Atmel®

PCN / EOL Notification

PCN Number: SC144102   **Notification Date*:** October 14, 2014

Title: EOL and Replacement of the AT30TS750 Digital Temperature Sensor with the New AT30TS750A

Product Identification:

All versions of the AT30TS750

Reason for Change:	☐ Material / Composition	☐ Manufacturing Location
	☐ Processing / Manufacturing	☐ Quality / Reliability
	☒ Design / Firmware	☐ Logistics
	☒ Datasheet	☐ Other:

Change Description:

The AT30TS750 Digital Temperature Sensor is being replaced by the new Digital Temperature Sensor AT30TS750A to address the errata specifications listed in the AT30TS750 datasheet and to better address end market/application requirements.

In addition, the AT30TS750A has been improved over the AT30TS750 to feature an industry-first, wide supply voltage range of 1.7V to 5.5V versus the previous 2.7V to 5.5V of the AT30TS750. Attachment A highlights the differences between the AT30TS750 and the new replacement AT30TS750A device.

Identification Method to Distinguish Change:

The base catalog part number changes from AT30TS750 to AT30TS750A. Table 1 lists the full catalog part number combinations for each package option. Please refer to the AT30TS750 and AT30TS750A datasheets for details on the part marking schemes for each package type.

Table 1

EOL Part Number	Replacement Part Number	Package	Carrier Type
AT30TS750-MA8-T	AT30TS750A-MA8M-T	8-pad UDFN	Tape and Reel
AT30TS750-SS8-B	AT30TS750A-SS8M-B	8-lead SOIC	Bulk (Tubes)
AT30TS750-SS8-T	AT30TS750A-SS8M-T	8-lead SOIC	Tape and Reel
AT30TS750-XM8-B	AT30TS750A-XM8M-B	8-lead MSOP	Bulk (Tubes)
AT30TS750-XM8-T	AT30TS750A-XM8M-T	8-lead MSOP	Tape and Reel

Note: Standard datasheet offerings are listed in the table; however, this PCN also applies to all special CAN (customer specific) part numbers that are not listed in the table.

Qualification Data:	☒ Available	☐ Will be available (mm/dd/yr):	☐ Not Applicable

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Samples:	☒ AT30TS750A Available	☐ Will be available (mm/dd/yr):	☐ Not Applicable

Quantifiable Impact on Quality & Reliability:

None

Forecasted Availability Date: Now

Last Time Buy Date: April 14, 2015

Last Ship Date: October 14, 2015

All orders placed after the notification date are non-cancellable and non-returnable (NCNR).

Atmel Contact: Please contact your Atmel Sales Representative or Distributor for additional information (when replying via e-mail please include the PCN number in subject line).

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CUSTOMER ACKNOWLEDGEMENT OF RECEIPT: Atmel requests you acknowledge receipt of this PCN / EOL. Please complete and email to pcnadm@atmel.com and the Atmel Contact listed above. In your acknowledgement, you can grant approval or request additional information. **Atmel will deem this change accepted unless specific conditions of acceptance are provided in writing within 30 days from the date of this notice.**

To be completed by customer:

☐ Approved

☐ Rejected (Please state reason for rejection): _____

Company:	
Name:	
Title:	
Date:	
Email Address:	
Location:	
Comments:	

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Attachment A

RED text indicates changes/improvements

Parameter/Feature	AT30TS750 (based on 09/2013 datasheet)		AT30TS750A (based on 05/2014 datasheet)	
Operating Voltage	2.7V to 5.5V		1.7V to 5.5V	
Operating Temperature	-55°C to +125°C		-55°C to +125°C	
Temperature Sensor Accuracy and Conversion Characteristics				
Temperature Sensor Accuracy	±1.0°C typ (±1.5°C max)	T_A = 0°C to +55°C V_{CC} = 2.7V to 3.6V	±0.5°C typ (±1.0°C max)	T_A = 0°C to +85°C V_{CC} = 1.7V to 5.5V
	±1.0°C typ (±2.0°C max)	T_A = 0°C to +55°C V_{CC} = 3.6V to 5.5V		
	±1.0°C typ (±2.0°C max)	T_A = -5°C to +90°C V_{CC} = 2.7V to 3.6V	±1.0°C typ (±2.0°C max)	T_A = -25°C to +105°C V_{CC} = 1.7V to 5.5V
	±2.0°C typ (±3.0°C max)	T_A = -20°C to +105°C V_{CC} = 3.6V to 5.5V		
	±3.0°C typ	T_A = -40°C to +125°C V_{CC} = 2.7V to 5.5V	±2.0°C typ (±3.0°C max)	T_A = -40°C to +125°C V_{CC} = 1.7V to 5.5V
	±2.0°C typ (±3.0°C max)	T_A = -20°C to +125°C V_{CC} = 2.7V to 3.6V		
	±3.0°C typ	T_A = -55°C to +125°C V_{CC} = 2.7V to 5.5V	±3.0°C typ	T_A = -55°C to +125°C V_{CC} = 1.7V to 5.5V
Conversion Resolution	Selectable 9 to 12 bits (0.5°C to 0.0625°C)		Selectable 9 to 12 bits (0.5°C to 0.0625°C)	
Conversion Time	25ms typ (37.5ms max)	9-bit resolution	25ms typ (37.5ms max)	9-bit resolution
	50ms typ (75ms max)	10-bit resolution	50ms typ (75ms max)	10-bit resolution
	100ms typ (150ms max)	11-bit resolution	100ms typ (150ms max)	11-bit resolution
	200ms typ (300ms max)	12-bit resolution	200ms typ (300ms max)	12-bit resolution

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Attachment A (Continued)

RED text indicates changes/improvements

Parameter/Feature	AT30TS750 (based on 09/2013 datasheet)	AT30TS750A (based on 05/2014 datasheet)
Nonvolatile Register Characteristics		
Nonvolatile Register Program Time (t_{PROG})	1.0ms min (5.0ms max)	1.0ms min (5.0ms max)
Volatile to Nonvolatile Register Copy Time (t_{COPYW})	1.0ms min (5.0ms max)	1.0ms min (5.0ms max)
Nonvolatile to Volatile Register Copy Time (t_{COPYR})	100µs min (200µs max)	100µs min (200µs max)
Nonvolatile Register Program/Copy Endurance (N_{ENDUR})	50K cycles min (100K cycles typ)	50K cycles min (100K cycles typ)
Power-Up Conditions		
Power-On Reset Time (t_{POR})	500µs max	1ms max
Power-up Device Delay before Nonvolatile Register or Memory Program Allowed (t_{PUW})	500µs max	1ms max
Power-On Reset Voltage (V_{POR})	2.6V max	1.6V max
Maximum Allowable Power-Up Time (t_{PU})	1ms max	N/A

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Parameter/Feature	AT30TS750 (based on 09/2013 datasheet)		AT30TS750A (based on 05/2014 datasheet)	
DC Characteristics				
Active Current, Bus Inactive, Active Temperature Conversions	95µA typ (125µA max)	V_{CC} = 3.3V	60µA typ (75µA max)	1.7V ≤ V_{CC} ≤ 2.0V
	120µA typ (175µA max)	V_{CC} = Max (5.5V)	65µA typ (95µA max)	2.7V ≤ V_{CC} ≤ 3.6V
			85µA typ (125µA max)	4.5V ≤ V_{CC} ≤ 5.5V
Active Current, Bus Active, f_{SCL} = 400kHz Active Temperature Conversions	125µA typ (175µA max)	V_{CC} = 3.3V	120µA typ (160µA max)	1.7V ≤ V_{CC} ≤ 2.0V
	200µA typ (250µA max)	V_{CC} = Max (5.5V)	150µA typ (225µA max)	2.7V ≤ V_{CC} ≤ 3.6V
			225µA typ (325µA max)	4.5V ≤ V_{CC} ≤ 5.5V
Active Current, Nonvolatile Register Read f_{SCL} = 400kHz Active Temperature Conversions	0.30mA typ (0.50mA max)	V_{CC} = 3.3V	0.15mA typ (0.20mA max)	1.7V ≤ V_{CC} ≤ 2.0V
	0.60mA typ (0.90mA max)	V_{CC} = Max (5.5V)	0.23mA typ (0.35mA max)	2.7V ≤ V_{CC} ≤ 3.6V
			0.48mA typ (0.63mA max)	4.5V ≤ V_{CC} ≤ 5.5V
Active Current, Nonvolatile Register Copy f_{SCL} = 400kHz Active Temperature Conversions	0.70mA typ (0.90mA max)	V_{CC} = 3.3V	0.70mA typ (1.50mA max)	1.7V ≤ V_{CC} ≤ 2.0V
	1.60mA typ (2.0mA max)	V_{CC} = Max (5.5V)	2.00mA typ (3.40mA max)	2.7V ≤ V_{CC} ≤ 3.6V
			2.50mA typ (4.40mA max)	4.5V ≤ V_{CC} ≤ 5.5V
Shutdown Mode Current, Bus Inactive	0.6µA typ (1.6µA max)	V_{CC} = 3.3V	0.4µA typ (2.5µA max)	1.7V ≤ V_{CC} ≤ 2.0V
	1.1µA typ (3.5µA max)	V_{CC} = Max (5.5V)	0.6µA typ (3.5µA max)	2.7V ≤ V_{CC} ≤ 3.6V
			1.2µA typ (5.5µA max)	4.5V ≤ V_{CC} ≤ 5.5V
Shutdown Mode Current, Bus Active, f_{SCL} = 400kHz	125µA typ (165µA max)	V_{CC} = 3.3V	110µA typ (140µA max)	1.7V ≤ V_{CC} ≤ 2.0V
	185µA typ (220µA max)	V_{CC} = Max (5.5V)	130µA typ (180µA max)	2.7V ≤ V_{CC} ≤ 3.6V
			180µA typ (270µA max)	4.5V ≤ V_{CC} ≤ 5.5V

RED text indicates changes/improvements

Parameter/Feature	AT30TS750 (based on 09/2013 datasheet)		AT30TS750A (based on 05/2014 datasheet)	
AC Characteristics				
Maximum Clock Frequency	400kHz (Fast Mode)	$V_{CC} \geq 2.7V$	1MHz (Fast Mode Plus)	$V_{CC} \geq 1.7V$
Errata				
Errata 1	The internal fault counter will be reset when updating the Configuration Register, the T_{HIGH} Limit Register, or the T_{LOW} Limit Register		None	
Errata 2	Depending on power supply ramp time, the ALERT pin may not be configured in the proper state to be a true open drain		None	
Errata 3	After power-up, the device will not copy the contents of the NVFT1 and NVFT0 bits from the Nonvolatile Configuration Register into the FT1 and FT0 bits of the Configuration Register until after the first temperature conversion cycle has completed. As a result, both the FT1 and FT0 bits of the Configuration Register will be set to zero (Fault Tolerance Queue valueof one) for the first temperature conversion cycle; therefore, a single temperature fault could trigger the ALERT output for the very first temperature conversion after device power-up.		None	
Errata 4	When switching between Comparator and Interrupt modes (or vice versa) while the ALERT pin is active, the device will not retain its active alert state and will automatically deassert the ALERT pin.		None	

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