

To our customers,

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## Old Company Name in Catalogs and Other Documents

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On April 1<sup>st</sup>, 2010, NEC Electronics Corporation merged with Renesas Technology Corporation, and Renesas Electronics Corporation took over all the business of both companies. Therefore, although the old company name remains in this document, it is a valid Renesas Electronics document. We appreciate your understanding.

Renesas Electronics website: <http://www.renesas.com>

April 1<sup>st</sup>, 2010  
Renesas Electronics Corporation

Issued by: Renesas Electronics Corporation (<http://www.renesas.com>)

Send any inquiries to <http://www.renesas.com/inquiry>.

# RENESAS TECHNICAL UPDATE

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 RenesasTechnology Corp.

Product Category	Package	Document No.	TN-PKG-A101A/E	Rev.	1.0
Title	Changing the plating composition on the lead terminals (Lead-free)		Information Category	Package Change	
Applicable Product	Refer to page 2 of 2	Lot No.	Reference Document	-	
		All			

## 1. Contents

### (1) Changing the plating composition on the lead terminals

Changing Sn-Pb to lead (Pb)-free

Lead-free plating material/composition varies depending on the package types. See next page.

See below URL in Renesas HP which describes our recommended reflow profile on SMD.

[http://documentation.renesas.com/eng/products/others/rej01k0001\\_leadfree.pdf](http://documentation.renesas.com/eng/products/others/rej01k0001_leadfree.pdf)

Lead(Pb)-free products have the same electrical characteristics and reliability as the existing non-lead-free ones.

There is no problem when you make lead(Pb)-free parts assemble with both lead(Pb)-free soldering and non-lead-free (Sn-Pb) soldering.

### (2) Changing indication of label

a) 'Pb-Free T.' should be indicated in the label on the reel and inner box shipping the lead(Pb)-free products.

b) Column D/N is the Renesas internal code and should be indicated like "XXX-E" in case of former Hitachi products, adding suffix B,C,D,E,F or G in case of former Mitsubishi products.

See below URL regarding indication of lead(Pb)-free product name and label.

[http://www.renesas.com/media/products/common\\_info/package/pdf/leadfree\\_type\\_id.pdf](http://www.renesas.com/media/products/common_info/package/pdf/leadfree_type_id.pdf)

## 2.Reason for changing

Reducing environment pollution and compliance with RoHS directive

RoHS: Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment

## 3. Schedule for changing over

Lead(Pb)-free massproduction will be started thoroughly from January 1,2006.

Please be aware that non-lead-free and lead(Pb)-free products may be shipped in advance and onwards, due to the inventory of them.

## 4. Applicable packages and products

See Page 2 of 2.

## 5. Others

Please contact below if you ask some questions, reliability report and additional documents.

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Renesas /applicable packages for lead(Pb)-free

Product families	PKG	Renesas PKG code after lead-free(note)	PKG abbreviation	terminal pins	terminal plating after lead-free	remarks	applicable products/PKG code	
Transistors	SMD	CMPFAK-6V	CMPFAK-6	6	Sn-2Bi		See Renesas HP below: Products:http://www.renesas.com/jp/transistor PKG:http://www.renesas.com/jpn/products/package/pkg_trans.html	
		CMPAKV	CMPAK	3	Sn-2Bi			
		CMPAK-4V	CMPAK-4	4	Sn-2Bi			
		CMPAK-6V	CMPAK-6	6	Sn-2Bi			
		DPAK(S)V	DPAK(S)	3	Sn-2Bi			
		EMPPAK-6V	EMPPAK-6	6	Sn-2Bi			
		ESPAKV	ESPAK	3	Sn-2Bi			
		FP-8DAV	JEDEC SOP-8	8	Ni/Pd/Au	JEDEC type		
		LDPAK(S)V	LDPAK(S)	3	Sn-2Bi			
		LDPAK(S)-(1)	LDPAK(S)-(1)	3	Sn-2Bi			
		MPPAKV	MPPAK	3	Sn-2Bi			
		MPPAK-4V	MPPAK-4	4	Sn-2Bi			
		MPAKV	MPAK	3	Sn-2Bi			
		MPAK-4V	MPAK-4	4	Sn-2Bi			
		RP8PV	RP8P	3	Sn-2Bi			
		TSOP-6V	TSOP-6	6	Sn-2Bi			
		TTP-8DV	TSSOP-8	8	Ni/Pd/Au			
		UPAKV	UPAK	3	Sn-2Bi			
		SOP-8	SOP-8	8	Sn-1.5Cu			
		TSSOP-8	TSSOP-8	8	Sn-1.5Cu			
	TO-220S	TO-220S	3	Sn-1.5Cu				
	SOT-89	SOT-89	3	Sn-2Bi				
	SC-59	SC-59	3	Sn-2Bi				
	MP-3A	MP-3A	3	Sn				
	THD	DPK(L)V	DPK(L)	3	Sn-2Bi			
		DPK-L(3)	DPK-L(3)	3	Sn-2Bi			
		LDPK(L)V	LDPK(L)	3	Sn-2Bi			
		TO-220ABV	TO-220AB	3	Sn-0.7Cu*	*dipping		
		TO-220	TO-220	3	Sn-0.7Cu*			
		TO-220C-FMV	TO-220C-FM	3	Sn-0.7Cu*			
		TO-220FMV	TO-220FM	3	Sn-0.7Cu*			
		TO-3PV/TO-3P	TO-3P	3	Sn-0.7Cu*			
		TO-3PFMV	TO-3PFM	3	Sn-0.7Cu*			
TO-3PLV/TO-3PL		TO-3PL	3	Sn-0.7Cu*				
TO-92V/TO-92		TO-92	3	Sn-0.7Cu*	available for Cu frames			
TO-92MODV		TO-92MOD	3	Sn-0.7Cu*				
TO-220FN		TO-220FN	3	Sn-0.7Cu*				
Diodes	SMD	CMPAKV	CMPAK	34	Sn-2Bi		See Renesas HP below: Products:http://www.renesas.com/jp/diode PKG:http://www.renesas.com/jpn/products/package/pkg_diode.html	
		EPFV	EPF	2	Sn-2Bi			
		MPPAKV	MPPAK	3	Sn-2Bi			
		MOPV	MOP	8	Sn-2Bi			
		MPAKV	MPAK	35	Sn-2Bi			
		SFPV	SFP	2	Sn-2Bi			
		SRPV	SRP	2	Sn-2Bi			
		TEFPV	TEFP	2	Sn-2Bi			
		UFV	UF	2	Sn-2Bi			
		URPV	URP	2	Sn-2Bi			
	THD	DO-41V	DO-41	2	Sn-0.7Cu*	*dipping		
		DO-35V	DHD	2	Sn-0.7Cu*			
		DO-34V	MHD	2	Sn-0.7Cu*			
	LLDV	LLD	2	Sn	Spec J available in Jul. 2005			
Standard Logics	SMD	TBS-5/6/8V or AV	WCSP	5/6/8 Ball	Sn-Ag-Cu		See Renesas HP below: Products:http://www.renesas.com/jp/logic PKG:http://www.renesas.com/jpn/products/package/pkg_ic.html	
		TBS-5/6/8CV	WCSP0711/0715	5/6/8 Ball	Sn-Ag			
		TNP-5DV	VSON-5	5	Sn-2Bi			
		CMPAK-5/6V	CMPAK	5/6	Sn-2Bi			
		TTP-8DBV	SSOP-8	8	Sn-2Bi			
		FP-8DGV/14DAV/16DAV/20DAV	SOP	8,14,16,20	Ni/Pd/Au	JEITA type		
		FP-8DCV/14DNV/16DNV/20DBV	SOP	8,14,16,20	Ni/Pd/Au	JEDEC type		
		FTP-14DV/16DAV/20DAV	TSSOP	14,16,20	Ni/Pd/Au			
		FTP-24DBV/48DBV/56DAV/64DV	TSSOP	24,48,56,64	Ni/Pd/Au			
		FTP-48DBV/56DBV/80DV	TVSOP	48,56,80	Ni/Pd/Au			
		DP-14/16/20	DILP	14,16,20	Ni/Pd/Au			
		THD	FP-8DGV/14DAV/16DAV/20DAV	SOP(JEITA)	8,14,16,20	Ni/Pd/Au		JEITA type
	FP-8DCV/14DNV		SOP(JEDEC)	8,14	Ni/Pd/Au	JEDEC type		
Standard Linear Ics	SMD	CMPAK-5V	CMPAK-5	5	Sn-2Bi		See Renesas HP below: Products:http://www.renesas.com/jp/linear PKG:http://www.renesas.com/jpn/products/package/pkg_ic.html	
		MPAKV/MPAK-5V	MPAK	35	Sn-2Bi			
		TTP-8DV	TSSOP	8	Ni/Pd/Au			
		UPAKV	UPAK	3	Sn-2Bi			
		003P2	SOT-89	3	Sn-2Bi			
		003P2A	SOT-23	3	Sn-2Bi			
		005P2X	SOT-25	5	Sn-2Bi			
		008P2S	SOP-8	8	Sn-1.5Cu			
		008P2X	SOP-8	8	Sn-2.5Ag			
		014P2S	SOP-14	14	Sn-1.5Cu			
		THD	DP-8FV/14AV/16FV	DILP	8,14,16	Ni/Pd/Au		
			TO-92V	TO-92	3	Sn-0.7Cu*		*dipping
	TO-92MV		TO-92M	3	Sn-0.7Cu*			
	003P5		TO-92L	3	Sn-2Bi			
	005P5T		SIP-5	5	Sn-1.5Cu			
	008P5		SIP-8	8	Sn-1.5Cu			
	008P4		DIP-8	8	Sn-1.5Cu			
	016P4		DIP-16	16	Sn-1.5Cu			

SMD:surface-mounted device  
THD:through hole device  
PKG:package

Note)  
Renesas package code was shifted to new code system(Renesas code) from Apr.1,2005,however existing package code system in this column is described because customers are familiar with our traditional package codes.  
Please refer to above URL. for Renesas PKG code.