBP (Wire Bond Pull)	MIL-STD-883 Method 2011	Paragraph 3 (Procedure) (5 units per qual matrix)	25 / #
<p>Notes:</p> <ul style="list-style-type: none"> Qualification tests “pass” on zero fails for each test The Qualification Device Matrix on the preceding page serves as the Qualification Vehicle for all part numbers depicted in the respective Appendix. <p>Reliability Qualification Results:</p> <ul style="list-style-type: none"> Pending Completion of Qualification 			



Process Change Notification

PCN Number: PCN-2020-141

PCN Notification Date: 04/19/2021

Appendix A

The devices listed on this page are the complete list of affected devices. According to our records, these are the devices that you may have purchased within the past twenty-four (24) months.

Product Affected:

Appendix A - Cirrus Logic Part Number(s)					
1	CS3308-CQZ	30	CS4392-KZZR	59	CS5460C-ISZ
2	CS3308-CQZR	31	CS4398-CZZ	60	CS5460C-ISZR
3	CS3318-CQZ	32	CS4398-CZZR	61	CS5461A-ISZ
4	CS3318-CQZR	33	CS5345-CQZ	62	CS5461A-ISZR
5	CS4245-CQZ	34	CS5345-CQZR	63	CS5463-ISZ
6	CS4245-CQZR	35	CS5346-CQZ	64	CS5463-ISZR
7	CS4245-DQZ	36	CS5346-CQZR	65	CS5464-ISZ
8	CS4245-DQZR	37	CS5346-DQZ	66	CS5464-ISZR
9	CS42516-CQZ	38	CS5346-DQZR	67	CS5467-ISZ
10	CS42516-CQZR	39	CS5351-DZZ	68	CS5467-ISZR
11	CS42518-CQZ	40	CS5351-DZZR	69	CS5550-ISZ
12	CS42518-CQZR	41	CS5351-KSZ	70	CS5550-ISZR
13	CS42526-CQZ	42	CS5351-KSZR	71	CS8416-CNZ
14	CS42526-CQZR	43	CS5351-KZZ	72	CS8416-CNZR
15	CS42528-CQZ	44	CS5351-KZZR	73	CS8416-CSZ
16	CS42528-CQZR	45	CS5361-DZZ	74	CS8416-CSZR
17	CS4265-CNZ	46	CS5361-DZZR	75	CS8416-CZZ
18	CS4265-CNZR	47	CS5361-KSZ	76	CS8416-CZZR
19	CS4265-DNZ	48	CS5361-KSZR	77	CS8416-DZZ
20	CS4265-DNZR	49	CS5361-KZZ	78	CS8416-DZZR
21	CS4271-CZZ	50	CS5361-KZZR	79	CS8900A-CQ3Z
22	CS4271-CZZR	51	CS5363-DZZ	80	CS8900A-CQ3ZR
23	CS4271-DZZ	52	CS5363-DZZR	81	CS8900A-CQZ
24	CS4271-DZZR	53	CS5381-KSZ	82	CS8900A-CQZR
25	CS4272-CZZ	54	CS5381-KSZR	83	CS8900A-IQ3Z
26	CS4272-CZZR	55	CS5381-KZZ	84	CS8900A-IQ3ZR
27	CS4272-DZZ	56	CS5381-KZZR	85	CS8900A-IQZ
28	CS4272-DZZR	57	CS5460A-BSZ	86	CS8900A-IQZR
29	CS4392-KZZ	58	CS5460A-BSZR	87	WM8940CGEFL/RV
				88	WM8940CGEFL/V

Appendix B

The devices listed on this page are the new orderable part numbers that will replace the affected devices listed in Appendix A

Product Affected:

Appendix B - Cirrus Logic New Orderable Part Number(s)					
1	CS3308K-CQZ	30	CS4392K-KZZR	59	CS5460CK-ISZ
2	CS3308K-CQZR	31	CS4398K-CZZ	60	CS5460CK-ISZR
3	CS3318K-CQZ	32	CS4398K-CZZR	61	CS5461AK-ISZ
4	CS3318K-CQZR	33	CS5345K-CQZ	62	CS5461AK-ISZR
5	CS4245K-CQZ	34	CS5345K-CQZR	63	CS5463K-ISZ
6	CS4245K-CQZR	35	CS5346K-CQZ	64	CS5463K-ISZR
7	CS4245K-DQZ	36	CS5346K-CQZR	65	CS5464K-ISZ
8	CS4245K-DQZR	37	CS5346K-DQZ	66	CS5464K-ISZR
9	CS42516K-CQZ	38	CS5346K-DQZR	67	CS5467K-ISZ
10	CS42516K-CQZR	39	CS5351K-DZZ	68	CS5467K-ISZR
11	CS42518K-CQZ	40	CS5351K-DZZR	69	CS5550K-ISZ
12	CS42518K-CQZR	41	CS5351K-KSZ	70	CS5550K-ISZR
13	CS42526K-CQZ	42	CS5351K-KSZR	71	CS8416K-CNZ
14	CS42526K-CQZR	43	CS5351K-KZZ	72	CS8416K-CNZR
15	CS42528K-CQZ	44	CS5351K-KZZR	73	CS8416K-CSZ
16	CS42528K-CQZR	45	CS5361K-DZZ	74	CS8416K-CSZR
17	CS4265K-CNZ	46	CS5361K-DZZR	75	CS8416K-CZZ
18	CS4265K-CNZR	47	CS5361K-KSZ	76	CS8416K-CZZR
19	CS4265K-DNZ	48	CS5361K-KSZR	77	CS8416K-DZZ
20	CS4265K-DNZR	49	CS5361K-KZZ	78	CS8416K-DZZR
21	CS4271K-CZZ	50	CS5361K-KZZR	79	CS8900AK-CQ3Z
22	CS4271K-CZZR	51	CS5363K-DZZ	80	CS8900AK-CQ3ZR
23	CS4271K-DZZ	52	CS5363K-DZZR	81	CS8900AK-CQZ
24	CS4271K-DZZR	53	CS5381K-KSZ	82	CS8900AK-CQZR
25	CS4272K-CZZ	54	CS5381K-KSZR	83	CS8900AK-IQ3Z
26	CS4272K-CZZR	55	CS5381K-KZZ	84	CS8900AK-IQ3ZR
27	CS4272K-DZZ	56	CS5381K-KZZR	85	CS8900AK-IQZ
28	CS4272K-DZZR	57	CS5460AK-BSZ	86	CS8900AK-IQZR
29	CS4392K-KZZ	58	CS5460AK-BSZR	87	WM8940KGEFL/RV
				88	WM8940KGEFL/V