

TEXAS INSTRUMENTS

Final Notification of the CD4K-H Process Qualification for Acquisition of Harris Semiconductor CD4000 Logic Business

May 10, 1999

Abstract

Texas Instruments Standard Linear and Logic Products (SLL) is pleased to announce the successful completion of the CD4K-H process qualification for the CD4000 products acquired from Harris Semiconductor Logic. The product spectrum that Harris provided allows Texas Instruments to further expand its logic portfolio and provides customers with a one-stop shop for their logic needs.

Analysis

This is the second of three final notifications to be sent as the process qualifications are completed. This notification is to announce the completion of the CD4K-H process qualification in the TI Freising wafer fabrication site. A separate notification will be sent for the one remaining process qualification when it is completed. Please reference Table 1 for information concerning the product families affected by wafer fabrication process.

Table 1 lists the product families affected by each of the process qualifications.

Table 2 shows the product construction details.

Table 3 shows the qualification results.

Table 4 lists the device types affected by this change.

Conversion Schedule

Customers may expect to receive CD4000 products, manufactured using the Texas Instruments wafer fabrication process flow, 40 days from the date of this notification.

Sample Devices

The number of samples and device types may be limited. Please contact your local Field Sales Office.

Contact

If you should have questions or wish additional information, please contact your local Field Sales Office or the contacts listed below.

Contact	Location	Organization	Telephone	E-Mail
Linda Miles	USA	SLL QRA	(903) 868-7638	l-miles@ti.com
Guenter Gutwein	Europe	MSLP Customer Engineering	(+49) 8161 80 4253	ggut@msg.ti.com
Scott Jen	Asia Pacific	AP Customer Satisfaction	886-2-9462691	taiq@msg.ti.com
Toshihide Takeda	Japan	SLL Engineering	9786-3-6114	toshi-takeda@ti.com

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Table 1: Product Family Verses Wafer Fab. Process

Wafer Fab Process	Process Flow	Product Family	Date Qual. Complete
ACL-H	K7000	AC/ACT/FCT	4/26/1999
HC-H	K7200	HCMOS	pending
CD4K-H	K7300	CD4000	5/10/1999

Table 2: Product Construction Details

Group:	A	Device:	CD4041UBEN
Die Revision:	-	Die Size:	74 X 62 mils
Master Die:	-	Shrink:	100
Wafer Fab:	Freising, Germany		
Fab Technology:	CMOS	Metal 1:	TiW/AICu2
Fab Process:	CD4K-H	Passivation:	10k A CN
Assembly Site:	MEX		
Package Type:	N	Bond:	TS-0.8 Au
Pin Count:	14	Lead Composition:	Cu
Mold Compound:	HYS 9AS	Lead Finish:	PP
Mount Compound:	QMI 505MT	Lead Frame:	1031305-0795
Group:	B	Device:	CD4051BEN
Die Revision:	-	Die Size:	105 X 75 mils
Master Die:	-	Shrink:	100
Wafer Fab:	Freising, Germany		
Fab Technology:	CMOS	Metal 1:	TiW/AICu2
Fab Process:	CD4K-H	Passivation:	10k A CN
Assembly Site:	MEX		
Package Type:	N	Bond:	TS-0.8 Au
Pin Count:	16	Lead Composition:	Cu
Mold Compound:	HYS 9AS	Lead Finish:	PP
Mount Compound:	QMI 505MT	Lead Frame:	1031305-0826
Group:	C	Device:	CD4086BEN
Die Revision:	-	Die Size:	45 X 52 mils
Master Die:	-	Shrink:	100
Wafer Fab:	TID		
Fab Technology:	CMOS	Metal 1:	TiW/AICu2
Fab Process:	CD4K-H	Passivation:	10k A CN
Assembly Site:	MEX		
Package Type:	N	Bond:	TS-0.8 Au
Pin Count:	14	Lead Composition:	Cu
Mold Compound:	HYS 9AS	Lead Finish:	PP
Mount Compound:	QMI 505MT	Lead Frame:	1031305-0680

Table 3: Reliability Qualification Results

**Final Notification of the CD4K-H Process Qualification for Acquisition of Harris Semiconductor
CD4000 Logic Business**

<u>Group</u>	<u>Rel Job #</u>	<u>Date Code</u>	<u>Wafer Lot #</u>	<u>Assembly Lot #</u>			
A	SHEREL.99.CD.02003	92A341M	9005292	9031368			
<u>Test Type</u>	<u>Pcond</u>	<u>Grp</u>	<u>Hr/Cycle</u>	<u>Tmp/V</u>	<u>User</u>	<u>QTY</u>	<u>FAILS</u>
Customer PreCon	-	A	0-1 Hrs	25C	DC Elect	745	0
Customer PreCon	-	A	1 Cyc-1	25C	FluxImrs	745	NR
Customer PreCon	-	A	10 sec-1	260deg C	SdrHeat	745	NR
Customer PreCon	-	A	1 Cyc-2	25C	FluxImrs	745	NR
Customer PreCon	-	A	10 sec-2	260deg C	SdrHeat	745	NR
Customer PreCon	-	A	1 Cyc-3	25C	FluxImrs	745	NR
Customer PreCon	-	A	10 sec-3	260deg C	SdrHeat	745	NR
Customer PreCon	-	A	1 Cyc-4	25C	FluxImrs	745	NR
Customer PreCon	-	A	0-2	-	DiH20Rn	745	NR
Customer PreCon	-	A	0-3	-	Dry/Ambn	745	NR
Customer PreCon	-	A	0-4 Hrs	25C	DC Elect	745	0
SSLT 125C 14V	-	A	1000	-		134	0
SSLT 125C 18V	-	A	1000	-		134	0
SSLT 125C 20V	-	A	1000	-		128	0
HAST 130/85	-	A	100	-		77	0
Autoclave 121C	-	A	96	-		77	0
T/C -65/150	-	A	1000	-		77	0
Bake 170C	-	A	420	-		45	0
X-RAY	-	A	N/A	-		5	0
Electromigration							passed
Electrical						50	passed
Characterization							
Latch-up						5	passed
Manufacturability							passed
<u>Group</u>	<u>Rel Job #</u>	<u>Date Code</u>	<u>Wafer Lot #</u>	<u>Assembly Lot #</u>			
B	SHEREL.99.CD.02004	92A331M	8352093	9031336			
<u>Test Type</u>	<u>Pcond</u>	<u>Grp</u>	<u>Hr/Cycle</u>	<u>Tmp/V</u>	<u>User</u>	<u>QTY</u>	<u>FAILS</u>
Customer PreCon	-	A	0-1 Hrs	25C	DC Elect	743	0
Customer PreCon	-	A	1 Cyc-1	25C	FluxImrs	743	NR
Customer PreCon	-	A	10 sec-1	260deg C	SdrHeat	743	NR
Customer PreCon	-	A	1 Cyc-2	25C	FluxImrs	743	NR
Customer PreCon	-	A	10 sec-2	260deg C	SdrHeat	743	NR
Customer PreCon	-	A	1 Cyc-3	25C	FluxImrs	743	NR
Customer PreCon	-	A	10 sec-3	260deg C	SdrHeat	743	NR
Customer PreCon	-	A	1 Cyc-4	25C	FluxImrs	743	NR
Customer PreCon	-	A	0-2	-	DiH20Rn	743	NR
Customer PreCon	-	A	0-3	-	Dry/Ambn	743	NR
Customer PreCon	-	A	0-4 Hrs	25C	DC Elect	743	0
SSLT 125C 14V	-	A	1000	-		75	0
SSLT 125C 18V	-	A	1000	-		150	0
SSLT 125C 20V	-	A	1000	-		75	0
HAST 130/85	-	A	100	-		77	0
Autoclave 121C	-	A	96	-		77	0
T/C -65/150	-	A	1000	-		77	0
Bake 170C	-	A	420	-		45	0
X-RAY	-	A	N/A	-		5	0
Electromigration							passed
Electrical						50	passed
Characterization							
Latch-up						5	passed
Manufacturability							passed

Table 3: Reliability Qualification Results (continued)

**Final Notification of the CD4K-H Process Qualification for Acquisition of Harris Semiconductor
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<u>Group</u>	<u>Rel Job #</u>	<u>Date Code</u>	<u>Wafer Lot #</u>	<u>Assembly Lot #</u>
C	SHEREL.99.CD.02005	91AYL1M	8349862	9026977

<u>Test Type</u>	<u>Pcond</u>	<u>Grp</u>	<u>Hr/Cycle</u>	<u>Tmp/V</u>	<u>User</u>	<u>QTY</u>	<u>FAILS</u>
Customer PreCon	-	A	0-1 Hrs	25C	DC Elect	700	0
Customer PreCon	-	A	1 Cyc-1	25C	FluxImrs	743	NR
Customer PreCon	-	A	10 sec-1	260deg C	SdrHeat	743	NR
Customer PreCon	-	A	1 Cyc-2	25C	FluxImrs	743	NR
Customer PreCon	-	A	10 sec-2	260deg C	SdrHeat	743	NR
Customer PreCon	-	A	1 Cyc-3	25C	FluxImrs	743	NR
Customer PreCon	-	A	10 sec-3	260deg C	SdrHeat	743	NR
Customer PreCon	-	A	1 Cyc-4	25C	FluxImrs	743	NR
Customer PreCon	-	A	0-2	-	DiH20Rn	743	NR
Customer PreCon	-	A	0-3	-	Dry/Ambn	743	NR
Customer PreCon	-	A	0-4 Hrs	25C	DC Elect	743	0
SSLT 125C 14V	-	A	1000	-		116	0
SSLT 125C 18V	-	A	1000	-		121	0
SSLT 125C 20V	-	A	1000	-		124	0
HAST 130/85	-	A	100	-		77	0
Autoclave 121C	-	A	96	-		77	0
T/C -65/150	-	A	1000	-		77	0
Bake 170C	-	A	420	-		45	0
X-RAY	-	A	N/A	-		5	0
Electromigration							passed
Electrical						50	passed
Characterization							
Latch-up						5	passed
Manufacturability							passed

Release Date: 5/10/1999
QSS Number: QSS 009-501, Revision E
Qualification requirements were met? yes
Override: no

**Final Notification of the CD4K-H Process Qualification for Acquisition of Harris Semiconductor
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Table 4: Device Types Affected

<u>Family</u>	<u>Code List Device</u>	<u>Package</u>	<u>Family</u>	<u>Code List Device</u>	<u>Package</u>	<u>Family</u>	<u>Code List Device</u>	<u>Package</u>
CD4000	CD4001BE	E	CD4000	CD4013BES2065	E	CD4000	CD4027BM	M
CD4000	CD4001BER3589	E	CD4000	CD4013BES2325	E	CD4000	CD4028BE	E
CD4000	CD4001BES2325	E	CD4000	CD4013BES2463	E	CD4000	CD4029BE	E
CD4000	CD4001BM	M	CD4000	CD4013BES2497	E	CD4000	CD4030BE	E
CD4000	CD4001BM96	M96	CD4000	CD4013BES2515	E	CD4000	CD4030BES2535	E
CD4000	CD4001UBE	E	CD4000	CD4013BES2534	E	CD4000	CD4030BM	M
CD4000	CD4001UBM	M	CD4000	CD4013BES2535	E	CD4000	CD4031BE	E
CD4000	CD4002BE	E	CD4000	CD4013BES2540	E	CD4000	CD4033BE	E
CD4000	CD4006BE	E	CD4000	CD4013BM	M	CD4000	CD4034BE	E
CD4000	CD4007UBE	E	CD4000	CD4013BM96	M96	CD4000	CD4034BES2491	E
CD4000	CD4007UBES2355	E	CD4000	CD40147BE	E	CD4000	CD4035BE	E
CD4000	CD4007UBM	M	CD4000	CD4014BE	E	CD4000	CD4040BE	E
CD4000	CD4009UBE	E	CD4000	CD4015BE	E	CD4000	CD4040BES2325	E
CD4000	CD40102BE	E	CD4000	CD40161BE	E	CD4000	CD4040BES2463	E
CD4000	CD40103BE	E	CD4000	CD4016BE	E	CD4000	CD4041UBE	E
CD4000	CD40105BE	E	CD4000	CD4016BM	M	CD4000	CD4042BE	E
CD4000	CD40106BE	E	CD4000	CD40174BE	E	CD4000	CD4042BER3814	E
CD4000	CD40106BER3592	E	CD4000	CD40174BE116	E	CD4000	CD4042BM	M
CD4000	CD40106BES2064	E	CD4000	CD40175BE	E	CD4000	CD4043BE	E
CD4000	CD40106BES2300	E	CD4000	CD4017BE	E	CD4000	CD4043BER2489	E
CD4000	CD40106BES2463	E	CD4000	CD4017BES2535	E	CD4000	CD4043BM	M
CD4000	CD40106BES2515	E	CD4000	CD4018BE	E	CD4000	CD4044BE	E
CD4000	CD40106BES2535	E	CD4000	CD4018BES2064	E	CD4000	CD4044BM	M
CD4000	CD40106BES5001	E	CD4000	CD40192BE	E	CD4000	CD4045BE	E
CD4000	CD40106BM	M	CD4000	CD40193BE	E	CD4000	CD4046BE	E
CD4000	CD40106BM96	M96	CD4000	CD40194BE	E	CD4000	CD4046BES2064	E
CD4000	CD40106BMS5001	M	CD4000	CD4019BE	E	CD4000	CD4047BE	E
CD4000	CD40107BE	E	CD4000	CD4019BES2260	E	CD4000	CD4047BES2065	E
CD4000	CD40109BE	E	CD4000	CD4020BE	E	CD4000	CD4047BES2497	E
CD4000	CD40109BES2463	E	CD4000	CD4020BES2535	E	CD4000	CD4048BE	E
CD4000	CD4010BE	E	CD4000	CD4021BE	E	CD4000	CD4049UBE	E
CD4000	CD40110BE	E	CD4000	CD4021BES2515	E	CD4000	CD4049UBER3817	E
CD4000	CD40117BE	E	CD4000	CD4022BE	E	CD4000	CD4049UBES2064	E
CD4000	CD4011BE	E	CD4000	CD4023BE	E	CD4000	CD4049UBES2065	E
CD4000	CD4011BES2064	E	CD4000	CD4023BM	M	CD4000	CD4049UBES2515	E
CD4000	CD4011BES2325	E	CD4000	CD4023BM96	M96	CD4000	CD4049UBES2535	E
CD4000	CD4011BES2535	E	CD4000	CD4024BE	E	CD4000	CD4049UBM	M
CD4000	CD4011BM	M	CD4000	CD4024BES2535	E	CD4000	CD4049UBM96	M96
CD4000	CD4011BM96	M96	CD4000	CD4024BM	M	CD4000	CD4050BE	E
CD4000	CD4011UBE	E	CD4000	CD4024BM96	M96	CD4000	CD4050BES2535	E
CD4000	CD4011UBM	M	CD4000	CD40257BE	E	CD4000	CD4050BM	M
CD4000	CD4012BE	E	CD4000	CD4025BE	E	CD4000	CD4051BE	E
CD4000	CD4012BES2064	E	CD4000	CD4025BES2064	E	CD4000	CD4051BER4248	E
CD4000	CD4012BES2535	E	CD4000	CD4025BM	M	CD4000	CD4051BER4666	E
CD4000	CD4012BM	M	CD4000	CD4025BM96	M96	CD4000	CD4051BES2325	E
CD4000	CD4012BM96	M96	CD4000	CD4026BE	E	CD4000	CD4051BM	M
CD4000	CD4013BE	E	CD4000	CD4027BE	E	CD4000	CD4051BM96	M96
CD4000	CD4013BER3813	E	CD4000	CD4027BER4657	E	CD4000	CD4052BE	E
CD4000	CD4013BES2064	E	CD4000	CD4027BES2065	E	CD4000	CD4052BES2065	E
						CD4000	CD4052BES2515	E

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Table 4: Device Types Affected (continued)

<u>Family</u>	<u>Code List Device</u>	<u>Package</u>	<u>Family</u>	<u>Code List Device</u>	<u>Package</u>	<u>Family</u>	<u>Code List Device</u>	<u>Package</u>
CD4000	CD4052BES2535	E	CD4000	CD4081BES2325	E	CD4000	CD4543BE	E
CD4000	CD4053BE	E	CD4000	CD4081BES2515	E	CD4000	CD4555BE	E
CD4000	CD4053BES2325	E	CD4000	CD4081BM	M	CD4000	CD4556BE	E
CD4000	CD4054BE	E	CD4000	CD4082BE	E	CD4000	CD4556BES2325	E
CD4000	CD4055BE	E	CD4000	CD4082BES2064	E	CD4000	CD4556BES2534	E
CD4000	CD4056BE	E	CD4000	CD4085BE	E	CD4000	CD4572UBE	E
CD4000	CD4056BES2325	E	CD4000	CD4086BE	E	CD4000	CD4585BE	E
CD4000	CD4059AE	E	CD4000	CD4089BE	E	CD4000	CD4724BE	E
CD4000	CD4060BE	E	CD4000	CD4093BE	E			
CD4000	CD4063BE	E	CD4000	CD4093BES2463	E			
CD4000	CD4066BE	E	CD4000	CD4093BM	M			
CD4000	CD4066BES2272	E	CD4000	CD4093BM96	M96			
CD4000	CD4066BES2325	E	CD4000	CD4093BMS5001	M			
CD4000	CD4066BES2378	E	CD4000	CD4094BE	E			
CD4000	CD4066BES2497	E	CD4000	CD4094BES2463	E			
CD4000	CD4066BM	M	CD4000	CD4094BES2515	E			
CD4000	CD4066BM96	M96	CD4000	CD4097BE	E			
CD4000	CD4067BE	E	CD4000	CD4098BE	E			
CD4000	CD4068BE	E	CD4000	CD4099BE	E			
CD4000	CD4068BES2325	E	CD4000	CD4099BES2497	E			
CD4000	CD4069UBE	E	CD4000	CD4502BE	E			
CD4000	CD4069UBE35	E	CD4000	CD4503BE	E			
CD4000	CD4069UBES2325	E	CD4000	CD4503BES2325	E			
CD4000	CD4069UBES2463	E	CD4000	CD4504BE	E			
CD4000	CD4069UBES2515	E	CD4000	CD4508BE	E			
CD4000	CD4069UBM	M	CD4000	CD4510BE	E			
CD4000	CD4069UBM96	M96	CD4000	CD4511BE	E			
CD4000	CD4070BE	E	CD4000	CD4512BE	E			
CD4000	CD4070BES2515	E	CD4000	CD4514BE	E			
CD4000	CD4070BM	M	CD4000	CD4514BM	M			
CD4000	CD4071BE	E	CD4000	CD4515BE	E			
CD4000	CD4071BER3812	E	CD4000	CD4515BM	M			
CD4000	CD4071BES2325	E	CD4000	CD4516BE	E			
CD4000	CD4071BES2515	E	CD4000	CD4517BE	E			
CD4000	CD4071BM	M	CD4000	CD4517BES2463	E			
CD4000	CD4072BE	E	CD4000	CD4517BES2535	E			
CD4000	CD4073BE	E	CD4000	CD4518BE	E			
CD4000	CD4073BES2325	E	CD4000	CD4520BE	E			
CD4000	CD4073BM	M	CD4000	CD4520BES2325	E			
CD4000	CD4075BE	E	CD4000	CD4521BE	E			
CD4000	CD4075BM	M	CD4000	CD4522BE	E			
CD4000	CD4076BE	E	CD4000	CD4527BE	E			
CD4000	CD4077BE	E	CD4000	CD4532BE	E			
CD4000	CD4077BES2515	E	CD4000	CD4536BE	E			
CD4000	CD4077BM	M	CD4000	CD4541BE	E			
CD4000	CD4078BE	E	CD4000	CD4541BES2260	E			
CD4000	CD4078BM	M	CD4000	CD4541BM	M			
CD4000	CD4081BE	E	CD4000	CD4541BM96	M96			