

September 16, 2015

Datasheet Errata for the S6E2D3 Series 32-bit ARM® Cortex®-M4F, FM4 Microcontroller

This document describes the errata for the S6E2D3 Series 32-bit ARM® Cortex®-M4F, FM4 Microcontroller. Compare this document to the device's data sheet for a complete functional description.

Contact your local Cypress Sales Representative if you have questions.

Part Numbers Affected

Part Number
S6E2D3 Series

Page	Item	Description
Original document code: DS709-00023-1v0-E		
Rev. 1.0 June 25, 2015		
64	9. Handling Devices	<p>"Sub Crystal Oscillator" should be added as indicated by shading below.</p> <ul style="list-style-type: none"> ■Surface mount type <ul style="list-style-type: none"> Size: More than 3.2 mm × 1.5 mm Load capacitance: Approximately 6 pF to 7 pF When the Standard setting (CCS/CCB=11001110) Load capacitance: Approximately 4 pF to 7 pF When the low power setting (CCS/CCB=00000100) ■Lead type <ul style="list-style-type: none"> Load capacitance: Approximately 6 pF to 7 pF When the Standard setting (CCS/CCB=11001110) Load capacitance: Approximately 4 pF to 7 pF When the low power setting (CCS/CCB=00000100)

Page	Item	Description																																																																						
92	14.3.1 Current Rating	<p>Table 14-10 should be added as indicated by the shading below.</p> <p>Table 14-10 Typical and Maximum Current Consumption in Deep Standby Stop Mode, Deep Standby RTC Mode and VBAT</p> <table border="1"> <thead> <tr> <th rowspan="2">Parameter</th> <th rowspan="2">Symbol</th> <th rowspan="2">Pin Name</th> <th rowspan="2">Conditions</th> <th rowspan="2">Frequency (MHz)</th> <th colspan="2">Value</th> <th rowspan="2">Unit</th> <th rowspan="2">Remarks</th> </tr> <tr> <th>Typ</th> <th>Max</th> </tr> </thead> <tbody> <tr> <td rowspan="9">Power supply current</td> <td rowspan="9">ICCVBAT</td> <td rowspan="9">VBAT</td> <td rowspan="3">RTC stop</td> <td rowspan="9">-</td> <td>0.009</td> <td>0.032</td> <td>μA</td> <td>*3, *4, *5 T_A=+25°C</td> </tr> <tr> <td>-</td> <td>0.994</td> <td>μA</td> <td>*3, *4, *5 T_A=+85°C</td> </tr> <tr> <td>-</td> <td>1.491</td> <td>μA</td> <td>*3, *4, *5 T_A=+105°C</td> </tr> <tr> <td>1.0</td> <td>1.636</td> <td>μA</td> <td>*3, *4 T_A=+25°C</td> </tr> <tr> <td>-</td> <td>2.828</td> <td>μA</td> <td>*3, *4 T_A=+85°C</td> </tr> <tr> <td>-</td> <td>4.242</td> <td>μA</td> <td>*3, *4 T_A=+105°C</td> </tr> <tr> <td>0.7</td> <td>1.153</td> <td>μA</td> <td>*3, *4 T_A=+25°C</td> </tr> <tr> <td>-</td> <td>2.277</td> <td>μA</td> <td>*3, *4 T_A=+85°C</td> </tr> <tr> <td>-</td> <td>3.416</td> <td>μA</td> <td>*3, *4 T_A=+105°C</td> </tr> <tr> <td></td> <td></td> <td></td> <td>RTC *6 operation</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td>RTC *7 operation</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table> <p>*1: V_{CC}=3.3 V *2: V_{CC}=3.6 V *3: When all ports are fixed. *4: When LVD is OFF *5: When sub oscillation is OFF *6: When using the crystal oscillator of 32 kHz (including the current consumption of the oscillation circuit) When the Standard setting (CCS/CCB=11001110) *7: When using the crystal oscillator of 32 kHz (including the current consumption of the oscillation circuit) When the low power setting (CCS/CCB=00000100)</p>	Parameter	Symbol	Pin Name	Conditions	Frequency (MHz)	Value		Unit	Remarks	Typ	Max	Power supply current	ICCVBAT	VBAT	RTC stop	-	0.009	0.032	μA	*3, *4, *5 T _A =+25°C	-	0.994	μA	*3, *4, *5 T _A =+85°C	-	1.491	μA	*3, *4, *5 T _A =+105°C	1.0	1.636	μA	*3, *4 T _A =+25°C	-	2.828	μA	*3, *4 T _A =+85°C	-	4.242	μA	*3, *4 T _A =+105°C	0.7	1.153	μA	*3, *4 T _A =+25°C	-	2.277	μA	*3, *4 T _A =+85°C	-	3.416	μA	*3, *4 T _A =+105°C				RTC *6 operation									RTC *7 operation					
Parameter	Symbol	Pin Name						Conditions	Frequency (MHz)			Value							Unit	Remarks																																																				
			Typ	Max																																																																				
Power supply current	ICCVBAT	VBAT	RTC stop	-	0.009	0.032	μA	*3, *4, *5 T _A =+25°C																																																																
					-	0.994	μA	*3, *4, *5 T _A =+85°C																																																																
					-	1.491	μA	*3, *4, *5 T _A =+105°C																																																																
			1.0		1.636	μA	*3, *4 T _A =+25°C																																																																	
			-		2.828	μA	*3, *4 T _A =+85°C																																																																	
			-		4.242	μA	*3, *4 T _A =+105°C																																																																	
			0.7		1.153	μA	*3, *4 T _A =+25°C																																																																	
			-		2.277	μA	*3, *4 T _A =+85°C																																																																	
			-		3.416	μA	*3, *4 T _A =+105°C																																																																	
			RTC *6 operation																																																																					
			RTC *7 operation																																																																					

Page	Item	Description																						
176	15. Ordering Information	<p>Ordering Information should be corrected as indicated by the shading below.</p> <p>(Error)</p> <table border="1" data-bbox="560 386 1370 680"> <thead> <tr> <th data-bbox="560 386 862 428">Part Number</th> <th data-bbox="862 386 1370 428">Package</th> </tr> </thead> <tbody> <tr> <td data-bbox="560 428 862 470">S6E2D35G0AGV20000</td> <td data-bbox="862 428 1370 491" rowspan="2">Plastic · LQFP (0.5 mm pitch), 120 pin (FPT-120P-M21)</td> </tr> <tr> <td data-bbox="560 470 862 512">S6E2D35GJAMV20000</td> </tr> <tr> <td data-bbox="560 512 862 554">S6E2D35J0AGV20000</td> <td data-bbox="862 512 1370 554">Plastic · LQFP (0.5 mm pitch), 176 pin (FPT-176P-M07)</td> </tr> <tr> <td data-bbox="560 554 862 617">S6E2D35G0AGB30000</td> <td data-bbox="862 554 1370 617">Plastic · PFBGA (0.5 mm pitch), 161 pin (FDJ161)</td> </tr> <tr> <td data-bbox="560 617 862 680">S6E2D35G0AGZ20000</td> <td data-bbox="862 617 1370 680">Plastic · Ex-LQFP (0.5 mm pitch), 120 pin (LEM120)</td> </tr> </tbody> </table> <p>(Correct)</p> <table border="1" data-bbox="560 743 1370 1037"> <thead> <tr> <th data-bbox="560 743 862 785">Part Number</th> <th data-bbox="862 743 1370 785">Package</th> </tr> </thead> <tbody> <tr> <td data-bbox="560 785 862 827">S6E2D35G0AGV20000</td> <td data-bbox="862 785 1370 848" rowspan="2">Plastic · LQFP (0.5 mm pitch), 120 pin (FPT-120P-M21)</td> </tr> <tr> <td data-bbox="560 827 862 869">S6E2D35GJAMV20000</td> </tr> <tr> <td data-bbox="560 869 862 911">S6E2D35J0AGV20000</td> <td data-bbox="862 869 1370 911">Plastic · LQFP (0.5 mm pitch), 176 pin (FPT-176P-M07)</td> </tr> <tr> <td data-bbox="560 911 862 974">S6E2D35G0AGB30000</td> <td data-bbox="862 911 1370 974">Plastic · PFBGA (0.5 mm pitch), 161 pin (FDJ161)</td> </tr> <tr> <td data-bbox="560 974 862 1037">S6E2D35G0AGE20000</td> <td data-bbox="862 974 1370 1037">Plastic · Ex-LQFP (0.5 mm pitch), 120 pin (LEM120)</td> </tr> </tbody> </table>	Part Number	Package	S6E2D35G0AGV20000	Plastic · LQFP (0.5 mm pitch), 120 pin (FPT-120P-M21)	S6E2D35GJAMV20000	S6E2D35J0AGV20000	Plastic · LQFP (0.5 mm pitch), 176 pin (FPT-176P-M07)	S6E2D35G0AGB30000	Plastic · PFBGA (0.5 mm pitch), 161 pin (FDJ161)	S6E2D35G0AGZ20000	Plastic · Ex-LQFP (0.5 mm pitch), 120 pin (LEM120)	Part Number	Package	S6E2D35G0AGV20000	Plastic · LQFP (0.5 mm pitch), 120 pin (FPT-120P-M21)	S6E2D35GJAMV20000	S6E2D35J0AGV20000	Plastic · LQFP (0.5 mm pitch), 176 pin (FPT-176P-M07)	S6E2D35G0AGB30000	Plastic · PFBGA (0.5 mm pitch), 161 pin (FDJ161)	S6E2D35G0AGE20000	Plastic · Ex-LQFP (0.5 mm pitch), 120 pin (LEM120)
Part Number	Package																							
S6E2D35G0AGV20000	Plastic · LQFP (0.5 mm pitch), 120 pin (FPT-120P-M21)																							
S6E2D35GJAMV20000																								
S6E2D35J0AGV20000	Plastic · LQFP (0.5 mm pitch), 176 pin (FPT-176P-M07)																							
S6E2D35G0AGB30000	Plastic · PFBGA (0.5 mm pitch), 161 pin (FDJ161)																							
S6E2D35G0AGZ20000	Plastic · Ex-LQFP (0.5 mm pitch), 120 pin (LEM120)																							
Part Number	Package																							
S6E2D35G0AGV20000	Plastic · LQFP (0.5 mm pitch), 120 pin (FPT-120P-M21)																							
S6E2D35GJAMV20000																								
S6E2D35J0AGV20000	Plastic · LQFP (0.5 mm pitch), 176 pin (FPT-176P-M07)																							
S6E2D35G0AGB30000	Plastic · PFBGA (0.5 mm pitch), 161 pin (FDJ161)																							
S6E2D35G0AGE20000	Plastic · Ex-LQFP (0.5 mm pitch), 120 pin (LEM120)																							

Page	Item	Description																																																
10	2. Features	<p>Note should be added as indicated by the shading below.</p> <p>(Error)</p> <p>GDC Unit</p> <ul style="list-style-type: none"> ■ Controller for external graphics display ■ Accelerator for 2D block image transfer (blit) operations ■ Embedded SRAM video memory ■ High-Speed Quad SPI (Serial Peripheral Interface for external memory extensions) ■ SDRAM interface for external memory extensions ■ HBI (Hyper Bus Interface) interface for external memory extensions ■ Maximum core system clock frequency : 160 MHz <p>(Correct)</p> <p>GDC Unit</p> <ul style="list-style-type: none"> ■ Controller for external graphics display ■ Accelerator for 2D block image transfer (blit) operations ■ Embedded SRAM video memory ■ High-Speed Quad SPI (Serial Peripheral Interface for external memory extensions) ■ SDRAM interface for external memory extensions ■ HBI (Hyper Bus Interface) interface for external memory extensions ■ Maximum core system clock frequency : 160 MHz <p>Note:</p> <ul style="list-style-type: none"> - <i>User can leverage the internal VRAM and external HyperRAM as a graphics memory allowed to be written by GDC.</i> 																																																
15	4. Packages	<p>“Packages” should be corrected as indicated by the shading below.</p> <p>(Error)</p> <table border="1"> <thead> <tr> <th>Product Name</th> <th>S6E2D35G0A</th> <th>S6E2D35J0A</th> <th>S6E2D35GJA</th> </tr> </thead> <tbody> <tr> <td>Package</td> <td></td> <td></td> <td></td> </tr> <tr> <td>LQFP: FPT-120P-M21 (0.5 mm pitch)</td> <td style="text-align: center;">○</td> <td style="text-align: center;">-</td> <td style="text-align: center;">○</td> </tr> <tr> <td>LQFP: FPT-176P-M07 (0.5 mm pitch)</td> <td style="text-align: center;">-</td> <td style="text-align: center;">○</td> <td style="text-align: center;">-</td> </tr> <tr> <td>PFBGA: FDJ161 (0.5 mm pitch)</td> <td style="text-align: center;">○</td> <td style="text-align: center;">-</td> <td style="text-align: center;">-</td> </tr> <tr> <td>Ex_LQFP(TEQFP): LEM120 (0.5 mm pitch)</td> <td style="text-align: center;">○</td> <td></td> <td></td> </tr> </tbody> </table> <p>○: Supported</p> <p>(Correct)</p> <table border="1"> <thead> <tr> <th>Product Name</th> <th>S6E2D35G0A</th> <th>S6E2D35J0A</th> <th>S6E2D35GJA</th> </tr> </thead> <tbody> <tr> <td>Package</td> <td></td> <td></td> <td></td> </tr> <tr> <td>LQFP: FPT-120P-M21 (0.5 mm pitch)</td> <td style="text-align: center;">○</td> <td style="text-align: center;">-</td> <td style="text-align: center;">○</td> </tr> <tr> <td>LQFP: FPT-176P-M07 (0.5 mm pitch)</td> <td style="text-align: center;">-</td> <td style="text-align: center;">○</td> <td style="text-align: center;">-</td> </tr> <tr> <td>FBGA: FDJ161 (0.5 mm pitch)</td> <td style="text-align: center;">○</td> <td style="text-align: center;">-</td> <td style="text-align: center;">-</td> </tr> <tr> <td>Ex_LQFP(TEQFP): LEM120 (0.5 mm pitch)</td> <td style="text-align: center;">■</td> <td style="text-align: center;"> </td> <td style="text-align: center;"> </td> </tr> </tbody> </table> <p>○: Supported ■: In development</p>	Product Name	S6E2D35G0A	S6E2D35J0A	S6E2D35GJA	Package				LQFP: FPT-120P-M21 (0.5 mm pitch)	○	-	○	LQFP: FPT-176P-M07 (0.5 mm pitch)	-	○	-	PFBGA: FDJ161 (0.5 mm pitch)	○	-	-	Ex_LQFP(TEQFP): LEM120 (0.5 mm pitch)	○			Product Name	S6E2D35G0A	S6E2D35J0A	S6E2D35GJA	Package				LQFP: FPT-120P-M21 (0.5 mm pitch)	○	-	○	LQFP: FPT-176P-M07 (0.5 mm pitch)	-	○	-	FBGA: FDJ161 (0.5 mm pitch)	○	-	-	Ex_LQFP(TEQFP): LEM120 (0.5 mm pitch)	■		
Product Name	S6E2D35G0A	S6E2D35J0A	S6E2D35GJA																																															
Package																																																		
LQFP: FPT-120P-M21 (0.5 mm pitch)	○	-	○																																															
LQFP: FPT-176P-M07 (0.5 mm pitch)	-	○	-																																															
PFBGA: FDJ161 (0.5 mm pitch)	○	-	-																																															
Ex_LQFP(TEQFP): LEM120 (0.5 mm pitch)	○																																																	
Product Name	S6E2D35G0A	S6E2D35J0A	S6E2D35GJA																																															
Package																																																		
LQFP: FPT-120P-M21 (0.5 mm pitch)	○	-	○																																															
LQFP: FPT-176P-M07 (0.5 mm pitch)	-	○	-																																															
FBGA: FDJ161 (0.5 mm pitch)	○	-	-																																															
Ex_LQFP(TEQFP): LEM120 (0.5 mm pitch)	■																																																	

Page	Item	Description																																																																																				
16, 18	5. Pin Assignment	Signal name should be corrected as below. (Error) GE_SPCSX_0 (Correct) GE_SPCSX0 (Error) GE_HBCSX_0 (Correct) GE_HBCSX0 (Error) GE_HBCSX_1 (Correct) GE_HBCSX1																																																																																				
21, 23, 48	6. Pin Descriptions	Signal name should be corrected as below. (Error) GE_SPCSX_0 (Correct) GE_SPCSX0 (Error) GE_HBCSX_0 (Correct) GE_HBCSX0 (Error) GE_HBCSX_1 (Correct) GE_HBCSX1																																																																																				
67	10. Block Diagram	Signal name should be corrected as below. (Error) GE_SPCSX_0 (Correct) GE_SPCSX0 (Error) GE_HBCSX_0/1 (Correct) GE_HBCSX0/1																																																																																				
93	14.3 DC Characteristics	<p>“VFLASH memory Standby current” should be corrected as indicated by the shading below.</p> <p>(Error)</p> <table border="1"> <thead> <tr> <th rowspan="2">Parameter</th> <th rowspan="2">Symbol</th> <th rowspan="2">Pin name</th> <th rowspan="2">Conditions</th> <th colspan="3">Value</th> <th rowspan="2">Unit</th> <th rowspan="2">Remarks</th> </tr> <tr> <th>Min</th> <th>Typ</th> <th>Max</th> </tr> </thead> <tbody> <tr> <td>VFLASH memory Standby current</td> <td rowspan="3">I_{CCVFLASH}</td> <td rowspan="3">VCC</td> <td>At Standby</td> <td>-</td> <td>15</td> <td>25</td> <td>μA</td> <td></td> </tr> <tr> <td rowspan="2">VFLASH memory Read current</td> <td>At Read</td> <td>-</td> <td>9</td> <td>14</td> <td rowspan="2">mA</td> <td>40MHz</td> </tr> <tr> <td></td> <td></td> <td>13</td> <td>20</td> <td>80MHz</td> </tr> <tr> <td>VFLASH memory write/erase current</td> <td></td> <td></td> <td>At Write/Erase</td> <td>-</td> <td>20</td> <td>25</td> <td>mA</td> <td></td> </tr> </tbody> </table> <p>(Correct)</p> <table border="1"> <thead> <tr> <th rowspan="2">Parameter</th> <th rowspan="2">Symbol</th> <th rowspan="2">Pin name</th> <th rowspan="2">Conditions</th> <th colspan="3">Value</th> <th rowspan="2">Unit</th> <th rowspan="2">Remarks</th> </tr> <tr> <th>Min</th> <th>Typ</th> <th>Max</th> </tr> </thead> <tbody> <tr> <td>VFLASH memory Standby current</td> <td rowspan="3">I_{CCVFLASH}</td> <td rowspan="3">VCC</td> <td>At Standby</td> <td>-</td> <td>15</td> <td>35</td> <td>μA</td> <td></td> </tr> <tr> <td rowspan="2">VFLASH memory Read current</td> <td>At Read</td> <td>-</td> <td>9</td> <td>14</td> <td rowspan="2">mA</td> <td>40MHz</td> </tr> <tr> <td></td> <td></td> <td>13</td> <td>20</td> <td>80MHz</td> </tr> <tr> <td>VFLASH memory write/erase current</td> <td></td> <td></td> <td>At Write/Erase</td> <td>-</td> <td>20</td> <td>25</td> <td>mA</td> <td></td> </tr> </tbody> </table>	Parameter	Symbol	Pin name	Conditions	Value			Unit	Remarks	Min	Typ	Max	VFLASH memory Standby current	I _{CCVFLASH}	VCC	At Standby	-	15	25	μA		VFLASH memory Read current	At Read	-	9	14	mA	40MHz			13	20	80MHz	VFLASH memory write/erase current			At Write/Erase	-	20	25	mA		Parameter	Symbol	Pin name	Conditions	Value			Unit	Remarks	Min	Typ	Max	VFLASH memory Standby current	I _{CCVFLASH}	VCC	At Standby	-	15	35	μA		VFLASH memory Read current	At Read	-	9	14	mA	40MHz			13	20	80MHz	VFLASH memory write/erase current			At Write/Erase	-	20	25	mA	
Parameter	Symbol	Pin name					Conditions	Value				Unit	Remarks																																																																									
			Min	Typ	Max																																																																																	
VFLASH memory Standby current	I _{CCVFLASH}	VCC	At Standby	-	15	25	μA																																																																															
VFLASH memory Read current			At Read	-	9	14	mA	40MHz																																																																														
					13	20		80MHz																																																																														
VFLASH memory write/erase current			At Write/Erase	-	20	25	mA																																																																															
Parameter	Symbol	Pin name	Conditions	Value			Unit	Remarks																																																																														
				Min	Typ	Max																																																																																
VFLASH memory Standby current	I _{CCVFLASH}	VCC	At Standby	-	15	35	μA																																																																															
VFLASH memory Read current			At Read	-	9	14	mA	40MHz																																																																														
					13	20		80MHz																																																																														
VFLASH memory write/erase current			At Write/Erase	-	20	25	mA																																																																															
162, 161, 162	14.4 AC Characteristics	Signal name should be corrected as below. (Error) GE_SPCSX_0 (Correct) GE_SPCSX0 (Error) GE_HBCSX_0 (Correct) GE_HBCSX0 (Error) GE_HBCSX_1 (Correct) GE_HBCSX1																																																																																				

Document History Page

Document Title: Datasheet Errata for the S6E2D3 Series 32-bit ARM® Cortex®-M4F, FM4 Microcontroller			
Document Number: 002-05036			
Rev.	ECN No.	Orig. of Change	Description of Change
**	–	AKIH	Initial release.
*A	5158612	AKIH	Migrated Spansion Errata sheet from S6E2D3_DS709-00023-1v0-E-DE2 to Cypress format

Cypress Semiconductor
 198 Champion Court
 San Jose, CA 95134-1709
 Phone: 408-943-2600
 Fax: 408-943-4730
<http://www.cypress.com>

© Cypress Semiconductor Corporation 2015-2016. This document is the property of Cypress Semiconductor Corporation and its subsidiaries, including Spansion LLC ("Cypress"). This document, including any software or firmware included or referenced in this document ("Software"), is owned by Cypress under the intellectual property laws and treaties of the United States and other countries worldwide. Cypress reserves all rights under such laws and treaties and does not, except as specifically stated in this paragraph, grant any license under its patents, copyrights, trademarks, or other intellectual property rights. If the Software is not accompanied by a license agreement and you do not otherwise have a written agreement with Cypress governing the use of the Software, then Cypress hereby grants you under its copyright rights in the Software, a personal, non-exclusive, nontransferable license (without the right to sublicense) (a) for Software provided in source code form, to modify and reproduce the Software solely for use with Cypress hardware products, only internally within your organization, and (b) to distribute the Software in binary code form externally to end users (either directly or indirectly through resellers and distributors), solely for use on Cypress hardware product units. Cypress also grants you a personal, non-exclusive, nontransferable, license (without the right to sublicense) under those claims of Cypress's patents that are infringed by the Software (as provided by Cypress, unmodified) to make, use, distribute, and import the Software solely to the minimum extent that is necessary for you to exercise your rights under the copyright license granted in the previous sentence. Any other use, reproduction, modification, translation, or compilation of the Software is prohibited.

CYPRESS MAKES NO WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, WITH REGARD TO THIS DOCUMENT OR ANY SOFTWARE, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. Cypress reserves the right to make changes to this document without further notice. Cypress does not assume any liability arising out of the application or use of any product or circuit described in this document. Any information provided in this document, including any sample design information or programming code, is provided only for reference purposes. It is the responsibility of the user of this document to properly design, program, and test the functionality and safety of any application made of this information and any resulting product. Cypress products are not designed, intended, or authorized for use as critical components in systems designed or intended for the operation of weapons, weapons systems, nuclear installations, life-support devices or systems, other medical devices or systems (including resuscitation equipment and surgical implants), pollution control or hazardous substances management, or other uses where the failure of the device or system could cause personal injury, death, or property damage ("Unintended Uses"). A critical component is any component of a device or system whose failure to perform can be reasonably expected to cause the failure of the device or system, or to affect its safety or effectiveness. Cypress is not liable, in whole or in part, and Company shall and hereby does release Cypress from any claim, damage, or other liability arising from or related to all Unintended Uses of Cypress products. Company shall indemnify and hold Cypress harmless from and against all claims, costs, damages, and other liabilities, including claims for personal injury or death, arising from or related to any Unintended Uses of Cypress products.

Cypress, the Cypress logo, Spansion, the Spansion logo, and combinations thereof, PSoC, CapSense, EZ-USB, F-RAM, and Traveo are trademarks or registered trademarks of Cypress in the United States and other countries. For a more complete list of Cypress trademarks, visit [cypress.com](http://www.cypress.com). Other names and brands may be claimed as property of their respective owners.