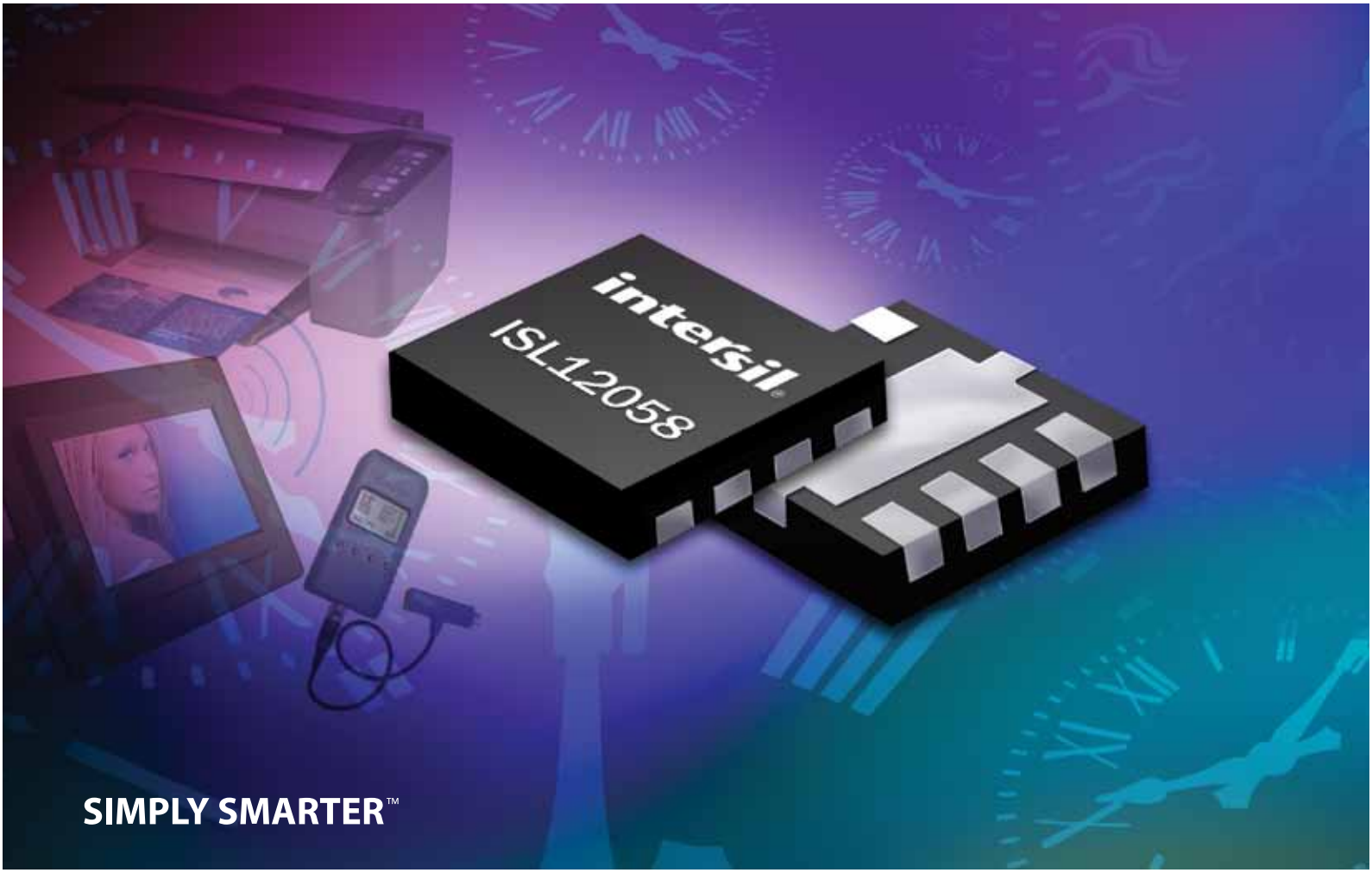
INTERSIL SELECTION GUIDE

Q3/Q4 2011

REAL TIME CLOCK ICs

High-Accuracy RTC Modules,
Feature-Rich RTCs,
Low-Cost, Low-Power RTCs

intersil™



SIMPLY SMARTER™

INTERSIL SELECTION GUIDE

REAL TIME CLOCK ICs

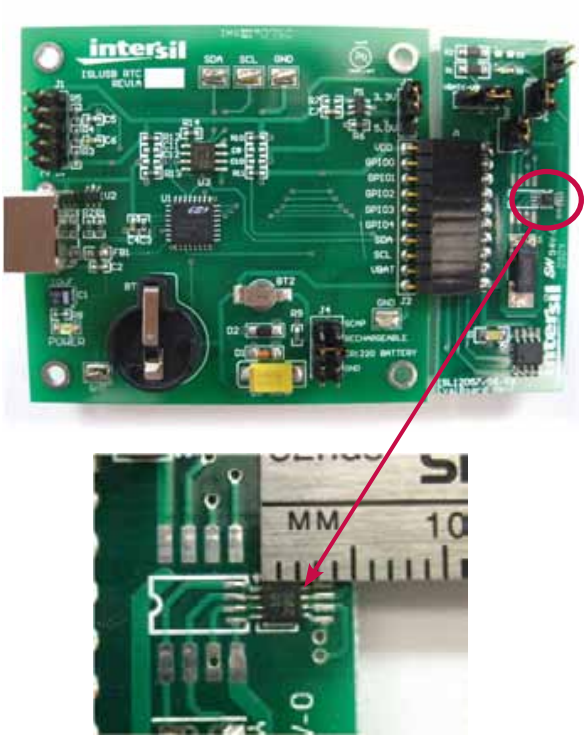
FEATURE-RICH AND COST-EFFECTIVE REAL TIME CLOCK ICs FROM INTERSIL

Intersil Real Time Clocks Overview

Intersil's family of Real Time Clock products offer a wide variety of useful industry-standard functions and features including clocks and calendars, programmable alarms with event recording, non-volatile memory for system personality data and unique device IDs, and power supervision including backup battery and system shutdown management. The 3-in-1 Module products feature an integrated 32kHz crystal with onboard temperature sensor, to maintain high accuracy over the rated temperature range without user calibration.

TARGET APPLICATIONS

- Handheld / Portable Devices
- Industrial/ Communications / Specialty
- High Volume Consumer
- Residential / Industrial Power Meter



Small, cost-effective and feature-rich RTC

Intersil's Real Time Clocks Offer the Broadest Choice of Product Features

	Integrated Crystal	Onboard Crystal Temperature Compensation	Programmable Alarm	Frequency Outputs	Onboard Memory	Supervisory Functions	Backup Battery Management	Event Detection	Time Stamp
High Accuracy 3-in-1 Modules	✓	✓	✓	✓	✓		✓		✓
Feature-Rich		✓	✓	✓	✓	✓	✓		✓
Low Cost			✓	✓	✓		✓	✓	✓

INTERSIL SELECTION GUIDE

REAL TIME CLOCK ICs

HIGH-ACCURACY RTC MODULEs

RTC Modules with Embedded Crystal and Temp Comp

ISL12020M, ISL12022M

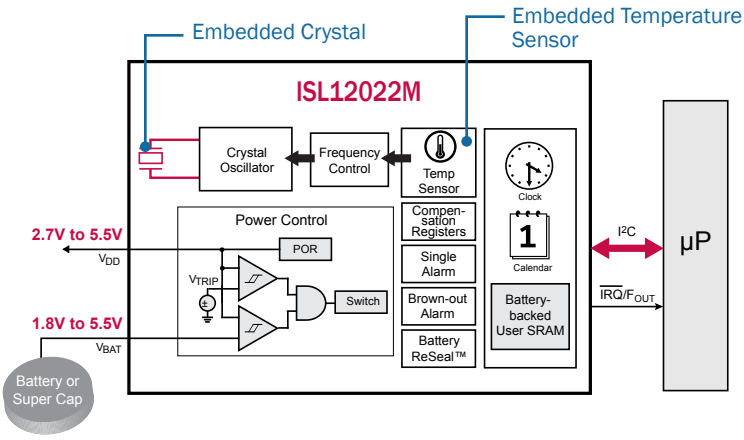
TINY RTC MODULE WITH EMBEDDED CRYSTAL AND TEMPERATURE SENSOR ACHIEVES BETTER THAN ±5.0ppm ACCURACY

Tiny Real Time Clock (RTC) module with embedded crystal and temperature compensation circuitry achieves better than ±5 ppm accuracy over the entire industrial temperature range (-40°C to +85°C). Intersil is the first to offer an RTC module in a DFN package. This makes this module very attractive for handheld and portable applications that have stringent space requirements.

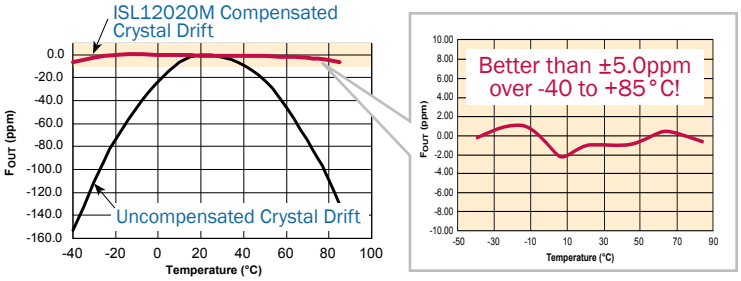
KEY FEATURES

- ISL12020M: World's smallest 3-in-1 RTC Module
  - RTC + crystal + temperature sensor
  - Available in DFN package
- Better than ±5.0ppm accuracy for industrial temperature range
  - Factory programmed for optimal accuracy
- Battery Reseal™ function extends battery shelf life
- ISL12022M: Low-cost SOIC package
  - Industrial: Utility meters, POS, instruments
  - Consumer: GPS handhelds, cameras, copiers
- Stand-alone RTC with temperature sensor also available (ISL12022, ISL12023)

BLOCK DIAGRAM



HIGH ACCURACY EVEN IN EXTREME TEMPERATURE CONDITIONS



High-Accuracy RTC Modules

With Embedded Crystal and Temperature Compensation

Device	I_{BAT} (nA)	Alarms	Selectable Frequency Output	CPU Supervisory Function		Battery		IRQ	F_{OUT}	SRAM	Other Functions	Package
				POR	Watchdog Timer	Seal	Backup					
ISL12020M	1000	1	15	N	N	Y	Y	Shared Pin		128 Bytes	• Battery Switchover Time Stamp • Battery Status Monitor	20 Ld DFN
ISL12022M	1000	1	15	N	N	Y	Y	Shared Pin		128 Bytes	• Battery Switchover Time Stamp • Battery Status Monitor	20 Ld SOIC
ISL12022MA	1000	1	15	N	N	Y	Y	Shared Pin		128 Bytes	• Enhanced Environmental Moisture Tolerance • 100% Pin Compatible with ISL12022M • Firmware Compatible with ISL12020M and ISL12022M	Enhanced 20 Ld SOIC
ISL12022M -R5421	1000	1	15	N	N	Y	Y	Shared Pin		128 Bytes	• Enhanced ESD Performance • 100% Pin Compatible with ISL12022M • Firmware Compatible with ISL12020M and ISL12022M	Enhanced 20 Ld SOIC

INTERSIL SELECTION GUIDE

REAL TIME CLOCK ICs

FEATURE-RICH RTCs

Feature-Rich RTC with Embedded Unique ID

ISL12024, ISL12025

RTC WITH FACTORY PROGRAMMED 64-BIT UNIQUE ID ENHANCES SECURITY

The ISL12024, ISL12025 are RTCs with embedded 64-bit unique ID, 512 x 8-bits EEPROM, and supervisory functions (ISL12025). These devices permit data encryption in security and networking applications and eliminate the need for an external stand-alone unique ID.

KEY FEATURES

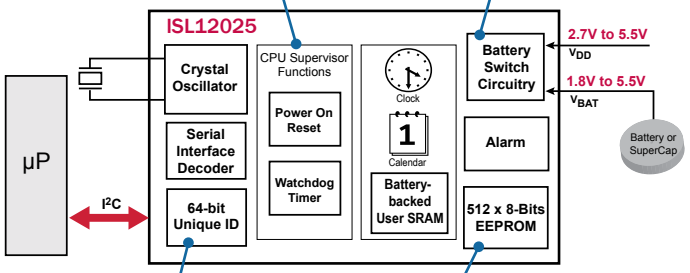
- Real-Time Clock/Calendar-Tracks Time in Hours, Minutes and Seconds
  - Day of the Week, Day, Month and Year
- 64-Bit Read-Only Unique ID
- Two Non-Volatile Alarms
  - Settable by Seconds, to Months
  - Repeat Mode (Periodic Interrupts)
- Automatic Backup Switching to Battery or SuperCap™
- On-Chip Oscillator Compensation
  - Internal Feedback Resistor and Compensation Capacitors
  - Analog and Digital Trim

BLOCK DIAGRAM

Power-On Reset and Watchdog Timer (ISL12025 only)

5 selectable V_{TRIP} levels from 2.63V to 4.64V

Automatic Backup Battery Switch



Embedded 64-bit Unique ID

Do you track your product for warranty purposes?

- Can be used to identify each node. Data from each node can be encrypted with a unique ID for security purposes.
- Unique ID can be accessed for reading purposes only.

512x8-bits EEPROM

- 16-byte page write mode (32 total pages)
- 8 modes of BlockLock™ protection
- >2,000,000 write cycle and 50 years endurance reliability

Feature-Rich RTCs

Device	I_{BAT} (nA)	Alarms	Selectable Frequency Output	CPU Supervisory Function		Battery		IRQ	F_{OUT}	SRAM	Other Functions	Package
				POR	Watchdog Timer	Seal	Back-up					
With 50/60 Cycle AC Input												
ISL12030	N/A	2	N	N	N	N	N	Y	N	128 Bytes	• AC Input	8 Ld SOIC
ISL12032	800	2	7	Y	Y	N	Y	Y	Y	128 Bytes	• AC Input • Crystal Backup • Trickle Charger	14 Ld TSSOP
High Precision RTC with On-Chip Temperature Sensor												
ISL12022	1000	1	15	N	N	Y	Y	Shared Pin		128 Bytes	• Battery Switchover Time Stamp • Battery Status Monitor	8 Ld SOIC
ISL12023	1000	1	15	N	N	Y	Y	Dedicated Pin	Dedicated Pin	128 Bytes	• Battery Switchover Time Stamp • Battery Status Monitor	14 Ld TSSOP
With Integrated EEPROM												
ISL12026	850	2	3	N	N	Y	Y	Shared Pin		512x8-Bit EEPROM		8 Ld SOIC, 8 Ld TSSOP
With Integrated EEPROM and Embedded Unique ID												
ISL12024	850	2	3	N	N	Y	Y	Shared Pin		512x8-Bit EEPROM	• 64-bit Unique ID	8 Ld SOIC, 8 Ld TSSOP
ISL12024IRTCZ	850	2	3	N	N	Y	Y	Shared Pin		512x8-Bit EEPROM	• 64-bit Unique ID	8 Ld TDFN
With Integrated EEPROM and CPU Supervisory Functions												
ISL12027	850	2		Y	Y	Y	Y	-	-	512x8-Bit EEPROM		8 Ld SOIC, 8 Ld TSSOP
ISL12028	850	2	3	Y	Y	Y	Y	Shared Pin		512x8-Bit EEPROM	• CMOS output on alarms	14 Ld SOIC, 14 Ld TSSOP
ISL12029	850	2	3	Y	Y	Y	Y	Shared Pin		512x8-Bit EEPROM	• Open drain output on alarms	14 Ld SOIC, 14 Ld TSSOP
With Integrated EEPROM, Embedded Unique ID, and CPU Supervisory Functions												
ISL12025	850	2		Y	Y	Y	Y	-	-	512x8-Bit EEPROM	• 64-bit Unique ID • CPU Supervisor	8 Ld SOIC, 8 Ld TSSOP

INTERSIL SELECTION GUIDE

REAL TIME CLOCK ICs

LOW-COST, LOW-POWER RTCs

Low Power, with IRQs, Alarm and Timer

ISL12057, ISL12058, ISL12059

MICRO-POWER, LOW COST, SMALL RTC PROVIDES SIGNIFICANT PCB REAL-ESTATE SAVINGS

The ISL12057/8/9 offer a cost-improved 3-Volt alternative to the most popular low-accuracy timekeeping products, with operation down to 1.4V for battery-powered, portable applications.

KEY FEATURES

- Real time clock and calendar
- Low standby current
- Multiple selectable frequency outputs
- Selectable alarms
- I^2C interface
- Operates over 1.4V to 3.6V supplies
- Variety of popular compact packages)

ISL12057

- Drop-in replacement for DS1337
- Features operation down to 1.4V, TDFN package, and competitive price

ISL12058

Cost-reduced alternative to ISL1208 with added advantage of 3V operation.



ISL12059

- Improved alternative to ST M41T00S
- Features operation down to 1.4V and competitive price

Low-Cost, Low-Power RTCs

Device	I_{BAT} (nA)	Alarms	Selectable Frequency Output	CPU Supervisory Function		Battery		IRQ	F_{OUT}	SRAM	Other Functions	Package
				POR	Watchdog Timer	Seal	Backup					
With Battery Backup												
ISL12008	800	1	1	N	N	Y	Y	-	Dedicated Pin			8 Ld SOIC
ISL12082	800	1	4	N	N	Y	Y	Dedicated Pin	Dedicated Pin	N	• Timer	10 Ld MSOP, 8 Ld SOIC
With Battery Backed SRAM												
ISL1208	400	1	15	N	N	Y	Y	Shared Pin		2 Bytes		8 Ld MSOP, 8 Ld SOIC, 8 Ld TDFN
ISL1218	400	1	15	N	N	Y	Y	Shared Pin		8 Bytes		8 Ld MSOP, 8 Ld SOIC
ISL1220	400	1	15	N	N	Y	Y	Dedicated Pin	Dedicated Pin	8 Bytes		10 Ld MSOP
With Battery Backed SRAM and Event Detection												
ISL1209	400	1	15	N	N	Y	Y	Shared Pin		2 Bytes	• Event Detect	10 Ld MSOP
ISL1219	400	1	15	N	N	Y	Y	Shared Pin		2 Bytes	• Event Detect • Time Stamp	10 Ld MSOP
ISL1221	400	1	15	N	N	Y	Y	Dedicated Pin	Dedicated Pin	2 Bytes	• Event Detect • Time Stamp	10 Ld MSOP
With IRQs, Alarm and Timer												
ISL12057	400	2	4	N	N	N	N	Shared Pin		N	• 3V	8 Ld SOIC, 8 Ld MSOP, 8 Ld TDFN
ISL12058	400	2	4	N	N	N	N	Shared Pin		N	• 3V	8 Ld SOIC, 8 Ld MSOP, 8 Ld TDFN, 8 Ld µTDFN
ISL12059	400	0	1	N	N	N	N	Shared Pin		N	• 3V	8 Ld SOIC



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