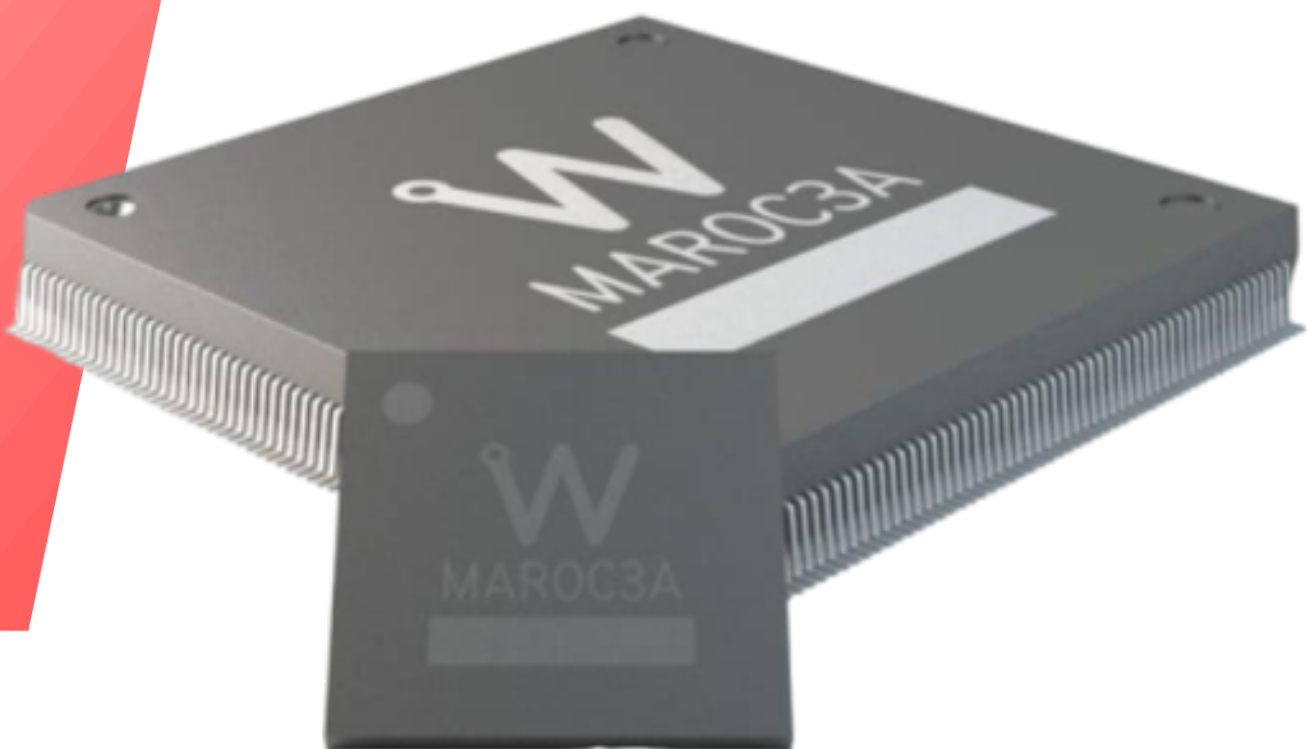


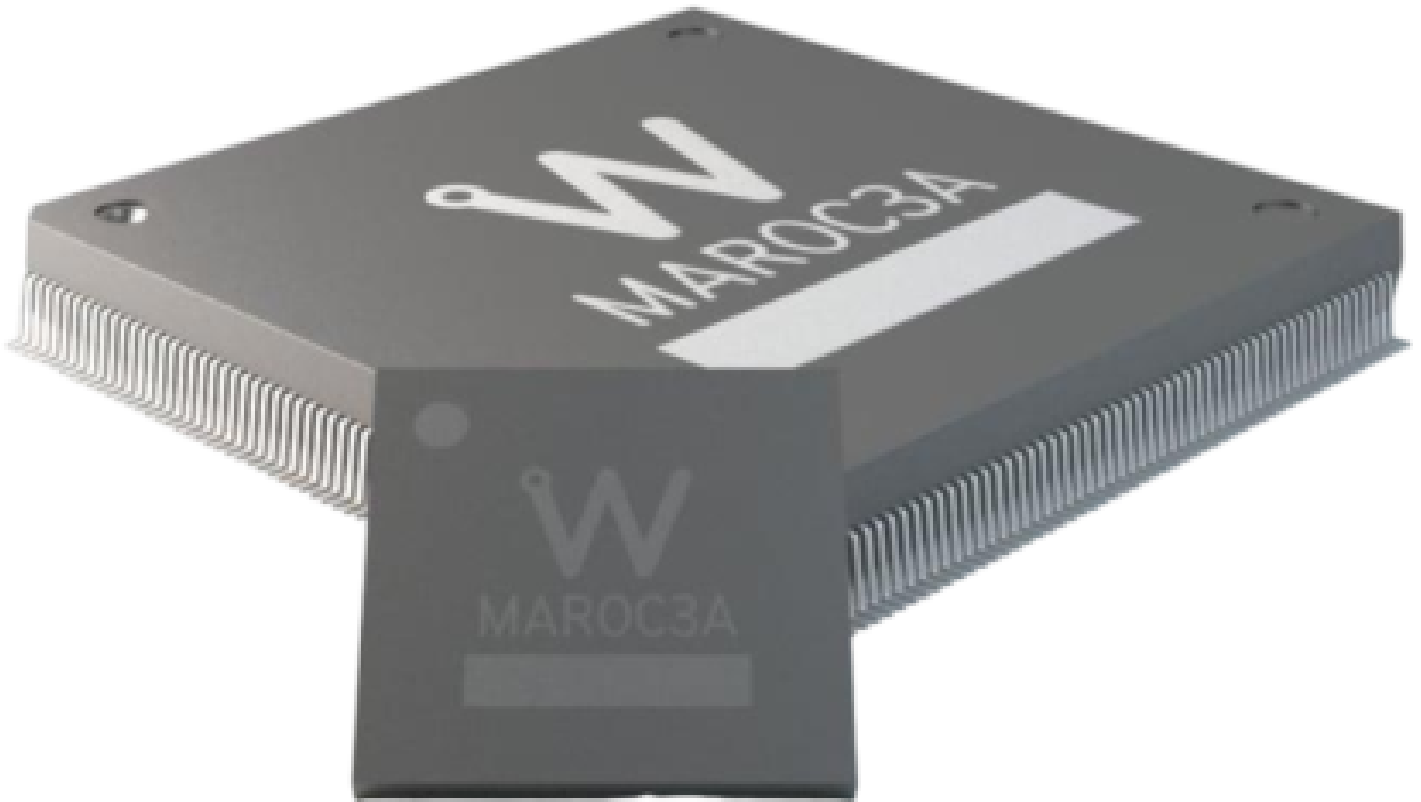
Discontinued

MAROC 3A

**Photomultiplier
tubes read out chip**



Features



Optimized for

- MA-PMT
- **Number of channels:** 64
- **Type of measurement:** Self triggered, Charge integration, Photon counting, Time (trigger)
- **Outputs:** 64 trigger outputs, OR of the 64 triggers for each of the 2 discriminators, 1 multiplexed analog charge output, 1 digital charge measurement (8, 10, or 12 bits)
- **Input Polarity:** Negative
- **Main performances:** Energy measurement, Photon counting 30MHz, MA-PMT gain adjustment

Description

MAROC3A IS DEPRECATED - NOT RECOMMENDED FOR NEW DESIGN Please consider **Poproc** for new design

MAROC 3A is a 64-channel **front-end ASIC** designed to readout negative fast input current pulses such as those provided by **Multi Anode Photo Multipliers**. Each channel provides a **100% trigger** rate for signal greater than $1/3$ photoelectron (50fC) and a charge measurement up to 30 photoelectrons (~ 5 pC) with a linearity of 2%. The gain of each channel can be tuned between 0 and 4 thanks to an 8 bit variable gain preamplifier allowing to compensate the non- uniformity between detector channels. A slow shaper combined with two Sample and Hold capacitors allows storing the charge up to 5 pC as well as the baseline. In parallel, 64 trigger outputs are obtained thanks to two possible trigger paths: one made of a bipolar or unipolar fast (15 ns) shaper followed by one discriminator for the **photon counting** and one made with a bipolar fast shaper (with a lower gain) followed by a discriminator to deliver triggers for larger input charges (> 1 pe). The discriminator thresholds are set by two internal 10-bit DACs. A digital charge output is provided by an integrated 8, 10 or 12 bit Wilkinson ADC.

Technical Specifications

Detector Read-Out

MA-PMT

Number of Channels

64

Signal Polarity

Negative

Sensitivity

Trigger on 1/3 photo-electron

Timing Resolution

60ps RMS on single photo-electron, threshold 1/3 of photo-electron

Dynamic Range

5 pC (106 PM gain), Integral Non Linearity: 2% up to 5 pC

Packaging & Dimension

- PQFP240 (deprecated)
- TFBGA 353 12x12mm

Power Consumption

3.5 mW /ch, power supply= 3.5V

Inputs

64 current inputs

Outputs

- 64 trigger outputs
- OR of the 64 triggers for each of the 2 discriminators
- 1 multiplexed analog charge output
- 1 digital charge measurement (8, 10, or 12 bits)

Internal Programmable Features

- Gain adjustment between 0 and 2 over 8 bits for each input preamp
- Trigger threshold adjustment (10bits)
- Analog and digital charge measurement
- 64 trigger masks

Evaluation systems

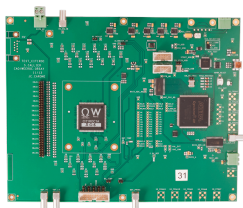
Evaluation board : Available - 64 channels

Ordering Options

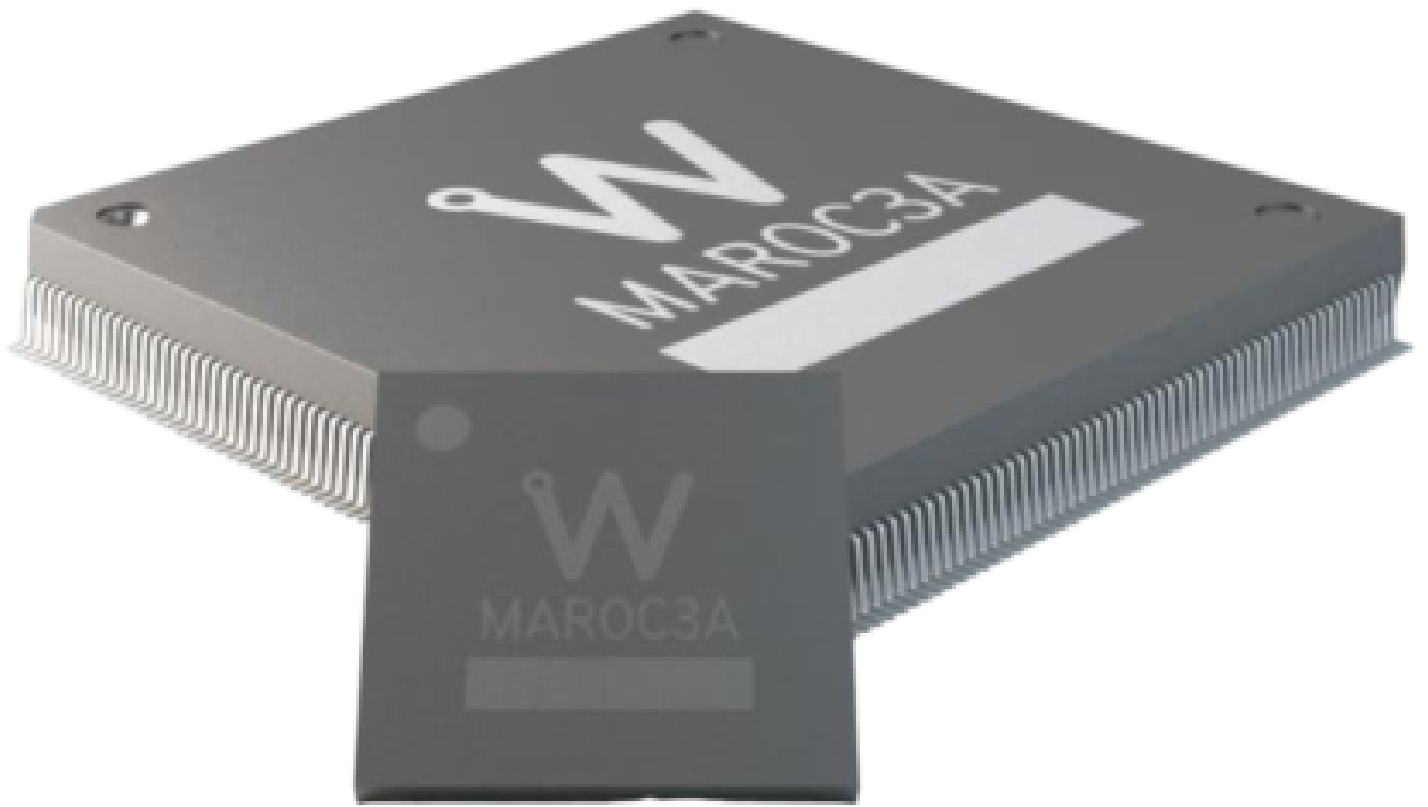
Code	Description
WWMAROC3ABAA	MAROC 3A - Photomultiplier tubes read out chip - BGA (Ball Grid Array) (Discontinued)

Related Products

Weeroc Testboards



Control Systems for Weeroc ASICs



This document, or parts thereof, may not be reproduced in any form or by any means without written permission from Caen S.p.A. Although every effort has been made to ensure the accuracy of information presented in this catalog, Caen S.p.A reserves the right to modify its products specifications without giving any notice; for up to date information please visit www.caen.it © Caen S.p.A - 2024

CAEN S.p.A.

Via Vetraia 11
55049 - Viareggio
Italy

Phone +39.0584.388.398

Fax +39.0584.388.959

info@caen.it

www.caen.it

CAEN GmbH

Brunnenweg 9
64331 Weiterstadt, Germany

Phone +49 (0)212.254.4077

Mobile +49 (0)151.16.548.484

info@caen-de.com

www.caen-de.com

CAEN Technologies, Inc.

1 Edgewater Street - Suite 101
Staten Island, NY 10305
USA

Phone +1.718.981.0401

Fax +1.718.556.9185

info@caentechnologies.com

www.caentechnologies.com

CAENspa India Private Limited

B205, BLDG42, B Wing,
Azad Nagar Sangam CHS,
Mhada Layout, Azad Nagar, Andheri West
Mumbai, Maharashtra 400053, India

info@caen-india.in

www.caen-india.in

