

Product Change Notification

(Notification – P2002011-DIG)

(LLWEB-10073177)

February 17, 2020

To: *Our Valued Digi-Key Electronics Customer*

Overview: The purpose of this notification is to communicate a product change of select Renesas Electronics America, Inc. (REA) devices (see the Appendix for additional details).

For select RH850/F1 and RH850/D1 series devices, this notification announces the following additional assembly sites...

1. ASE-KH Advanced Semiconductor Engineering, Inc. (Kaohsiung)
 2. ATJ-Kumamoto Amkor Technology Japan, Inc. (Kumamoto)
 3. Nishiki Renesas Electronics Corporation (Nishiki Factory)
- (devices will continue to be assembled at RSC, Renesas Semiconductor [Suzhou] Co., Ltd.)

and the following additional test sites...

1. TeraPower TeraPower Technology Inc.
 2. Nishiki Renesas Electronics Corporation (Nishiki Factory)
- (devices will continue to be tested at RSC, Renesas Semiconductor [Suzhou] Co., Ltd.)

There is a change to the part number for devices assembled in ASE-KH and ATJ-Kumamoto. There is no part number change for devices assembled in RSC and Nishiki.

There is no change to electrical characteristics or product reliability.

Affected Products: A review of our records indicates the list of products in Appendix I may affect your company.

Part numbers given in this list are for active part numbers in REA database at the time of this notification.

Key Dates:

Shipments from REA of product from the additional assembly sites and test sites begins.	Date: Dependent on supply of original device and customer acceptance of alternate part numbers.
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Response: No response is required. REA will consider this notification approved 30 days after its issue. If you anticipate volumes beyond your regular rate prior to the transition date, please contact your REA sales representative with a forecast of your requirements.

If the customer provides a timely acknowledgement, the customer shall have 90 days (an additional 60 days) from the date of receipt of this notification in which to make any objections to the notification. If the customer does not make any objections to this notification within 90 days of the receipt of the notification, then Renesas will consider the notification as approved. If customer cannot accept the notification, then the customer must provide Renesas with a last time buy demand and purchase order.

Please contact your REA sales representative for any questions or comments. Thank you for your attention.

Sincerely,

Renesas Electronics America, Inc.

Appendix A: Affected Devices

RH850/F1 Series: RH850/F1L, F1M, F1H, & F1K
 RH850/D1 Series: RH850/D1L1 & D1L2

Appendix B: Additional Sites Summary

Item	Current	Additional (after change)	Influence
Assembly Site	RSC Renesas Semiconductor (Suzhou) Co., Ltd	<p>Concurrent production at all 4 sites by adding the following 3 assembly sites.</p> <ol style="list-style-type: none"> ASE-KH Advanced Semiconductor Engineering, Inc. (Kaohsiung) ATJ-Kumamoto Amkor Technology Japan, Inc. (Kumamoto) Nishiki Renesas Electronics Corporation (Nishiki Factory) 	<ol style="list-style-type: none"> Manufacturing Site: Added Product Name: Changed Material: Changed Outward Form: Changed Machine: Changed Assembly Process: Changed Specification & Quality: No Change (Reliability is AEC Q100)
Test Site (Final Test)	RSC Renesas Semiconductor (Suzhou) Co., Ltd	<p>Concurrent production at all 3 sites by adding the following 2 test sites.</p> <ol style="list-style-type: none"> TeraPower TeraPower Technology Inc. Nishiki Renesas Electronics Corporation (Nishiki Factory) 	<ol style="list-style-type: none"> Test Site: Added Machine: No Change Test Specification & Criteria: No Change Package Specification: Changed

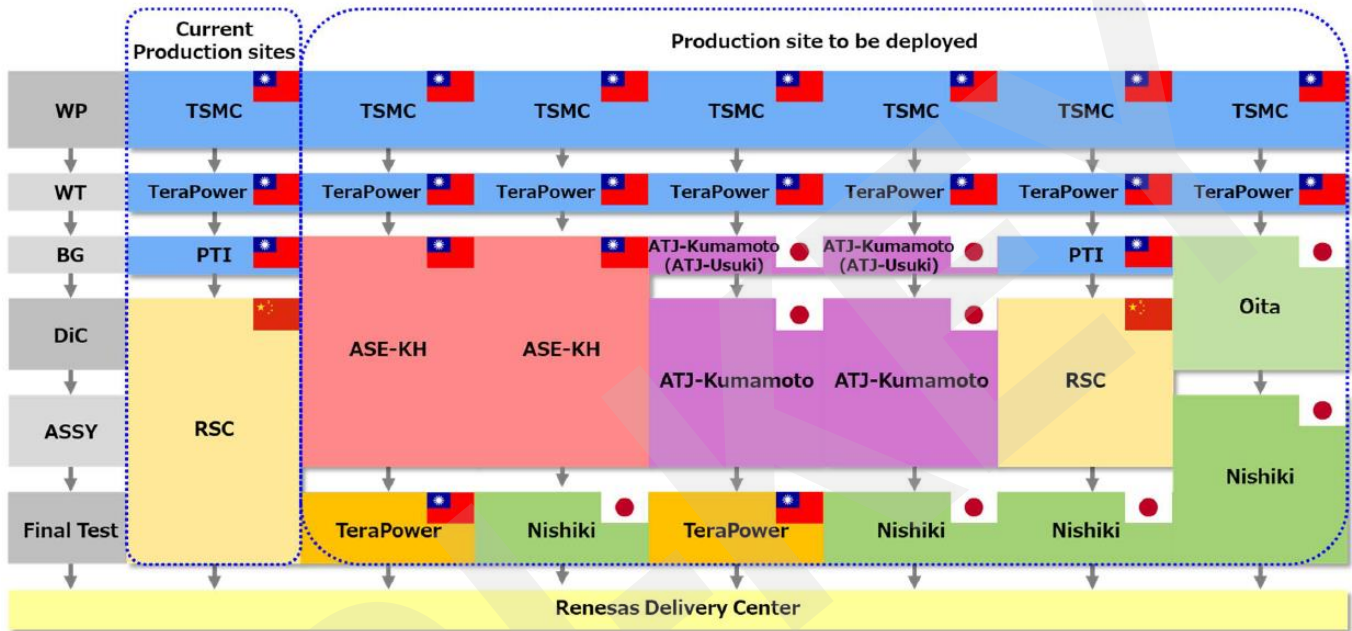
Appendix C: Affected Packages

Assembly site	Final test site	F1L					
		48pin	64pin	80pin	100pin	144pin	176pin
RSC (Current)	RSC (Current)	○	○	○	○	○	○
ASE-KH	TeraPower				○	○	○
ASE-KH	Nishiki				○	○	
ATJ- Kumamoto	TeraPower				○	○	○
ATJ- Kumamoto	Nishiki				○	○	
RSC	Nishiki		○	○	○	○	
Nishiki	Nishiki		○	○	○	○	

Assembly site	Final test site	F1H F1K D1L1	F1M F1K D1L1 D1L2	F1M F1H F1K D1L2
		100pin	144pin	176pin
RSC (Current)	RSC (Current)	○	○	○
ASE-KH	TeraPower	○	○	○
ATJ- Kumamoto	TeraPower	○	○	○

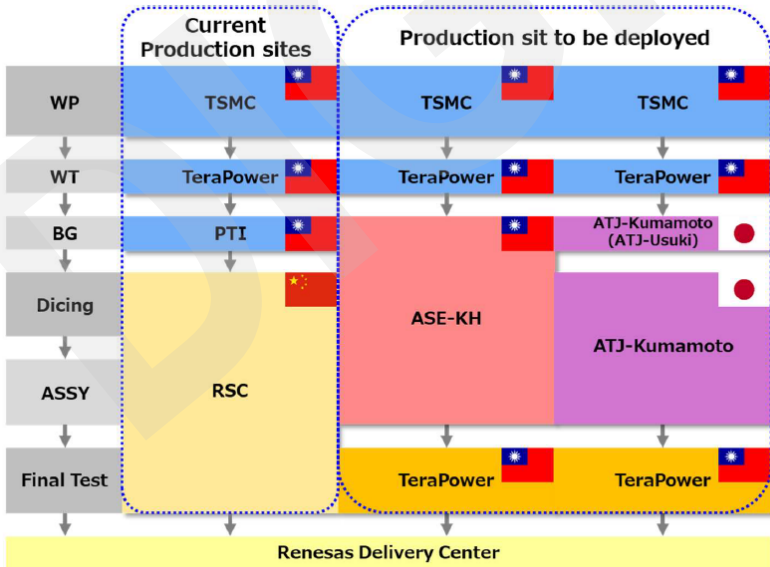
Appendix D: Production Flow Change

1. RH850/F1L Series



Note: Back Grinding process is consigned to Powertech Technology Inc. (PTI) by TeraPower.

2. RH850/F1M, F1H, F1K, & D1L Series



Note: Back Grinding process is consigned to Powertech Technology Inc. (PTI) by TeraPower.

Note: Alternative BI applied (reference ABC-AC-17-0029 & AP CB-AC-18-0002)

WP: Wafer Process

WT: Wafer Test

BG: Back Grinding process

Appendix E: Summary of Change Points

No.	Item	Changed : ○ No changed : – Assembly site->Final test site						Changed point
		ASE-KH ->TPW	ASE-KH ->Nishiki	ATJ- Kumamoto ->TPW	ATJ- Kumamoto ->Nishiki	RSC ->Nishiki	Nishiki ->Nishiki	
1	Type name	○	○	○	○	–	–	Changed.Additional Type name.
2	Specification	–	–	–	–	–	–	No changed.
3	External form	○	○	○	○	–	–	Changed.However no problem regarding to the mounting in customer side.
4	Wire	○	○	○	○	–	–	Changed.ASE-KH/ATJ-Kumamoto products are Au wire.
5	Marking	–	–	–	–	–	–	No changed.
6	Label	○	○	○	○	○	○	Changed.Labek contents are different.
7	Packaging	○	–	○	–	–	–	Changed.TPW's packaging specification.
8	Electric Characteristics	–	–	–	–	–	–	No changed.
9	Quality and Reliability	–	–	–	–	–	–	No changed.

Appendix F: Part Number Change Example

The table below shows examples of the part number change for the additional assembly sites. Changed parts are written in red.

RH850 Products	Assembly site			
	RSC	Nishiki	ASE-KH	ATJ-Kumamoto
D1L1	R7F701401EAFB#BA0	Not applicable.	R7F701401EAFE#BA0	R7F701401EAFD#BA0
D1L2	R7F701403EAFB#BA0	Not applicable.	R7F701403EAFE#BA0	R7F701403EAFD#BA0
F1L	R7F7010233AFP#BA4	R7F7010233AFP#BA4	R7F7010233AFE#BA4	R7F7010233AFD#BA4
F1M	R7F7015493AFP#BA2	Not applicable.	R7F7015493AFE#BA2	R7F7015493AFD#BA2
F1H	R7F7015023AFP#BA2	Not applicable.	R7F7015023AFE#BA2	R7F7015023AFD#BA2
F1K	R7F7015873AFP-C#BA3	Not applicable.	R7F7015873AFE#BA3	R7F7015873AFD#BA3

Note: Products in the additional sites are shipped as Full Carton or Tape&Reel package.

Appendix G: Package Change (Outward Form)

[unit] :mm

Item	Reference Symbol	Assembly Site	Size			Notes
			MIN.	NOM.	MAX.	
Body Width/Length LQFP-176pin	D,E (D1,E1)	RSC/Nishiki	23.9	24	24.1	:RSC and Nishiki applies JEITA Standard. :ASE-KH and ATJ-Kumamoto apply JEDEC tolerance Standard.
		ASE-KH	23.8	24	24.2	
		ATJ-Kumamoto	23.8	24	24.2	
Body Width/Length LQFP-144pin	D,E (D1,E1)	RSC/Nishiki	19.9	20	20.1	:RSC and Nishiki applies JEITA Standard. :ASE-KH and ATJ-Kumamoto apply JEDEC tolerance Standard.
		ASE-KH	19.8	20	20.2	
		ATJ-Kumamoto	19.8	20	20.2	
Body Width/Length LQFP-100pin	D,E (D1,E1)	RSC/Nishiki	13.9	14	14.1	:RSC and Nishiki applies JEITA Standard. :ASE-KH and ATJ-Kumamoto apply JEDEC tolerance Standard.
		ASE-KH	13.8	14	14.2	
		ATJ-Kumamoto	13.8	14	14.2	

[unit] tip angle : deg
others : mm

Item	Reference Symbol	Assembly Site	Size			Note
			MIN.	NOM.	MAX.	
Mount Height*1	A	RSC/Nishiki	-	-	1.7	:RSC and Nishiki applies JEITA Standard. :ASE-KH and ATJ-Kumamoto apply JEDEC tolerance Standard.
		ASE-KH	-	-	1.6	
		ATJ-Kumamoto	-	-	1.6	
Lead Width	bp(b)	RSC/Nishiki	0.15 (0.17*2)	0.2 (0.22*2)	0.25 (0.27*2)	:ASE-KH and ATJ-Kumamoto apply JEDEC tolerance Standard. (* : for 144pin PKG) :Although the actual sizes of LQFP176 and LQFP100 are different at between RSC/Nishiki and ASE-KH/ATJ-Kumamoto, there is no problem regarding to the mounting on a board.
		ASE-KH	0.17	0.22	0.27	
		ATJ-Kumamoto	0.17	0.22	0.27	
Lead Tip Angle*1	θ	RSC/Nishiki	0	-	8	:RSC and Nishiki applies JEITA Standard. :ASE-KH and ATJ-Kumamoto apply JEDEC tolerance Standard.
		ASE-KH	0	-	7	
		ATJ-Kumamoto	0	-	7	
Lead Tip Length*1	L	RSC/Nishiki	0.35	0.5	0.65	:RSC and Nishiki applies JEITA Standard. :ASE-KH and ATJ-Kumamoto apply JEDEC tolerance Standard.
		ASE-KH	0.45	0.6	0.75	
		ATJ-Kumamoto	0.45	0.6	0.75	

* 1 : Mount Height, Lead Tip Angle, Lead Tip Length are same at LQFP-176pin/144pin/100pin.

* 2 : Lead Width is same at LQFP-176pin/100pin, Lead Width of LQFP-144pin is same in ASE-KH and ATJ-Kumamoto.

Appendix H: Bonding Wire Change

The bonding wire for RH850/F1K at ASE-KH or ATJ-Kumamoto is Au. This is different from RSC which is Cu.

Series	Product	Assembly site					
		RSC		ASE-KH		ASE-KH/ ATJ-Kumamoto	
		Au	Cu	Au	Cu		
D1 series	D1L1	○				○	
	D1L2	○				○	
F1 series	F1L	○		○		○	
	F1M	○				○	
	F1H	○				○	
	F1K		○			○	

All products made at ASE-KH and ATJ Kumamoto are assembled with using Au wire.

Appendix I: Mark Specification Change (Example)

F1L series

Assembly site:RSC	Assembly site:ASE-KH or ATJ-Kumamoto or Nishiki

Appendix J: Label Specification (Example)

Label example for R7F7010233#KA4 (F1L 100pin)
 Assembly site:RSC Label image (T&R)



Assembly site:ASE-KH Label image (T&R)



Assembly site:Nishiki Label image (T&R)



Assembly site:ATJ-kumamoto Label image (T&R)



Appendix I: Digi-Key Affected Part Numbers

Original Booking Part Number	Alternate PN1 ASE-KH Assembly	Alternate PN2 ATJ-Kumamoto Assembly
R7F7010073AFP#KA4	R7F7010073AFE#KA4	R7F7010073AFD#KA4
R7F7010273AFP#KA4	R7F7010273AFE#KA4	R7F7010273AFD#KA4
R7F7010283AFP#KA4	R7F7010283AFE#KA4	R7F7010283AFD#KA4
R7F7010284AFP#KA4	R7F7010284AFE#KA4	R7F7010284AFD#KA4
R7F7010293AFP#BA4	R7F7010293AFE#BA4	R7F7010293AFD#BA4
R7F7010303AFP#KA4	R7F7010303AFE#KA4	R7F7010303AFD#KA4
R7F7010323AFP#KA4	R7F7010323AFE#KA4	R7F7010323AFD#KA4
R7F7010333AFP#KA4	R7F7010333AFE#KA4	R7F7010333AFD#KA4
R7F7010334AFP#BA4	R7F7010334AFE#BA4	R7F7010334AFD#BA4
R7F7010334AFP#KA4	R7F7010334AFE#KA4	R7F7010334AFD#KA4
R7F7010343AFP#BA4	R7F7010343AFE#BA4	R7F7010343AFD#BA4
R7F7010343AFP#KA4	R7F7010343AFE#KA4	R7F7010343AFD#KA4
R7F7010463AFP#KA4	R7F7010463AFE#KA4	R7F7010463AFD#KA4
R7F7010473AFP#KA4	R7F7010473AFE#KA4	R7F7010473AFD#KA4
R7F7010483AFP#KA4	R7F7010483AFE#KA4	R7F7010483AFD#KA4
R7F7010493AFP#BA4	R7F7010493AFE#BA4	R7F7010493AFD#BA4
R7F7010493AFP#KA4	R7F7010493AFE#KA4	R7F7010493AFD#KA4
R7F7010533AFP#KA4	R7F7010533AFE#KA4	R7F7010533AFD#KA4
R7F7010533AFP#KA8	R7F7010533AFE#KA8	R7F7010533AFD#KA8
R7F7010534AFP#KA4	R7F7010534AFE#KA4	R7F7010534AFD#KA4
R7F7010543AFP#KA4	R7F7010543AFE#KA4	R7F7010543AFD#KA4
R7F7010544AFP#BA4	R7F7010544AFE#BA4	R7F7010544AFD#BA4
R7F7010553AFP#KA4	R7F7010553AFE#KA4	R7F7010553AFD#KA4
R7F7010563AFP#KA4	R7F7010563AFE#KA4	R7F7010563AFD#KA4
R7F7010564AFP#KA4	R7F7010564AFE#KA4	R7F7010564AFD#KA4
R7F7010573AFP#KA4	R7F7010573AFE#KA4	R7F7010573AFD#KA4
R7F7010574AFP#KA4	R7F7010574AFE#KA4	R7F7010574AFD#KA4
R7F701A013AFP#KA4	R7F701A013AFE#KA4	R7F701A013AFD#KA4
R7F7010023AFP#BA4	R7F7010023AFE#BA4	R7F7010023AFD#BA4
R7F7010023AFP#KA4	R7F7010023AFE#KA4	R7F7010023AFD#KA4
R7F7010223AFP#BA4	R7F7010223AFE#BA4	R7F7010223AFD#BA4
R7F7010223AFP#KA4	R7F7010223AFE#KA4	R7F7010223AFD#KA4
R7F7010233AFP#BA4	R7F7010233AFE#BA4	R7F7010233AFD#BA4
R7F7010233AFP#KA4	R7F7010233AFE#KA4	R7F7010233AFD#KA4
R7F7010234AFP#BA4	R7F7010234AFE#BA4	R7F7010234AFD#BA4

Appendix I: Digi-Key Affected Part Numbers (cont.)

Original Booking Part Number	Alternate PN1 ASE-KH Assembly	Alternate PN2 ATJ-Kumamoto Assembly
R7F7010234AFP#KA4	R7F7010234AFE#KA4	R7F7010234AFD#KA4
R7F701A333AFP#BA4	R7F701A333AFE#BA4	R7F701A333AFD#BA4
R7F7010243AFP#BA2	R7F7010243AFE#BA2	R7F7010243AFD#BA2
R7F7010243AFP#KA2	R7F7010243AFE#KA2	R7F7010243AFD#KA2
R7F7010244AFP#KA2	R7F7010244AFE#KA2	R7F7010244AFD#KA2
R7F7010253AFP#BA2	R7F7010253AFE#BA2	R7F7010253AFD#BA2
R7F7010253AFP#KA2	R7F7010253AFE#KA2	R7F7010253AFD#KA2
R7F7010254AFP#KA2	R7F7010254AFE#KA2	R7F7010254AFD#KA2
R7F7010443AFP#KA2	R7F7010443AFE#KA2	R7F7010443AFD#KA2
R7F7010453AFP#KA2	R7F7010453AFE#KA2	R7F7010453AFD#KA2
R7F7015443AFP#KA2	R7F7015443AFE#KA2	R7F7015443AFD#KA2
R7F7015483AFP#KA2	R7F7015483AFE#KA2	R7F7015483AFD#KA2
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R7F7015653AFP#KA2	R7F7015653AFE#KA2	R7F7015653AFD#KA2
R7F7015683AFP#KA2	R7F7015683AFE#KA2	R7F7015683AFD#KA2
R7F7015693AFP#KA2	R7F7015693AFE#KA2	R7F7015693AFD#KA2
R7F701A293AFP#KA2	R7F701A293AFE#KA2	R7F701A293AFD#KA2
R7F701A303AFP#KA2	R7F701A303AFE#KA2	R7F701A303AFD#KA2
R7F7015303AFP#BA2	R7F7015303AFE#BA2	R7F7015303AFD#BA2
R7F7015313AFP#KA2	R7F7015313AFE#KA2	R7F7015313AFD#KA2
R7F7015423AFP-C#KA3	R7F7015423AFE#KA3	R7F7015423AFD#KA3
R7F7015424AFP-C#KA3	R7F7015424AFE#KA3	R7F7015424AFD#KA3
R7F7015433AFP-C#KA3	R7F7015433AFE#KA3	R7F7015433AFD#KA3
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R7F7015463AFP-C#KA3	R7F7015463AFE#KA3	R7F7015463AFD#KA3
R7F7015464AFP-C#KA3	R7F7015464AFE#KA3	R7F7015464AFD#KA3
R7F7015473AFP-C#KA3	R7F7015473AFE#KA3	R7F7015473AFD#KA3
R7F7015474AFP-C#KA3	R7F7015474AFE#KA3	R7F7015474AFD#KA3
R7F7015573AFP-C#KA3	R7F7015573AFE#KA3	R7F7015573AFD#KA3
R7F7015574AFP-C#KA3	R7F7015574AFE#KA3	R7F7015574AFD#KA3
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R7F7015624AFP-C#KA3	R7F7015624AFE#KA3	R7F7015624AFD#KA3
R7F7015633AFP-C#KA3	R7F7015633AFE#KA3	R7F7015633AFD#KA3
R7F7015634AFP-C#KA3	R7F7015634AFE#KA3	R7F7015634AFD#KA3

Appendix I: Digi-Key Affected Part Numbers (cont.)

Original Booking Part Number	Alternate PN1 ASE-KH Assembly	Alternate PN2 ATJ-Kumamoto Assembly
R7F7015663AFP-C#KA3	R7F7015663AFE#KA3	R7F7015663AFD#KA3
R7F7015664AFP-C#KA3	R7F7015664AFE#KA3	R7F7015664AFD#KA3
R7F7015673AFP-C#KA3	R7F7015673AFE#KA3	R7F7015673AFD#KA3
R7F7015674AFP-C#KA3	R7F7015674AFE#KA3	R7F7015674AFD#KA3
R7F7015773AFP-C#KA3	R7F7015773AFE#KA3	R7F7015773AFD#KA3
R7F7015774AFP-C#KA3	R7F7015774AFE#KA3	R7F7015774AFD#KA3
R7F7015823AFP-C#KA3	R7F7015823AFE#KA3	R7F7015823AFD#KA3
R7F7015824AFP-C#BA3	R7F7015824AFE#BA3	R7F7015824AFD#BA3
R7F7015824AFP-C#KA3	R7F7015824AFE#KA3	R7F7015824AFD#KA3
R7F7015833AFP-C#KA3	R7F7015833AFE#KA3	R7F7015833AFD#KA3
R7F7015834AFP-C#KA3	R7F7015834AFE#KA3	R7F7015834AFD#KA3
R7F7015863AFP-C#BA3	R7F7015863AFE#BA3	R7F7015863AFD#BA3
R7F7015863AFP-C#KA3	R7F7015863AFE#KA3	R7F7015863AFD#KA3
R7F7015864AFP-C#KA3	R7F7015864AFE#KA3	R7F7015864AFD#KA3
R7F7015873AFP-C#BA3	R7F7015873AFE#BA3	R7F7015873AFD#BA3
R7F7015873AFP-C#KA3	R7F7015873AFE#KA3	R7F7015873AFD#KA3
R7F7015874AFP-C#KA3	R7F7015874AFE#KA3	R7F7015874AFD#KA3
R7F7015953AFP-C#KA3	R7F7015953AFE#KA3	R7F7015953AFD#KA3
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R7F7015973AFP-C#KA3	R7F7015973AFE#KA3	R7F7015973AFD#KA3
R7F7015974AFP-C#KA3	R7F7015974AFE#KA3	R7F7015974AFD#KA3
R7F7016023AFP-C#KA3	R7F7016023AFE#KA3	R7F7016023AFD#KA3
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R7F7016034AFP-C#KA3	R7F7016034AFE#KA3	R7F7016034AFD#KA3
R7F7016123AFP-C#KA3	R7F7016123AFE#KA3	R7F7016123AFD#KA3
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R7F7016133AFP-C#KA3	R7F7016133AFE#KA3	R7F7016133AFD#KA3
R7F7016134AFP-C#KA3	R7F7016134AFE#KA3	R7F7016134AFD#KA3
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R7F7016224AFP-C#KA3	R7F7016224AFE#KA3	R7F7016224AFD#KA3
R7F7016233AFP-C#KA3	R7F7016233AFE#KA3	R7F7016233AFD#KA3
R7F7016234AFP-C#KA3	R7F7016234AFE#KA3	R7F7016234AFD#KA3
R7F7015603AFP-C#KA3	R7F7015603AFE#KA3	R7F7015603AFD#KA3

Appendix I: Digi-Key Affected Part Numbers (cont.)

Original Booking Part Number	Alternate PN1 ASE-KH Assembly	Alternate PN2 ATJ-Kumamoto Assembly
R7F7015604AFP-C#KA3	R7F7015604AFE#KA3	R7F7015604AFD#KA3
R7F7015613AFP-C#BA3	R7F7015613AFE#BA3	R7F7015613AFD#BA3
R7F7015613AFP-C#KA3	R7F7015613AFE#KA3	R7F7015613AFD#KA3
R7F7015614AFP-C#KA3	R7F7015614AFE#KA3	R7F7015614AFD#KA3
R7F7015803AFP-C#BA3	R7F7015803AFE#BA3	R7F7015803AFD#BA3
R7F7015803AFP-C#KA3	R7F7015803AFE#KA3	R7F7015803AFD#KA3
R7F7015804AFP-C#KA3	R7F7015804AFE#KA3	R7F7015804AFD#KA3
R7F7015813AFP-C#BA3	R7F7015813AFE#BA3	R7F7015813AFD#BA3
R7F7015813AFP-C#KA3	R7F7015813AFE#KA3	R7F7015813AFD#KA3
R7F7015814AFP-C#KA3	R7F7015814AFE#KA3	R7F7015814AFD#KA3
R7F7016103AFP-C#KA3	R7F7016103AFE#KA3	R7F7016103AFD#KA3
R7F7016104AFP-C#BA3	R7F7016104AFE#BA3	R7F7016104AFD#BA3
R7F7016104AFP-C#KA3	R7F7016104AFE#KA3	R7F7016104AFD#KA3
R7F7016114AFP-C#KA3	R7F7016114AFE#KA3	R7F7016114AFD#KA3
R7F7016203AFP-C#BA3	R7F7016203AFE#BA3	R7F7016203AFD#BA3
R7F7016203AFP-C#KA3	R7F7016203AFE#KA3	R7F7016203AFD#KA3
R7F7016204AFP-C#KA3	R7F7016204AFE#KA3	R7F7016204AFD#KA3
R7F7016213AFP-C#KA3	R7F7016213AFE#KA3	R7F7016213AFD#KA3
R7F7016214AFP-C#BA3	R7F7016214AFE#BA3	R7F7016214AFD#BA3
R7F7016214AFP-C#KA3	R7F7016214AFE#KA3	R7F7016214AFD#KA3
R7F701401EAFB#BA0	R7F701401EAFE#BA0	R7F701401EAFD#BA0
R7F701401EAFB#KA0	R7F701401EAFE#KA0	R7F701401EAFD#KA0
R7F701421EAFB#BA0	R7F701421EAFE#BA0	R7F701421EAFD#BA0
R7F701421EAFB#KA0	R7F701421EAFE#KA0	R7F701421EAFD#KA0
R7F701402EAFB#BA0	R7F701402EAFE#BA0	R7F701402EAFD#BA0
R7F701402EAFB#KA0	R7F701402EAFE#KA0	R7F701402EAFD#KA0
R7F701422EAFB#BA0	R7F701422EAFE#BA0	R7F701422EAFD#BA0
R7F701422EAFB#KA0	R7F701422EAFE#KA0	R7F701422EAFD#KA0
R7F701403EAFB#KA0	R7F701403EAFE#KA0	R7F701403EAFD#KA0