



PCN / EOL Notification

PCN Number: SC141602

Notification Date*: May 6, 2014

Title: EOL and Replacement of the AT30TS75 Digital Temperature Sensor with the New AT30TS74 and AT30TS75A

Product Identification:

All versions of the AT30TS75

Reason for Change:

- | | |
|---|---|
| ☐ Material / Composition | ☐ Manufacturing Location |
| ☐ Processing / Manufacturing | ☐ Quality / Reliability |
| ☒ Design / Firmware | ☐ Logistics |
| ☒ Datasheet | ☐ Other: |

Change Description:

The AT30TS75 Digital Temperature Sensor is being replaced by two new Digital Temperature Sensors (AT30TS74 and AT30TS75A) to address some of the errata specifications listed in the AT30TS75 datasheet and to better address end market/application requirements. In addition, both the AT30TS74 and AT30TS75A have been improved over the AT30TS75 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 AT30TS75. Lastly, the introduction of the AT30TS74 enables the ability to offer a new WLCSP (wafer-level chip scale package) to address space-constrained applications and to allow placement of the Temperature Sensor as close as possible to desired “hot spot” measurement points.

Attachment A highlights the differences between the AT30TS75 and the new, replacement AT30TS74 and AT30TS75A devices.

Identification Method to Distinguish Change:

The base catalog part number changes from AT30TS75 to either AT30TS74 or AT30TS75A. Table 1 lists the full catalog part number combinations for each package option. Please refer to the AT30TS75, AT30TS74, and AT30TS75A datasheets for details on the part marking schemes for each package type.

Table 1

EOL Part Number	Replacement Part Number (Option 1)	Replacement Part Number (Option 2)	Package	Carrier Type
AT30TS75-MA8-T	AT30TS74-MA8M-T	AT30TS75A-MA8M-T	UDFN	T&R
AT30TS75-SS8-B	AT30TS74-SS8M-B	AT30TS75A-SS8M-B	SOIC	Bulk
AT30TS75-SS8-T	AT30TS74-SS8M-T	AT30TS75A-SS8M-T	SOIC	T&R
AT30TS75-XM8-B	AT30TS74-XM8M-B	AT30TS75A-XM8M-B	MSOP	Bulk
AT30TS75-XM8-T	AT30TS74-XM8M-T	AT30TS75A-XM8M-T	MSOP	T&R

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:	☒ AT30TS75A Available	☒ AT30TS74 Will be available (mm/dd/yr): SOIC/MSOP on 5/12/14 UDFN on 6/9/14	☐ Not Applicable
Quantifiable Impact on Quality & Reliability: None			
Forecasted Availability Date: Now Last Time Buy Date: July 15, 2014 Last Ship Date: December 31, 2014 <i>*All orders placed after the notification date are non-cancellable and non-returnable (NCNR).</i>			
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To be completed by customer: ☐ <u>Approved</u> ☐ <u>Rejected (Please state reason for rejection):</u>	
Company: Name: Title: Date: Email Address: Location: Comments:	

Attachment A

RED text indicates changes/improvements

Parameter/Feature	AT30TS75 (based on 09/2013 datasheet)		AT30TS74 (based on 03/2014 datasheet)		AT30TS75A (based on 03/2014 datasheet)	
Operating Voltage	2.7V to 5.5V		1.7V to 5.5V		1.7V to 5.5V	
Operating Temperature	-55°C to +125°C		-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	±1.0°C typ (±2.0°C max)	T _A = -20°C to +100°C V _{CC} = 1.7V to 5.5V	±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 = -5°C to +90°C V _{CC} = 2.7V to 3.6V	±2.0°C typ (±3.0°C max)	T _A = -40°C to +125°C V _{CC} = 1.7V to 5.5V	±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 +125°C V _{CC} = 2.7V to 3.6V	±3.0°C typ	T _A = -55°C to +125°C V _{CC} = 1.7V 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
	±1.0°C typ (±2.0°C max)	T _A = 0°C to +55°C V _{CC} = 3.6V to 5.5V			±3.0°C typ	T _A = -55°C to +125°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				
	±3.0°C typ	T _A = -55°C to +125°C V _{CC} = 2.7V 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)		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	25ms typ (37.5ms max)	9-bit resolution
	50ms typ (75ms max)	10-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	100ms typ (150ms max)	11-bit resolution
	200ms typ (300ms max)	12-bit resolution	200ms typ (300ms max)	12-bit resolution	200ms typ (300ms max)	12-bit resolution
Power-Up Conditions						
Power-On Reset Time (t _{POR})	500μs max		1ms max		1ms max	
Power-On Reset Voltage (V _{POR})	2.6V max		1.6V max		1.6V max	
Max Allowed Power-Up Time (t _{PU})	1ms max		N/A		N/A	

Attachment A (Continued)

RED text indicates changes/improvements

Parameter/Feature	AT30TS75 (based on 09/2013 datasheet)		AT30TS74 (based on 03/2014 datasheet)		AT30TS75A (based on 03/2014 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	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	65µA typ (95µA max)	2.7V ≤ V _{CC} ≤ 3.6V
			85µA typ (125µA max)	4.5V ≤ V _{CC} ≤ 5.5V	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	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	150µA typ (225µA max)	2.7V ≤ V _{CC} ≤ 3.6V
			225µA typ (325µA max)	4.5V ≤ V _{CC} ≤ 5.5V	225µA typ (325µA max)	4.5V ≤ V _{CC} ≤ 5.5V
Active Current, Bus Active, f _{SCL} = 3.4MHz Active Temperature Conversions	350µA typ (650µA max)	V _{CC} = 3.3V	235µA typ (375µA max)	2.2V ≤ V _{CC} ≤ 3.6V	235µA typ (375µA max)	2.2V ≤ V _{CC} ≤ 3.6V
	400µA typ (750µA max)	V _{CC} = Max (5.5V)	610µA typ (800µA max)	4.5V ≤ V _{CC} ≤ 5.5V	610µA typ (800µA max)	4.5V ≤ V _{CC} ≤ 5.5V
Shutdown Mode Current, Bus Inactive	0.6µA typ (1.5µA max)	V _{CC} = 3.3V	0.4µA typ (2.5µA max)	1.7V ≤ V _{CC} ≤ 2.0V	0.4µA typ (2.5µA max)	1.7V ≤ V _{CC} ≤ 2.0V
	1.1µA typ (3.0µA max)	V _{CC} = Max (5.5V)	0.6µA typ (3.5µA max)	2.7V ≤ V _{CC} ≤ 3.6V	0.6µA typ (3.5µA max)	2.7V ≤ V _{CC} ≤ 3.6V
			1.2µA typ (5.5µA max)	4.5V ≤ V _{CC} ≤ 5.5V	1.2µA typ (5.5µA max)	4.5V ≤ V _{CC} ≤ 5.5V
Shutdown Mode Current, Bus Active, f _{SCL} = 400kHz	115µA typ (165µA max)	V _{CC} = 3.3V	110µA typ (140µA max)	1.7V ≤ V _{CC} ≤ 2.0V	110µA typ (140µA max)	1.7V ≤ V _{CC} ≤ 2.0V
	170µA typ (220µA max)	V _{CC} = Max (5.5V)	130µA typ (180µA max)	2.7V ≤ V _{CC} ≤ 3.6V	130µA typ (180µA max)	2.7V ≤ V _{CC} ≤ 3.6V
			180µA typ (270µA max)	4.5V ≤ V _{CC} ≤ 5.5V	180µA typ (270µA max)	4.5V ≤ V _{CC} ≤ 5.5V
Shutdown Mode Current, Bus Active, f _{SCL} = 3.4MHz	310µA typ (600µA max)	V _{CC} = 3.3V	210µA typ (365µA max)	2.2V ≤ V _{CC} ≤ 3.6V	210µA typ (365µA max)	2.2V ≤ V _{CC} ≤ 3.6V
	360µA typ (700µA max)	V _{CC} = Max (5.5V)	550µA typ (750µA max)	4.5V ≤ V _{CC} ≤ 5.5V	550µA typ (750µA max)	4.5V ≤ V _{CC} ≤ 5.5V
AC Characteristics						
Maximum Clock Frequencies	3.4MHz (High-Speed Mode)	V _{CC} ≥ 2.7V	3.4MHz (High-Speed Mode)	V _{CC} ≥ 2.2V	3.4MHz (High-Speed Mode)	V _{CC} ≥ 2.2V
	400kHz (Fast Mode)	V _{CC} ≥ 2.7V	1MHz (Fast Mode Plus)	V _{CC} < 2.2V	1MHz (Fast Mode Plus)	V _{CC} < 2.2V
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		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		None	