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RENESAS TECHNICAL UPDATE

TOYOSU FORESIA, 3-2-24, Toyosu, Koto-ku, Tokyo 135-0061, Japan
Renesas Electronics Corporation

Product Category	MPU/MCU		Document No.	TN-RX*-A0255A/E	Rev.	1.00
Title	Errata to the Electrical Characteristics Regarding the Voltage Reference of RX23E-A Group MCU		Information Category	Technical Notification		
Applicable Product	RX23E-A Group	Lot No. All	Reference Document	RX23E-A Group User's Manual: Hardware Rev.1.10 (R01UH0801EJ0110)		

We notify corrections to the initial accuracy and temperature drift of the voltage reference described in the RX23E-A Group User's Manual: Hardware, Rev.1.10.

• Page 41 of 1426

The output voltage and temperature drift of the voltage reference described in Analog functions in Features are modified as follows.

Before correction

- Voltage reference
  output voltage: 2.5 V ±0.1%,
  temperature drift: 4 ppm/°C, output current: ±10 mA

After correction

- Voltage reference
  output voltage: 2.5 V,
  temperature drift: 10 ppm/°C, output current: ±10 mA

• Page 1096 of 1426

The voltage reference (VREF) described in Table 33.2, AFE Specifications is modified as follows.

Before correction

Voltage reference (VREF)*4	Generated voltage: 2.5 V (±0.1% (max.)) Maximum load current: ±10 mA Output from the REFOUT pin

After correction

Voltage reference (VREF)*4	Generated voltage: 2.5 V Maximum load current: ±10 mA Output from the REFOUT pin

• Page 1403 of 1426

The specifications for initial accuracy and temperature drift in Table 39.58, Voltage Reference Characteristics are modified as follows.

Before correction

Table 39.58 Voltage Reference Characteristics

Conditions: 1.8 V ≤ VCC ≤ 5.5 V, 2.7 V ≤ AVCC0 ≤ 5.5 V, VSS = AVSS0 = 0 V, T_a = –40 to +105°C

Item	Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Output voltage	V_{REFOUT}	—	2.5	—	V	Figure 39.98
Initial accuracy	—	—	—	±0.1	%	Figure 39.99 T_a = 25°C
Temperature drift	—	—	4	10	ppm/°C	T_a = –40 to +85°C
		—	5	12		T_a = –40 to +105°C
Load current	I_L	—	—	±10	mA	
Load regulation	—	—	–35	–50	µV/mA	Figure 39.100 I_L = 0 to +10 mA
		—	250	400		I_L = –10 to 0 mA
Power supply rejection ratio	PSRR	70	80	—	dB	DC

After correction

Table 39.58 Voltage Reference Characteristics

Conditions: 1.8 V ≤ VCC ≤ 5.5 V, 2.7 V ≤ AVCC0 ≤ 5.5 V, VSS = AVSS0 = 0 V, T_a = –40 to +105°C

Item	Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Output voltage	V_{REFOUT}	—	2.5	—	V	Figure 39.98
Initial accuracy	—	—	±0.04	—	%	Figure 39.99 T_a = 25°C
Temperature drift	—	—	10	—	ppm/°C	T_a = –40 to +85°C
		—	10	—		T_a = –40 to +105°C
Load current	I_L	—	—	±10	mA	
Load regulation	—	—	–35	–50	µV/mA	Figure 39.100 I_L = 0 to +10 mA
		—	250	400		I_L = –10 to 0 mA
Power supply rejection ratio	PSRR	70	80	—	dB	DC

• Page 1406 of 1426

Figure 39.98, Temperature Dependence of Output Voltage of Voltage Reference is modified as follows.

Before correction

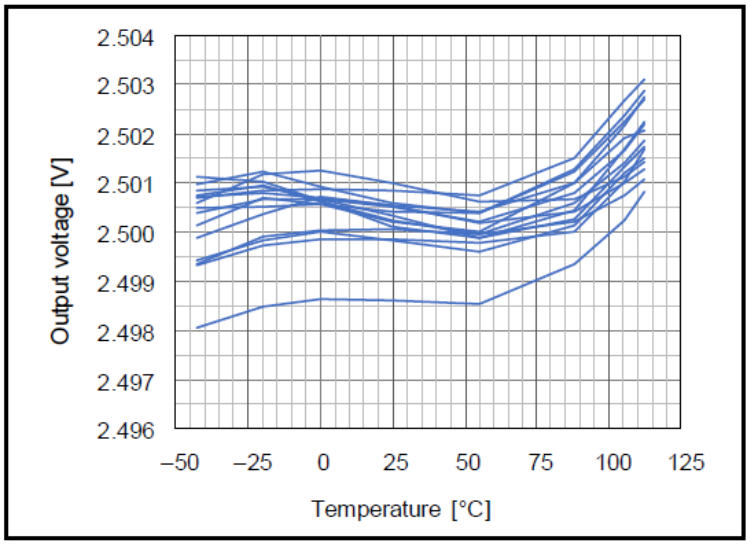

Figure 39.98 Temperature Dependence of Output Voltage of Voltage Reference (AVCC0 = 5.0 V)

After correction

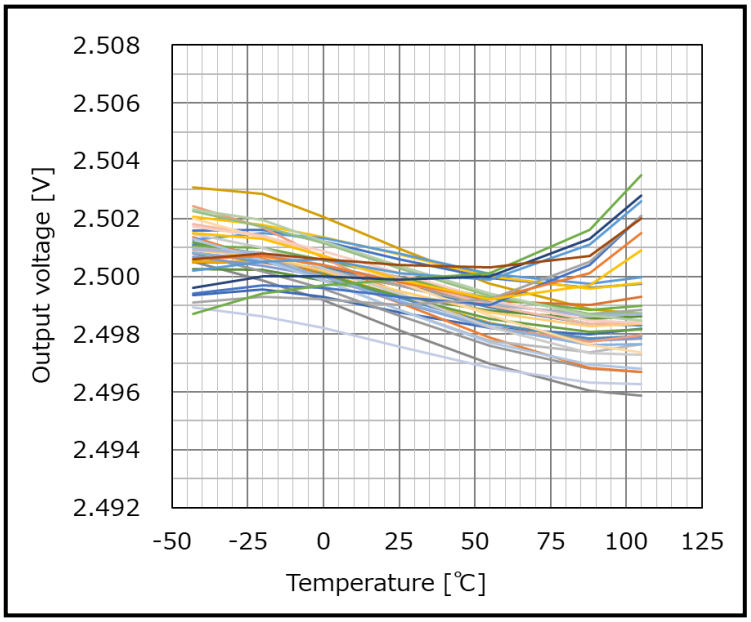

Figure 39.98 Temperature Dependence of Output Voltage of Voltage Reference (AVCC0 = 5.0 V)

• Page 1406 of 1426

Figure 39.99, Initial Accuracy of Voltage Reference is modified as follows.

Before correction

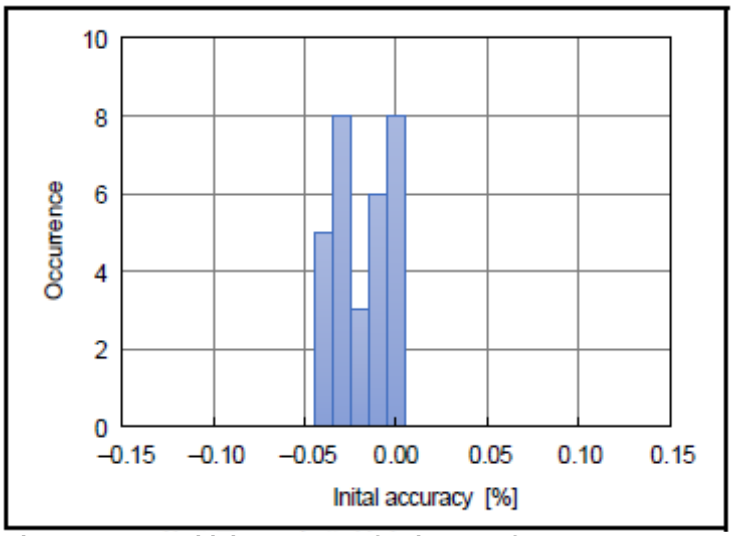

Figure 39.99 Initial Accuracy of Voltage Reference (AVCC0 = 5.0 V, 30 samples)

After correction

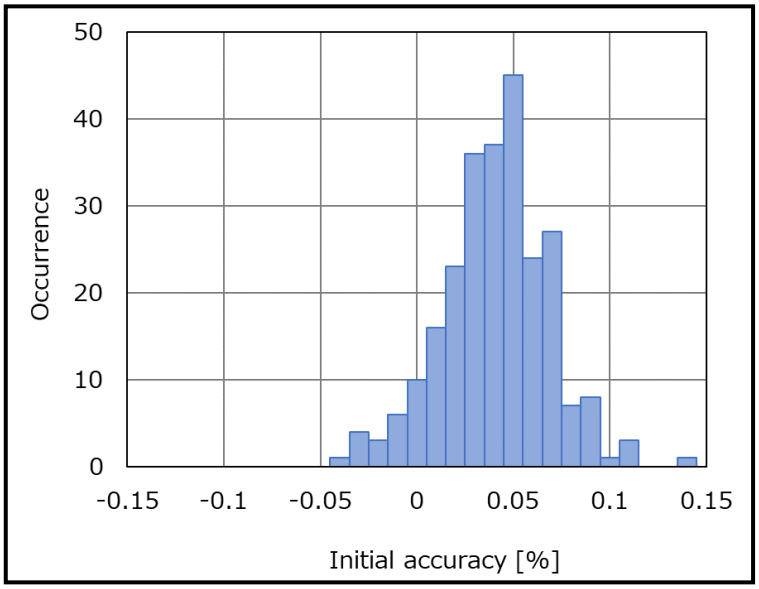

Figure 39.99 Initial Accuracy of Voltage Reference (AVCC0 = 5.0 V)