Line card KMA / KMZ family

KMA family	KMA 200	KMA199E	KMA199	KMA210	KMA220	KMA221	KMA215
Status	End of Life	End of Life	End of Life	Production	Production	Production	Development
Description	Single sensor "2 Analog outputs SPI output"	Single sensor 1 Analog output	Single sensor 1 Analog output	Single sensor 1 Analog output	Double sensor "1 Analog output per channel"	Single sensor 1 Analog output	Single sensor "1 Digital output SENT"
Number of dies	1 MR + 1 ASIC	1 MR + 1 ASIC +2 protection diodes	1 MR + 1 ASIC +2 protection diodes	1 MR + 1 ASIC +2 capacitors	2 MRs + 2 ASICs +3 capacitors	1 MR + 1 ASIC +2 capacitors	"1 MR + 1 ASIC +2 capacitors"
Package							

Operating conditions

	KMA 200	KMA199E	KMA199	KMA210	KMA220	KMA221	KMA215
Max. temperature	+160 °C	+160 °C	+160 °C	+160 °C	+160 °C	+160 °C	+160 °C
Ext magnetic field strength	> 35 kA/m	> 35 kA/m	> 35 kA/m	> 35 kA/m	> 35 kA/m	> 35 kA/m	> 35 kA/m
Supply voltage	4.5 V...5.5 V	4.5 V...5.5 V	4.5 V...5.5 V	4.5 V...5.5 V	4.5 V...5.5 V	4.5 V...5.5 V	4.5 V...5.25 V
Supply current	12 mA max (plus signal current)	10 mA max (plus signal current)	10 mA max (plus signal current)	10.5 mA max (plus signal current)	21 mA max (plus signal current)	10.5 mA max (plus signal current)	12 mA max (plus signal current)

Electr. Protection

	KMA 200	KMA199E	KMA199	KMA210	KMA220	KMA221	KMA215
DC Overvoltage	+26.5 V	+ 6 V	+ 6 V	+ 16 V	+ 16 V	+ 16 V	+ 16 V
Reverse polarity	- 16.5 V	-0.3 V or any current limited voltage	-0.3 V or any current limited voltage	-0.3 V or any current limited voltage	-0.3 V or any current limited voltage	-0.3 V or any current limited voltage	-0.3 V or any current limited voltage
EMC	(reference)	significantly improved	significantly improved	improved with integrated Caps	improved with integrated Caps	improved with integrated Caps	improved with integrated Caps
ESD protection of external pins	4 kV HBM 100 pF/1.5 kΩ	8 kV HBM 100 pF/1.5 kΩ	8 kV HBM 100 pF/1.5 kΩ	8 kV HMM 150 pF/330 Ω	8 kV HMM 150 pF/330 Ω	8 kV HMM 150 pF/330 Ω	8 kV HMM 150 pF/330 Ω

KMA family	KMA 200	KMA199E	KMA199	KMA210	KMA220	KMA221	KMA215
Status	End of Life	End of Life	End of Life	Production	Production	Production	Development

Accuracy

	KMA 200	KMA199E	KMA199	KMA210	KMA220	KMA221	KMA215
Angular Error	+- 1.65 ° -40 … +160 °C	not specified	1.35 -40 … +160 °C	1.35 -40 … +160 °C	1.35 -40 … +160 °C	1.35 -40 … +160 °C	1.2 -40 … +160 °C
Linearity error	not specified	1.55 -40 … +160 °C	+/- 1.0 ° -40 … +140 °C	+/- 1.0 ° -40 … +140 °C	+/- 1.0 ° -40 … +140 °C	+/- 1.0 ° -40 … +140 °C	+/- 0.9 ° -40 … +140 °C
Temperature drift	+/- 0.64 -25…+125 °C	+/-0.8 -40 … +160 °C	+/-0.65 -40 … +140 °C	+/-0.65 -40 … +140 °C	+/-0.65 -40 … +140 °C	+/-0.65 -40 … +140 °C	+/-0.65 -40 … +140 °C
Angle resolution	0.05 °	0.04 °	0.04 °	0.04 °	0.04 °	0.04 °	0.04 °
Microlinearity	+/- 0.1 °	+/- 0.1 °	+/- 0.1 °	+/- 0.1 °	+/- 0.1 °	+/- 0.1 °	+/- 0.1 °

Diagnostic behaviour

	KMA 200	KMA199E	KMA199	KMA210	KMA220	KMA221	KMA215
Diagnosis	full set of diagonis features	Magnet lost	Magnet lost	Magnet lost	Magnet lost	Magnet lost	Magnet lost
Lost ground diagnostic	partly (only with pull-up-resistor)	yes > 5 kΩ	yes > 5 kΩ	yes > 5 kΩ	yes > 5 kΩ	yes > 5 kΩ	yes no SENT comm.
Lost supply diagnostic	yes (5…6 k)	yes > 5 kΩ	yes > 5 kΩ	yes > 5 kΩ	yes > 5 kΩ	yes > 5 kΩ	yes no SENT comm.

E) EEPROM features

	KMA 200	KMA199E	KMA199	KMA210	KMA220	KMA221	KMA215
CRC	yes	yes	yes	yes	yes	yes	yes
Availability in case of single bit failure	no (diagnosis. output switched off)	yes. redundant	yes. redundant	yes. redundant	yes. redundant	yes. redundant	yes. redundant

neutral

better

different behaviour

KMZ family	KMZ41	KMZ43T	KMZ49	KMZ60
Status	Production	End of life	Production	Production
Description	Angular MR sensor bridge	Angular MR sensor bridge	Angular MR sensor bridge	Angular MR sensor bridge plus amplifier
Number of dies	1 MR	1 MR	1 MR	1 MR + 1 ASIC
Package	SO8 (SOT96-1)	SO8 (SOT96-1)	SO8 (SOT96-1)	SO8 (SOT96-1)

Operating conditions

	KMZ41	KMZ43T	KMZ49	KMZ60
Max. temperature	+150 °C	+150 °C	+150 °C	+150 °C
Ext magnetic field strength	> 100 kA/m	> 25 kA/m	> 25 kA/m	> 25 kA/m
Supply voltage	max. 9 V	max. 9 V	max. 9 V	2.7 V...5.5 V
Peak Output voltage	73…89 mV @ 5 V	60…75 mV @ 5 V	60…75 mV @ 5 V	0.46 Vdd … 0.7 Vdd @ 25 °C Peak to Peak
Offset voltage	+- 2 mV/V	+- 2 mV/V	+- 2 mV/V	+- 0.08 Vdd @ 25 °C
TC offset	+- (2 uV/V)/K	+- (4 uV/V)/K	+- (2 uV/V)/K	see graph in datasheet

neutral

better

different behaviour