

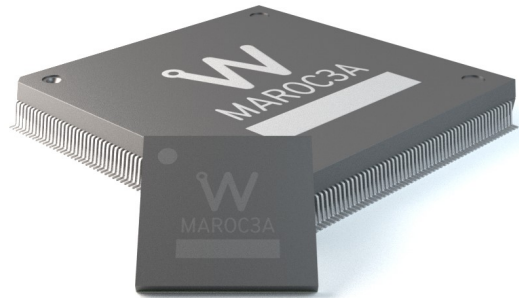


weeroc

Maroc 3A

Photomultiplier-tubes read-out chip

MAROC3 is a 64-channel chip 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.



Detector Read-Out	MAPMT, SiPM
Number of Channels	64
Signal Polarity	Negative
Sensitivity	Trigger on 1/3 photo-electron with a 10^6 PM gain or 50 fC
Timing Resolution	60ps RMS on single photo-electron, threshold 1/3 of photo-electron
Dynamic Range	5 pC (10^6 PM gain), Integral Non Linearity: 2% up to 5 pC
Packaging & Dimension	PQFP240, TFBGA353
Power Consumption	3.5 mW /ch, power supply= 3.5V
Inputs	64 current inputs
Outputs	64 trigger outputs Wired OR of the 64 triggers for each of the 2 discriminators 1 multiplexed analog charge output that can be daisy chained 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 outputs, 64 trigger masks

They are using Maroc 3A

CERN (ATLAS luminometer)
Jefferson lab (CLASS12)
Industrial applications under NDA

More about Maroc 3A

Contact
Web
Email
Phone

Jean-Baptiste CIZEL
<http://www.weeroc.com/products/maroc-3>
maroc@weeroc.com
+33 1 69 59 69 27

