



RV-1805-C3 32.768KHZ 2PPM TA QC

Micro Crystal AG

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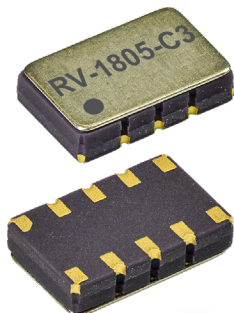
Company Address

Arrow Electronics, Inc
9201 East Dry Creek Road
Centennial, CO 80112

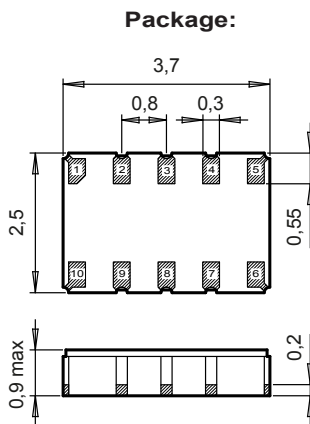
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RV-1805-C3

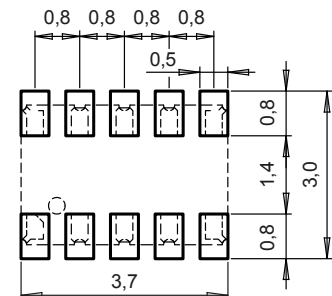
Extreme Low Power RTC Module



DIMENSIONS



Recommended Solder Pad:



Metal lid is connected to V_{SS} (pin #6)

All dimensions in mm typical

APPLICATIONS

IoT
Metering
Industrial
Health Care
Wearables, Portables

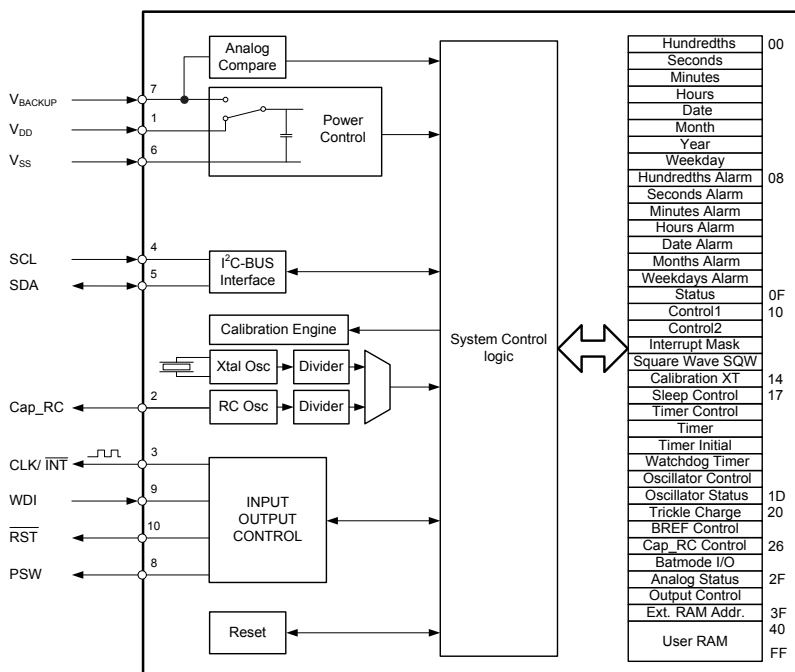
DESCRIPTION

The RV-1805-C3 is a SMT Real-Time Clock Module that incorporates an integrated CMOS circuit together with an XTAL. It operates under vacuum in a hermetically sealed ceramic package with metal lid.

FEATURES

Extreme low power consumption: XTAL mode, 60 nA @ 3 V.
RC mode, 17 nA @ 3 V. RC autocalibration mode, 22 nA @ 3 V.
Operating voltage range: 1.5 V to 3.6 V.
Time accuracy: Factory calibrated to ± 2 ppm @ 25°C.
User programmable offset value.
Automatic Backup Switchover and Trickle Charger function.
Provides year, month, date, weekday, hours, minutes, seconds, 100th.
Timer, Alarm, External event and Watchdog functions.
Clock output frequencies: 32.768 kHz to 1/60 Hz.
256 bytes user RAM.
I²C-bus interface: 400 kHz.
100% Pb-free, RoHS-compliant.
Qualification according to AEC-Q200.

BLOCK DIAGRAM



ELECTRICAL CHARACTERISTICS AT 25°C

More detailed information can be found in the Application Manual.

	Symbol	Condition	Min.	Typ.	Max	Unit
Supply voltage	V_{DD}	Time keeping	1.5		3.6	V
Current consumption Time keeping mode	I_{DDO}	XTAL mode, V_{DD} 3 V		60	80	nA
		RC mode, V_{DD} 3 V		17	25	
		RC autocal., V_{DD} 3 V		22	32	
CLKOUT frequency	F_{CLKOUT}	Programmable	32'768 to 1/60			Hz
Time accuracy	$\Delta t/t$	@ 25°C	±2			ppm
Aging first year max.	$\Delta F/F$	@ 25°C	±3			ppm

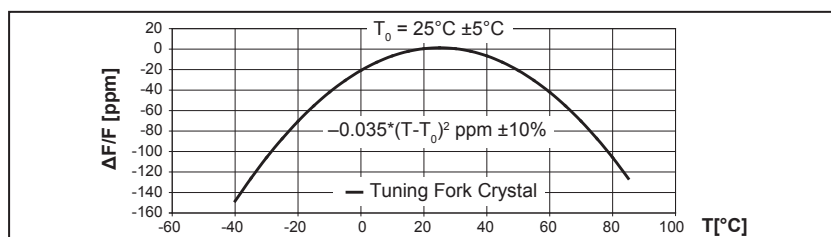
ENVIRONMENTAL CHARACTERISTICS

		Conditions	Max. Dev.
Storage temp. range		-55 to +125°C	
TA Operating temperature range		-40 to +85°C	
Shock resistance	$\Delta F/F$	5000 g, 0.3 ms, 1/2 sine	±5 ppm
Vibration resistance	$\Delta F/F$	20 g / 10–2000 Hz	±5 ppm

TERMINATIONS AND PROCESSING

Package	Termination	Processing
SON-10	Au flashed pads	IPC/JEDEC J-STD-020C 260°C / 20 - 40 s

FREQUENCY TEMPERATURE CHARACTERISTICS



PIN CONNECTIONS TOP VIEW

		Pin	Connection
<p>Product Date Code</p> <p>#10</p> <p>#6</p> <p>M843A1</p> <p>1805</p> <p>#1</p> <p>#5</p> <p>Part Designation</p> <p>Pin 1 Index</p>		1	V_{DD} Power Supply Voltage
		2	Cap_RC Capacitor RC Osci.
		3	CLK/INT Clock Output/Interrupt
		4	SCL Serial Clock Input
		5	SDA Serial Data
		6	V_{SS} Ground
		7	V_{BACKUP} Backup Supply Voltage
		8	PSW Power Switch Output
		9	WDI Watchdog Input
		10	RST Reset Output

ORDERING INFORMATION

RV - 1805 - C3 TA QC	
RTC module	Qualification
Product type	QC = Commercial Grade (Standard)
Package size	Temperature range
C3 = 3.7 x 2.5 x 0.9 mm	TA = -40 to +85°C (Standard)
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.



A COMPANY OF THE SWATCH GROUP

Micro Crystal AG
Muehlestrasse 14
CH-2540 Grenchen
Switzerland

Phone +41 32 655 82 82
Fax +41 32 655 82 83
sales@microcrystal.com
www.microcrystal.com