

VIAMP-KC
SDD + Preamp

KC
VIAMP

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OEM solution with VITUS CUBE SDD and low-noise preamplifier

The VIAMP-KC preamplifier module is a specially designed OEM printed circuit board for operation with KETEK's VITUS CUBE Silicon Drift Detectors (SDD), matching all types from 7 mm² (H7) up to 50 mm² (H50) collimated area.

The assembly comprises an ultra-low-noise, ramped reset type electronic preamplifier of positive polarity with onboard settings and filtering for all necessary SDD bias voltages.

The Al housing is functioning as an appropriate heat sink. Beside KETEK's standard housing, customized versions are available on request as well.

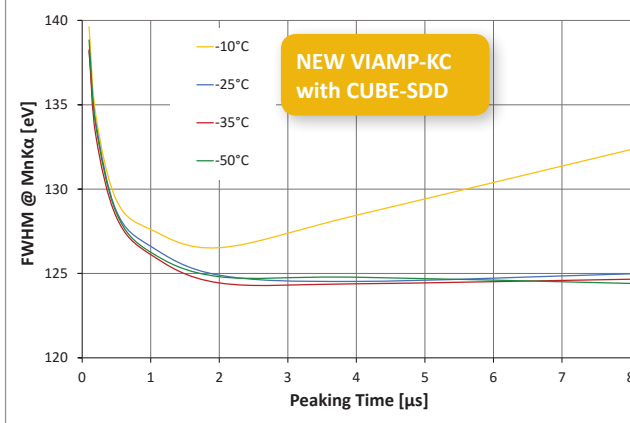
Characteristics

- VITUS-CUBE SDDs from 7 mm² (H7) to 50 mm² (H50)
- Ultra-low-noise preamplifier
- Customized gain and ramp position available on request
- Serial interface accessible: EEPROM and Peltier hot side temperature
- Ramped reset type output signal
- External reset input
- UL compliant
- Customized housing available on request

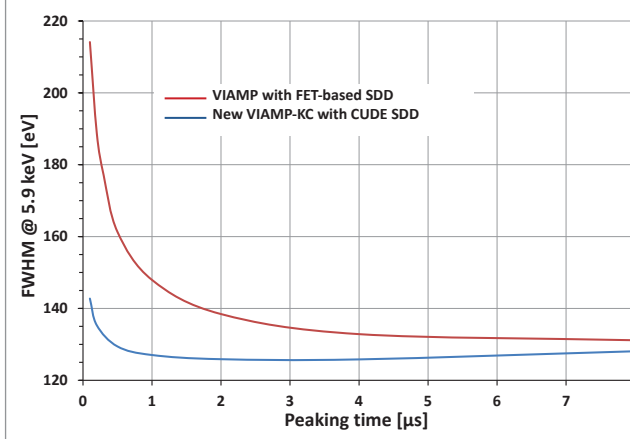


VIAMP
FFC connector

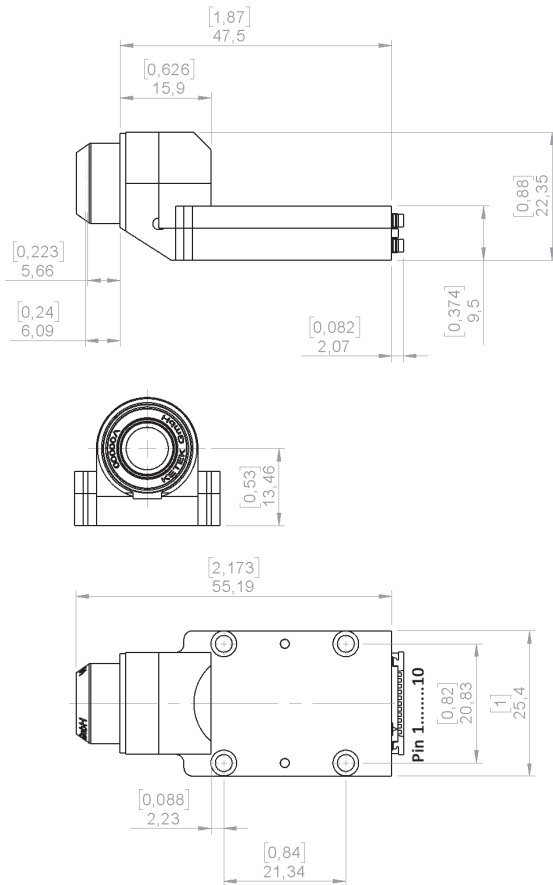
FWHM vs. Peaking Time at different chip temperatures



FWHM vs. Peaking Time at -35 °C chip temperature



VIAMP-KC geometry in mm [inch]



VIAMP-KC operational parameters*

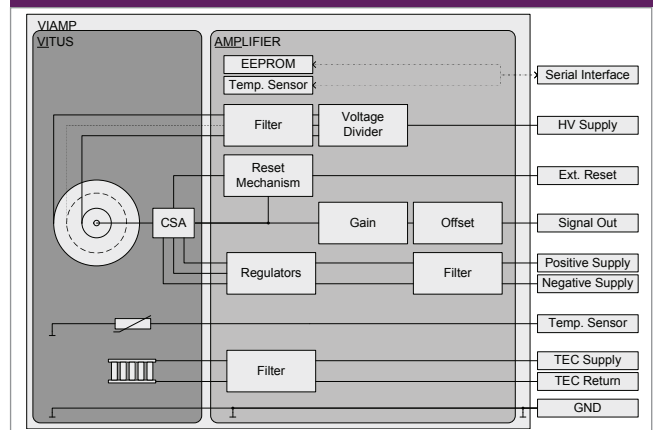
Parameter	Typical	Maximum Ratings
Positive Supply	+5 V / 18 mA DC	+4.9 V to +5.4 V / ≤ 35 mA 30 mV _{pp} Ripple
Negative Supply	-5 V / 9 mA DC	-5.4 V to -4.9 V / ≤ 25 mA 30 mV _{pp} Ripple
HV Supply	-168 V / ≈ 85 μA DC	-171 V to -165 V / ≤ 100 μA 30 mV _{pp} Ripple
Ramp Threshold (positive)	+1.5 V	+1.35 V to +1.65 V
Ramp Threshold (negative)	-1.5 V	-1.65 V to -1.35 V
Preamp Gain	5 mV / keV**	±20 %
TEC Supply***	1.7 V / 280 mA @ -35 °C	700 mA 30 mV _{pp} Ripple
TEC ΔT	70 K	@ 20 °C heat sink temperature
Temperatur Sensor	10 kΩ Thermistor @ +25 °C	≤1 μA current

* Valid for standard configuration
 ** Other gain configurations on request
 *** In case of Beryllium encapsulation only

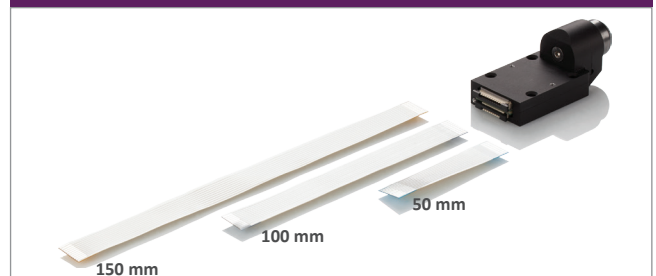
VIAMP-KC pin assignment

#Pin	Description of Connector FFC ZIF 10-pin
Pin 1	TEC Return
Pin 2	TEC Supply
Pin 3	Positive Supply
Pin 4	Negative Supply
Pin 5	GND (Signal Return)
Pin 6	Signal Out
Pin 7	Temperature Sensor
Pin 8	GND
Pin 9	n.c.
Pin 10	HV Supply

VIAMP-KC operation block diagram



VIAMP-KC standard housing with different cable lengths



Typical VIAMP-KC output signal at -35 °C chip temperature

