

RENESAS TECHNICAL UPDATE

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Product Category	MPU/MCU		Document No.	TN-RA*-A0172A/E	Rev.	1.00
Title	Limitations on A/D conversion overflow when using single-ended input		Information Category	Technical Notification		
Applicable Product	RA6T2, RA8P1, RA8D2, RA8M2, RA8T2	Lot No.	Reference Document	User's Manual for each product Hardware (See the last table for detail)		
		All				

Regarding A/D converters in the RA6T2 Group and 16-bit A/D converters in the RA8P1, RA8D2, RA8M2, and RA8T2 Group. This document uses the RA8P1 group as an example. Regarding the number of A/D converter units, channels, etc., please refer to the User's Manual for each product.

1. Phenomenon

When using single-ended input and either the user offset correction function or the A/D conversion value addition/average function, an A/D conversion overflow may not be detected even if the input to the A/D converter falls below VREFL0 (or VREFL).

2. Limitation

A/D conversion overflow limitation with single-ended input

When the input to the A/D converter falls below VREFL on single-ended input mode, to detect A/D conversion overflow, set both the user offset correction function and the A/D conversion value addition/average function disable using the following settings.

1. Disable the user offset correction function: Set ADUOFTRn.UOFSET[15:0] to 0x0000.s
2. Disable the A/D conversion value addition/average function: Set ADDOPCRBn.AVEMD[1:0] to 00.

However, if only the user offset correction function is enabled, setting the value corresponding to the undetected code below VREFL to the lower limit register of the limiter clip function (ADLIMTRn.LIML[15:0]) will be able to detect the falls below VREFL by limiter clip interruption.

In addition, the above information will be described in the usage precautions.

【Reference Documents】

Applicable Products	Related Document	Document Number	Chapter number of the Usage Notes
RA6T2	RA6T2 Group User's Manual: Hardware Rev. 1.50	R01UH0951EJ0150	36.10
RA8P1	RA8P1 Group User's Manual: Hardware Rev. 1.30	R01UH1064EJ0130	54.11
RA8T2	RA8T2 Group User's Manual: Hardware Rev. 1.30	R01UH1067EJ0130	52.11
RA8M2	RA8M2 Group User's Manual: Hardware Rev. 1.30	R01UH1066EJ0130	53.11
RA8D2	RA8D2 Group User's Manual: Hardware Rev. 1.30	R01UH1065EJ0130	53.11