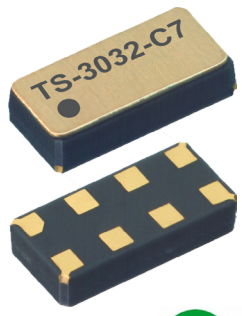
MICRO CRYSTAL SWITZERLAND

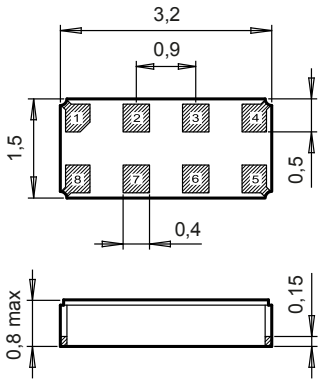
TS-3032-C7

Temperature Sensor Module with RTC

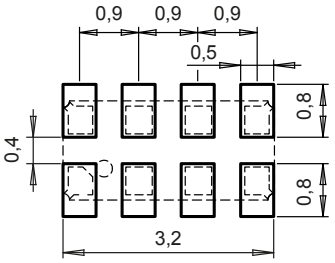


DIMENSIONS

Package:



Recommended Solder Pad:



Metal lid is connected to V_{SS} (pin #5)

All dimensions in mm typical

APPLICATIONS

Metering
Wearables
Computer fan
Cold chain integrity
Battery management
Predictive Maintenance
Board Mount Temperature Sensor
HVAC (Heating, Ventilation & Air Con.)

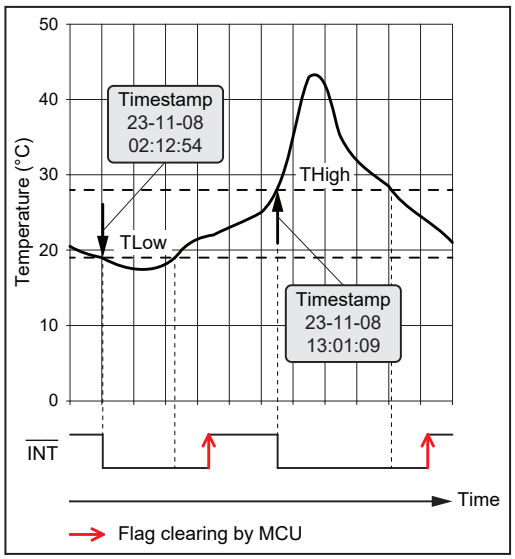
DESCRIPTION

The TS-3032-C7 is an Ultra-Low Power Digital Temperature Sensor Module. It combines a 12-bit Temperature Sensor with a Real-Time Clock IC and an embedded XTAL in a miniature SMD ceramic package.

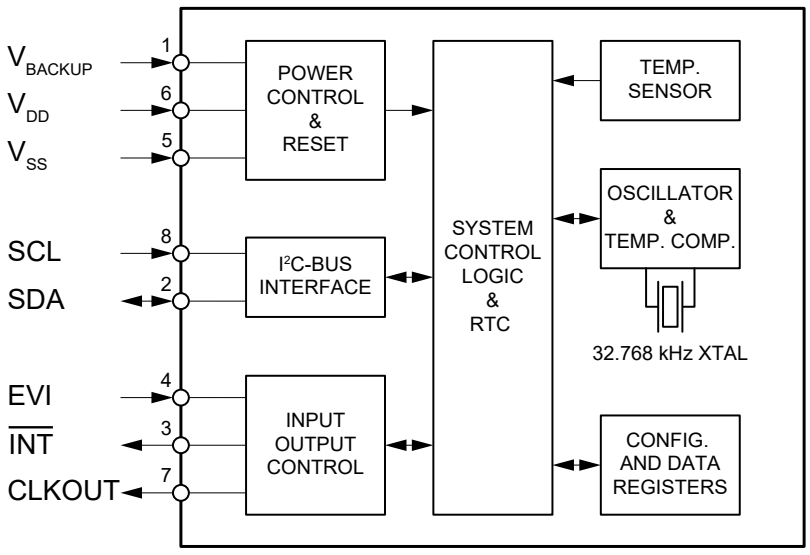
BENEFITS AND FEATURES

Temperature accuracy: Option A: ±1.0°C (max.) from -40°C to +85°C
Option B: ±0.1°C (max.) from 0°C to +50°C
Ultra-low average power consumption: 160 nA @ 3 V (1 Hz sampling)
Readable resolution: 0.0625°C
Offset fine adjustment with 16-bit value. NIST traceability
Programmable Temperature Alert Limits with High/Low Thresholds, associated Interrupts and Timestamps
Temperature compensated Real-Time Clock: ±2.5 ppm
Automatic Backup Switchover
Wide operating voltage range: 1.3 V to 5.5 V
I²C-bus interface: 400 kHz
100% Pb-free, RoHS-compliant
Automotive qualification according to AEC-Q200 available

APPLICATION EXAMPLE



BLOCK DIAGRAM



ELECTRICAL CHARACTERISTICS

More detailed information can be found in the Application Manual.

	Symbol	Condition	Min.	Typ.	Max	Unit
Supply voltage	V_{DD}	Temp. comp.	1.3		5.5	V
Average current consumption Time keeping mode [1]	I_{DDO}	V_{DD} 3 V, +25°C		160	210	nA
		V_{DD} 3 V, +85°C			750	
		V_{DD} 3 V, +105°C			1400	
Temp. acc. Opt. A	ΔT	-40 to +85°C	±1.0			°C
Temp. acc. Opt. B		0 to +50°C	±0.1			

1) I^2C-bus inactive, CLKOUT disabled (automatic temperature sampling (1 Hz) active).

ENVIRONMENTAL CHARACTERISTICS

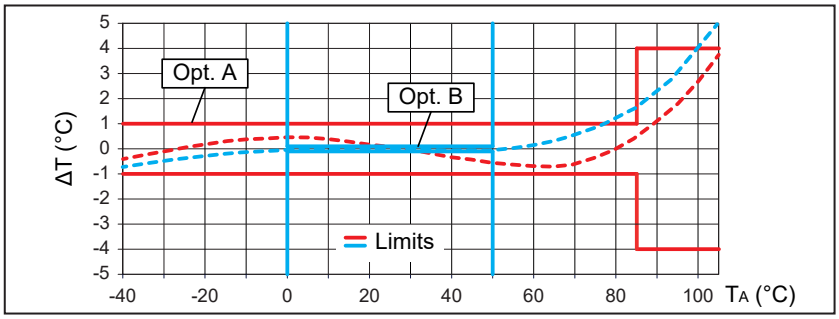
	Conditions
Storage temperature range	–55 to +125°C
TA Operating temperature range	–40 to +85°C [1]

1) Supports extended range from +85°C to +105°C.

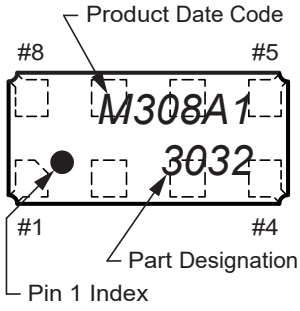
TERMINATIONS AND PROCESSING

Package	Termination	Processing
SON-8	Au flashed pads	IPC/JEDEC J-STD-020C 260°C / 20 - 40 s

TEMPERATURE SENSOR ACCURACY



PIN CONNECTIONS TOP VIEW



Pin	Connection	
1	V_{BACKUP}	Backup Supply Voltage
2	SDA	Serial Data
3	$\overline{INT}$	Interrupt Output
4	EVI	Event Input
5	V_{SS}	Ground
6	V_{DD}	Power Supply Voltage
7	CLKOUT	Clock Output
8	SCL	Serial Clock Input

ORDERING INFORMATION

TS - 3032 - C7 Option A TA QC

T-Sensor module

Product type

Package size
C7 = 3.2 x 1.5 x 0.8 mm

Temperature accuracy
Option A = ±1.0°C @ -40°C to +85°C (Standard)
Option B = ±0.1°C @ 0°C to +50°C

Qualification
QC = Commercial Grade (Standard)
QA = Automotive Grade AEC-Q200

Temperature range
TA = -40 to +85°C (Standard)
(supports extended range from +85°C to +105°C)

A unique part number will be generated for each product specification, i.e:	
20xxxx-MG01	1'000 pcs (in 12 mm tape on 7" reel)
20xxxx-MG03	3'000 pcs (in 12 mm tape on 7" reel)

All specifications subject to change without notice.

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