CY8C28243, CY8C28403, CY8C28413, CY8C28433, CY8C28445, CY8C28452, CY8C28513, CY8C28533, CY8C28545, CY8C28623, CY8C28643, CY8C28645

March 2009

Silicon Errata for CY8C28243, CY8C28403, CY8C28413, CY8C28433, CY8C28445, CY8C28452, CY8C28513, CY8C28533, CY8C28545, CY8C28623, CY8C28643, CY8C28645

This document describes the errata for CY8C28243, CY8C28403, CY8C28413, CY8C28433, CY8C28445, CY8C28452, CY8C28513, CY8C28533, CY8C28545, CY8C28623, CY8C28643, CY8C28645 PSoC devices. Details include errata trigger conditions, scope of impact, available workarounds, and silicon revision applicability. Compare this document to the device's data sheet for a complete functional description.

Please contact your local Cypress Sales Representative if you have questions.

Part Numbers Affected

Part Number	Device Characteristics
CY8C28403	All Variants
CY8C28243	All Variants
CY8C28413	All Variants
CY8C28433	All Variants
CY8C28445	All Variants
CY8C28513	All Variants
CY8C28533	All Variants
CY8C28545	All Variants
CY8C28643	All Variants
CY8C28645	All Variants
CY8C28452	All Variants
CY8C28623	All Variants

Qualification Status

Engineering Samples

Errata Summary

The following table defines the errata applicability to CY8C28xxx devices.

Note Each erratum in the table below is hyperlinked. Click on the item entry to jump to its description.

Items	MPN	Silicon Revision	Fix Status
10-bit SAR ADC does not meet DNL/INL specification.	**CY8C28403 CY8C28413 CY8C28513 CY8C28433 CY8C28533 CY8C28243 CY8C28643 CY8C28445 CY8C28545 CY8C28645**	**ES10**	**Silicon fix planned before full device production starts.**
Wrong data read from IDAC_CRx and DACx_D registers	**CY8C28413 CY8C28513 CY8C28433 CY8C28533 CY8C28445 CY8C28545 CY8C28645 CY8C28452**	**ES10**	**Silicon fix planned before full device production starts.**

1. 10-bit SAR ADC does not meet DNL/INL specification.

- **PROBLEM DEFINITION**
  The 10-bit hardware SAR ADC does not meet datasheet accuracy specifications for DNL and INL under some conditions.

- **PARAMETERS AFFECTED**
  INL_{SAR10}: Integral nonlinearity
  DNL_{SAR10}: Differential nonlinearity

- **TRIGGER CONDITION(S)**
  The SAR ADC DNL has been measured greater than 2 LSB over temperature in all cases, as compared to the datasheet specification of 1.5 LSB.

  When using the VPWR (Vdd) reference configuration, the SAR ADC DNL has been measured over temperature at 2 LSB for a supply voltage of 3.3V. With a supply voltage of 5.5V, the DNL has been measured greater than 3.5 LSB.

- **SCOPE OF IMPACT**
  Inaccurate converted data.

- **WORKAROUND**
  1) Use an alternate ADC implementation (DelSig, ADCINC) available in CY8C28xxx devices.
  2) Avoid CPU operations that change the address and data buses while A-D conversion is running with internal Vpwr (Vdd) as Vref.
  3) Use un-buffered RefHi as ADC Vref. This may have a negative effect on the analog blocks in the analog array due to the noise introduced on RefHi reference.

- **FIX STATUS**
  Silicon fix is planned before full device production starts.

2. Wrong data read from IDAC_CRx and DACx_D registers.

- **PROBLEM DEFINITION**
  The CPU may read an incorrect value of bits 0, 3, 5, or 7 from the following registers:
  1. IDAC_CR0
  2. IDAC_CR1
  3. DAC0_D
  4. DAC1_D

- **PARAMETERS AFFECTED**
  F_{CPU1} and F_{CPU2} from the device data sheet.

- **TRIGGER CONDITION(S)**
  When CPU Clock is set at its highest frequency setting (24 MHz nominal).

- **SCOPE OF IMPACT**
  Incorrect data read from affected registers.

- **WORKAROUND**
  Temporarily slow down CPU Clock frequency to 12 MHz nominal (or lower) when affected registers are read.

References

[1] Document # 001-48111, CY8C28243, CY8C28403, CY8C28413, CY8C28433, CY8C28445, CY8C28452, CY8C28513, CY8C28533, CY8C28545, CY8C28623, CY8C28643, CY8C28645, PSoC® Programmable System-on-Chip™ Data sheet

[2] Document # 001-46339, CY8C28243, CY8C28403, CY8C28413, CY8C28433, CY8C28445, CY8C28452, CY8C28513, CY8C28533, CY8C28545, PSoC® Programmable System-on-Chip™ Data sheet

Document History Page

Document Title: Silicon Errata for CY8C28243, CY8C28403, CY8C28413, CY8C28433, CY8C28445, CY8C28452, CY8C28513, CY8C28533, CY8C28545, CY8C28623, CY8C28643, CY8C28645 Document Number: 001-52623			
Rev.	**ECN No.**	**Orig. of Change**	**Description of Change**
**	2679646	HMI	Original release of Errata.

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