Product Change Notification

(Notification - P1508026)

(CST-R2-AA152)

August 19, 2015

To: *Our Valued Customer (Insert Customer Name Here)*

Overview: The purpose of this notification is to communicate product change of select Renesas Electronics America, Inc. (REA) devices. These devices have replacements.

This notification concerns the **generation change** of **8Mb (3V) LPSRAM** from the current generation R1LV08**16A** / R1LV08**08A** series to a new generation RMLV08**16B** / RMLV08**08B** series.

1. The new RMLV0816B / RMLV0808B series (0.11um process products) are upward compatible with the current R1LV0816A / R1LV0808A series (0.15um process products) in terms of electrical characteristics specifications.
2. All packaging materials, dimensions and pin configurations are the same in this transition.

Affected Products: A review of our shipment records to your company indicate the attached list of products is affected by this notification.

Booking Part Number	Replacement Part Number
Insert PN1 here	Insert PN1A here
Insert PN2 here	Insert PN2A here
Insert PN3 here	Insert PN3A here
Insert PN4 here	Insert PN4A here

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

Key Dates:

Final last time buy **(LTB)** orders placed to REA or to a franchised REA distributor for **original part number**.	**Dec. 15th, 2016**
Planned date for last time shipment **(LTS)** from REA for **original part number**.	**Jun. 15th, 2017**

Response: Please place last time buy (LTB) orders in a timely manner prior to the key dates listed to avoid product availability issues. If you anticipate volumes beyond your regular rate, please contact your REA sales representative with a forecast of your requirements. Shipments between the LTB and LTS dates are Non-Cancelable and Non-Returnable (NCNR).

You are encouraged to sample the replacement device and begin qualification as soon as possible. Please contact you REA sales representative to obtain samples.

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

Thank you for your attention.

Sincerely,

Renesas Electronics America, Inc.

Appendix 1: Documents and Sample Availability

	RMLV0816BGSB	RMLV0816BGSA	RMLV0816BGSD	RMLV0816BGBG	RMLV0808BGSB
Datasheet	Now Available	Now Available	Now Available	Now Available	Now Available
CS sample & Reliability Report	1Q/CY2016	1Q/CY2016	Now Available	Now Available	1Q/CY2016

Appendix 2: Replacement Part Number Chart

EOL products (current "A" version)	Package type	Word config.	Access time	Operation temp.	Replacement products (new "B" version)	Access time	Operation temp.
R1LV0816ASB-5SI	TSOP(II) (44pin)	x16	55ns	-40C to 85C	RMLV0816BGSB-4S2	45ns (Note1)	-40C to 85C
R1LV0816ASB-7SI			70ns				
R1LV0816ASB-5SK			55ns				
R1LV0816ASA-5SI	TSOP(I) (48pin)		55ns	-40C to 85C	RMLV0816BGSA-4S2		
R1LV0816ASA-7SI			70ns				
R1LV0816ASD-5SI	uTSOP (52pin)		55ns	-40C to 85C	RMLV0816BGSD-4S2		
R1LV0816ASD-7SI			70ns				
R1LV0816ABG-5SI	FBGA (48ball)		55ns	-40C to 85C	RMLV0816BGBG-4S2		
R1LV0816ABG-7SI			70ns				
R1LV0808ASB-5SI	TSOP(II) (44pin)	x8	55ns	-40C to 85C	RMLV0808BGSB-4S2		
R1LV0808ASB-7SI			70ns				

Please make sure that each electrical characteristics specification of corresponding replacement product matches the requirement for current product by checking their datasheets.

(Note1) The access time variation of replacement products (new "B" version) is "45ns" only.
When a supply voltage is from 2.4V to 2.7V, the access time of "4S2" parts becomes 55ns

Appendix 3: Comparison of Electrical Characteristic Specifications

Item	Symbol	R1LV08**A series	Symbol	RMLV08**B series
Memory cell structure		TFT load + capacitor cell		<--
Peripheral circuit		CMOS		<--
Design rule		0.15um		0.11um
Package		TSOP(II) 44pin(11.76mm x 18.41mm)		<--
		TSOP(I) 48pin(12mm x 20mm)		<--
		µTSOP(II) 52pin(10.49mm x 10.79mm)		<--
		FBGA 48ball(7.50mm x 8.50mm)		<--

DC condition

Item	Symbol	R1LV08**A series		Symbol	RMLV08**B series	
Supply voltage	Vcc	55ns	2.7V ~ 3.6V	Vcc	45ns	2.7V ~ 3.6V
		70ns (Note2)	2.4V ~ 2.7V (Note2)		55ns	2.4V ~ 2.7V
Operating temperature range	Ta	-40 deg.C to 85 deg.C		Ta	<--	
Input high voltage	VIH	2.7V ~ 3.6V	2.2V(min.)/Vcc+0.2V(max.)	VIH	<--	
		2.4V ~ 2.7V	2.0V(min.)/Vcc+0.2V(max.)			
Input low voltage	VIL	2.7V ~ 3.6V	-0.2V(min.)/0.6V(max.)	VIL	<--	
		2.4V ~ 2.7V	-0.2V(min.)/0.4V(max.)			

(Note2) When a supply voltage is from 2.4V to 2.7V, the access time of "5SI" parts becomes 70ns.

Appendix 3: Comparison of Electrical Characteristic Specifications (cont.)

DC characteristics

Item	Symbol	R1LV08**A series		Symbol	RMLV08**B series	
Operating Current	Icc1(TTL, Min.Cycle)	35mA(max.)/20mA(typ.)		Icc1(TTL, Min.Cycle)	45ns	30mA(max.)/25mA(typ.)
					55ns	25mA(max.)/20mA(typ.)
	Icc2(MOS, Cycle=1us)	5mA(max.)/2mA(typ.)		Icc2(MOS, Cycle=1us)	3mA(max.)/1.5mA(typ.)	
Stand by current	ISB(TTL)	0.3mA(max.)		ISB(TTL)	<--	
	ISB1(MOS)	up to 25 deg.C	4uA(max.)/1.2uA(typ.)	ISB1(MOS)	up to 25 deg.C	2uA(max.)/0.45uA(typ.)
		up to 40 deg.C	6uA(max.)/3uA(typ.)		up to 40 deg.C	4uA(max.)/0.6uA(typ.)
		up to 70 deg.C	15uA(max.)		up to 70 deg.C	7uA(max.)
		up to 85 deg.C	20uA(max.)		up to 85 deg.C	10uA(max.)
Output high voltage	VOH	IOH=-1mA	2.4V(min.) : Vcc≥2.7V	VOH	<--	
		IOH=-100uA	2.0V(min.)		<--	
Output low voltage	VOL	IOL=2mA	0.4V(max.) : Vcc≥2.7V	VOL	<--	
		IOL=100uA	0.4V(max.)		<--	

Capacitance

Item	Symbol	R1LV08**A series	Symbol	RMLV08**B series
Input capacitance	C in	10pF(max.)	C in	8pF(max.)
Input/Output capacitance	C I/O	10pF(max.)	C I/O	<--

Data retention characteristics

Item	Symbol	R1LV08**A series		Symbol	RMLV08**B series	
Vcc for data retention	VDR	1.5V(min.)		VDR	<--	
Data retention current	IccDR(Vcc=3.0V)	up to 25 deg.C	4uA(max.)/1.2uA(typ.)	IccDR(Vcc=3.0V)	up to 25 deg.C	2uA(max.)/0.45uA(typ.)
		up to 40 deg.C	6uA(max.)/3uA(typ.)		up to 40 deg.C	4uA(max.)/0.6uA(typ.)
		up to 70 deg.C	15uA(max.)		up to 70 deg.C	7uA(max.)
		up to 85 deg.C	20uA(max.)		up to 85 deg.C	10uA(max.)
Chip deselect time to data retention	tCDR	0ns(min.)		tCDR	<--	
Operation recovery time	tR	5ms(min.)		tR	<--	

AC characteristics

Read Cycle

Item	Symbol	R1LV08**A series (Note3)		Symbol	RMLV08**B series	
Read cycle time	tRC	2.7V ~ 3.6V	55ns(min.)	tRC	2.7V ~ 3.6V	45ns(min.)
		2.4V ~ 2.7V	70ns(min.)		2.4V ~ 2.7V	55ns(min.)
Address access time	tAA	2.7V ~ 3.6V	55ns(max.)	tAA	2.7V ~ 3.6V	45ns(max.)
		2.4V ~ 2.7V	70ns(max.)		2.4V ~ 2.7V	55ns(max.)
Chip select access time	tACS1/tACS2/tACS	2.7V ~ 3.6V	55ns(max.)	tACS1/tACS2/tACS	2.7V ~ 3.6V	45ns(max.)
		2.4V ~ 2.7V	70ns(max.)		2.4V ~ 2.7V	55ns(max.)
Output enable to output valid	tOE	2.7V ~ 3.6V	30ns(max.)	tOE	2.7V ~ 3.6V	22ns(max.)
		2.4V ~ 2.7V	35ns(max.)		2.4V ~ 2.7V	30ns(max.)
Output hold from adress change	tOH	2.7V ~ 3.6V	10ns(min.)	tOH	2.7V ~ 3.6V	<--
		2.4V ~ 2.7V	10ns(min.)		2.4V ~ 2.7V	<--
LB#, UB# access time	tBA	2.7V ~ 3.6V	55ns(max.)	tBA	2.7V ~ 3.6V	45ns(max.)
		2.4V ~ 2.7V	70ns(max.)		2.4V ~ 2.7V	55ns(max.)
Chip select to output in low-Z	tCLZ1/tCLZ2/tCLZ	2.7V ~ 3.6V	10ns(min.)	tCLZ1/tCLZ2/tCLZ	2.7V ~ 3.6V	<--
		2.4V ~ 2.7V	10ns(min.)		2.4V ~ 2.7V	<--
LB#, UB# disable to low-Z	tBLZ	2.7V ~ 3.6V	5ns(min.)	tBLZ	2.7V ~ 3.6V	<--
		2.4V ~ 2.7V	5ns(min.)		2.4V ~ 2.7V	<--
Output enable to output in low-Z	tOLZ	2.7V ~ 3.6V	5ns(min.)	tOLZ	2.7V ~ 3.6V	<--
		2.4V ~ 2.7V	5ns(min.)		2.4V ~ 2.7V	<--
Chip deselect to output in high-Z	tCHZ1/tCHZ2/tCHZ	2.7V ~ 3.6V	0ns(min.)/20ns(max.)	tCHZ1/tCHZ2/tCHZ	2.7V ~ 3.6V	0ns(min.)/18ns(max.)
		2.4V ~ 2.7V	0ns(min.)/25ns(max.)		2.4V ~ 2.7V	0ns(min.)/20ns(max.)
LB#, UB# disable to high-Z	tBHZ	2.7V ~ 3.6V	0ns(min.)/20ns(max.)	tBHZ	2.7V ~ 3.6V	0ns(min.)/18ns(max.)
		2.4V ~ 2.7V	0ns(min.)/25ns(max.)		2.4V ~ 2.7V	0ns(min.)/20ns(max.)
Output disable to output in high-Z	tOHZ	2.7V ~ 3.6V	0ns(min.)/20ns(max.)	tOHZ	2.7V ~ 3.6V	0ns(min.)/18ns(max.)
		2.4V ~ 2.7V	0ns(min.)/25ns(max.)		2.4V ~ 2.7V	0ns(min.)/20ns(max.)

(Note3) The values of "A" version in the above table are based on the “5SI” parts (access time: “55ns”).

Appendix 3: Comparison of Electrical Characteristic Specifications (cont.)

Write Cycle

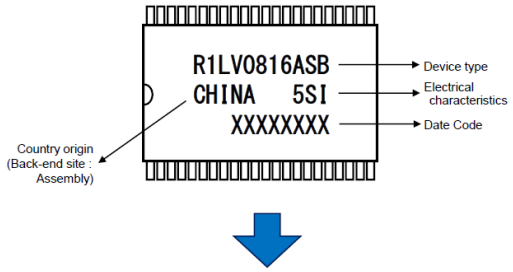
Item	Symbol	R1LV08**A series (Note3)		Symbol	RMLV08**B series	
Write cycle time	tWC	2.7V ~ 3.6V	55ns(min.)	tWC	2.7V ~ 3.6V	45ns(min.)
		2.4V ~ 2.7V	70ns(min.)		2.4V ~ 2.7V	55ns(min.)
Address valid to end of write time	tAW	2.7V ~ 3.6V	50ns(min.)	tAW	2.7V ~ 3.6V	35ns(min.)
		2.4V ~ 2.7V	65ns(min.)		2.4V ~ 2.7V	50ns(min.)
Chip select to end of write	tCW	2.7V ~ 3.6V	50ns(min.)	tCW	2.7V ~ 3.6V	35ns(min.)
		2.4V ~ 2.7V	65ns(min.)		2.4V ~ 2.7V	50ns(min.)
Write pulse width	tWP	2.7V ~ 3.6V	40ns(min.)	tWP	2.7V ~ 3.6V	35ns(min.)
		2.4V ~ 2.7V	55ns(min.)		2.4V ~ 2.7V	40ns(min.)
LB#, UB# valid to end of write	tBW	2.7V ~ 3.6V	50ns(min.)	tBW	2.7V ~ 3.6V	35ns(min.)
		2.4V ~ 2.7V	65ns(min.)		2.4V ~ 2.7V	50ns(min.)
Address setup time	tAS	2.7V ~ 3.6V	0ns(min.)	tAS	2.7V ~ 3.6V	<--
		2.4V ~ 2.7V	0ns(min.)		2.4V ~ 2.7V	<--
Write recovery time	tWR	2.7V ~ 3.6V	0ns(min.)	tWR	2.7V ~ 3.6V	<--
		2.4V ~ 2.7V	0ns(min.)		2.4V ~ 2.7V	<--
Data to write time overlap	tDW	2.7V ~ 3.6V	25ns(min.)	tDW	2.7V ~ 3.6V	<--
		2.4V ~ 2.7V	35ns(min.)		2.4V ~ 2.7V	25ns(min.)
Data hold from write time	tDH	2.7V ~ 3.6V	0ns(min.)	tDH	2.7V ~ 3.6V	<--
		2.4V ~ 2.7V	0ns(min.)		2.4V ~ 2.7V	<--
Output enable from end of write	tOW	2.7V ~ 3.6V	5ns(min.)	tOW	2.7V ~ 3.6V	<--
		2.4V ~ 2.7V	5ns(min.)		2.4V ~ 2.7V	<--
Output disable to output in high-Z	tOHZ	2.7V ~ 3.6V	0ns(min.)/20ns(max.)	tOHZ	2.7V ~ 3.6V	0ns(min.)/18ns(max.)
		2.4V ~ 2.7V	0ns(min.)/25ns(max.)		2.4V ~ 2.7V	0ns(min.)/20ns(max.)
Write to output in high-Z	tWHZ	2.7V ~ 3.6V	0ns(min.)/20ns(max.)	tWHZ	2.7V ~ 3.6V	0ns(min.)/18ns(max.)
		2.4V ~ 2.7V	0ns(min.)/25ns(max.)		2.4V ~ 2.7V	0ns(min.)/20ns(max.)

(Note3) The values of "A" version in the above table are based on the “5SI” parts (access time: “55ns”).

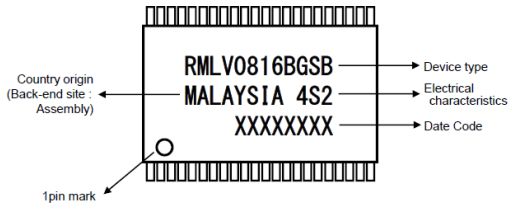
Appendix 4: Package Outline Comparison

(1) 44pin TSOP(II) x16 :

EOL product : R1LV0816ASB (Assembly factory : Renesas Semiconductor Beijing)



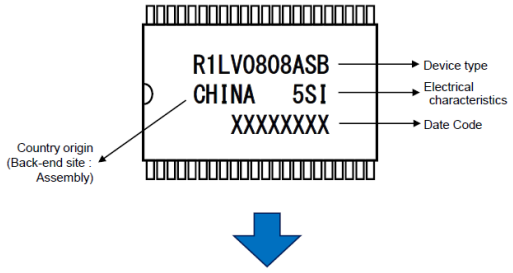
Replacement product : RMLV0816BGSB (Assembly factory : Amkor Malaysia)



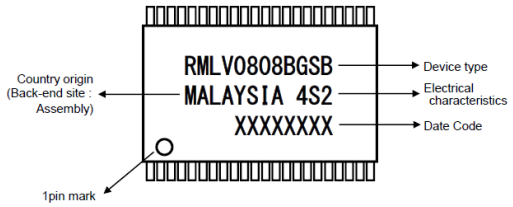
Appendix 4: Package Outline Comparison (cont.)

(2) 44pin TSOP(II) x8 :

EOL product : R1LV0808ASB (Assembly factory : Renesas Semiconductor Beijing)

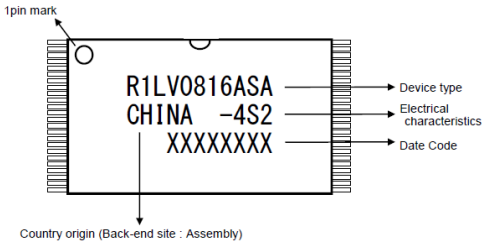


Replacement product : RMLV0808BGSB (Assembly factory : Amkor Malaysia)

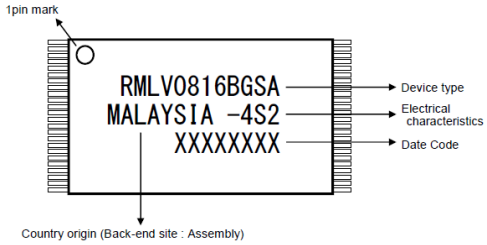


(3) 48pin TSOP(I) :

EOL product : R1LV0816ASA
(Assembly factory : Renesas Semiconductor Beijing)



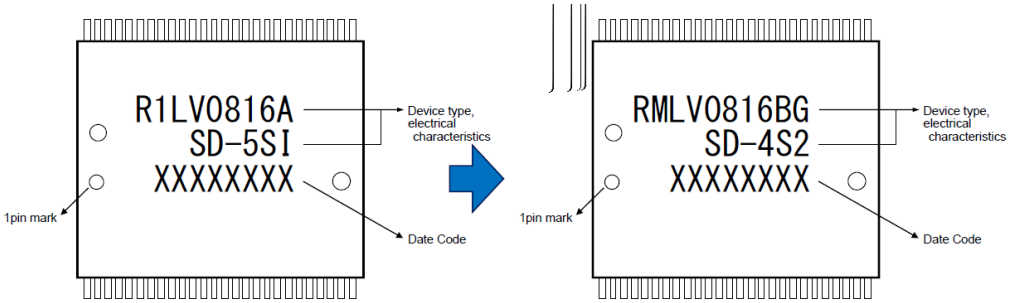
Replacement product : RMLV0816BGSA
(Assembly factory : Amkor Malaysia)



(4) 52pin μTSOP(II) :

EOL product : R1LV0816ASD
(Assembly factory : Renesas Semiconductor Beijing)

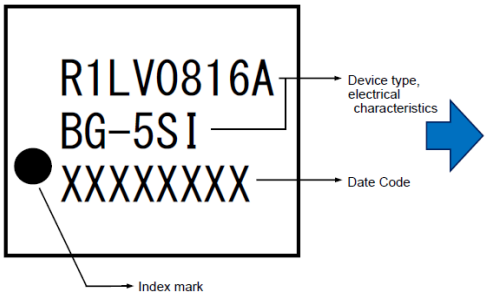
Replacement product : RMLV0816BGSD
(Assembly factory : Renesas Semiconductor Beijing)



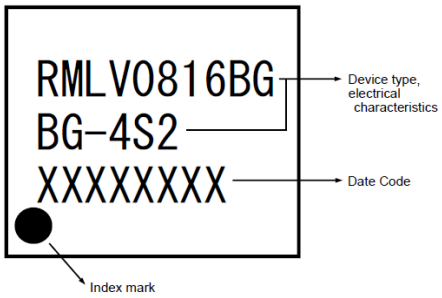
Appendix 4: Package Outline Comparison (cont.)

(5) 48ball FBGA :

EOL product : R1LV0816ABG
(Assembly factory : J-Devices Kumamoto District)



Replacement product : RMLV0816BGBG
(Assembly factory : J-Devices Kumamoto District)



Booking Part Number	REA Action	REA Group	Replacement PN	Notification #	LTB	LTS	Notes for Sales (Not for Customers)
R1LV0808ASB-5SI#B0	PCN	A&P	RMLV0808BGSB-4S2#AA0	P1508026	12-15-2016	06-15-2017	Generation change from "A" version to new "B" version
R1LV0808ASB-5SI#S0	PCN	A&P	RMLV0808BGSB-4S2#HA0	P1508026	12-15-2016	06-15-2017	Generation change from "A" version to new "B" version
R1LV0808ASB-7SI#B0	PCN	A&P	RMLV0808BGSB-4S2#AA0	P1508026	12-15-2016	06-15-2017	Generation change from "A" version to new "B" version
R1LV0808ASB-7SI#S0	PCN	A&P	RMLV0808BGSB-4S2#HA0	P1508026	12-15-2016	06-15-2017	Generation change from "A" version to new "B" version
R1LV0816ABG-5SI#B0	PCN	A&P	RMLV0816BGBG-4S2#AC0	P1508026	12-15-2016	06-15-2017	Generation change from "A" version to new "B" version
R1LV0816ABG-5SI#S0	PCN	A&P	RMLV0816BGBG-4S2#KC0	P1508026	12-15-2016	06-15-2017	Generation change from "A" version to new "B" version
R1LV0816ABG-7SI#B0	PCN	A&P	RMLV0816BGBG-4S2#AC0	P1508026	12-15-2016	06-15-2017	Generation change from "A" version to new "B" version
R1LV0816ABG-7SI#S0	PCN	A&P	RMLV0816BGBG-4S2#KC0	P1508026	12-15-2016	06-15-2017	Generation change from "A" version to new "B" version
R1LV0816ASA-5SI#B0	PCN	A&P	RMLV0816BGSA-4S2#AA0	P1508026	12-15-2016	06-15-2017	Generation change from "A" version to new "B" version
R1LV0816ASA-5SI#S0	PCN	A&P	RMLV0816BGSA-4S2#KA0	P1508026	12-15-2016	06-15-2017	Generation change from "A" version to new "B" version
R1LV0816ASA-7SI#B0	PCN	A&P	RMLV0816BGSA-4S2#AA0	P1508026	12-15-2016	06-15-2017	Generation change from "A" version to new "B" version
R1LV0816ASA-7SI#S0	PCN	A&P	RMLV0816BGSA-4S2#KA0	P1508026	12-15-2016	06-15-2017	Generation change from "A" version to new "B" version
R1LV0816ASB-5SI#B0	PCN	A&P	RMLV0816BGSB-4S2#AA0	P1508026	12-15-2016	06-15-2017	Generation change from "A" version to new "B" version
R1LV0816ASB-5SI#S0	PCN	A&P	RMLV0816BGSB-4S2#HA0	P1508026	12-15-2016	06-15-2017	Generation change from "A" version to new "B" version
R1LV0816ASB-5SK#B0	PCN	A&P	RMLV0816BGSB-4S2#AA0	P1508026	12-15-2016	06-15-2017	Generation change from "A" version to new "B" version
R1LV0816ASB-7SI#B0	PCN	A&P	RMLV0816BGSB-4S2#AA0	P1508026	12-15-2016	06-15-2017	Generation change from "A" version to new "B" version
R1LV0816ASB-7SI#S0	PCN	A&P	RMLV0816BGSB-4S2#HA0	P1508026	12-15-2016	06-15-2017	Generation change from "A" version to new "B" version
R1LV0816ASD-5SI#B0	PCN	A&P	RMLV0816BGSD-4S2#AC0	P1508026	12-15-2016	06-15-2017	Generation change from "A" version to new "B" version
R1LV0816ASD-5SI#S0	PCN	A&P	RMLV0816BGSD-4S2#HC0	P1508026	12-15-2016	06-15-2017	Generation change from "A" version to new "B" version
R1LV0816ASD-7SI#B0	PCN	A&P	RMLV0816BGSD-4S2#AC0	P1508026	12-15-2016	06-15-2017	Generation change from "A" version to new "B" version
R1LV0816ASD-7SI#S0	PCN	A&P	RMLV0816BGSD-4S2#HC0	P1508026	12-15-2016	06-15-2017	Generation change from "A" version to new "B" version