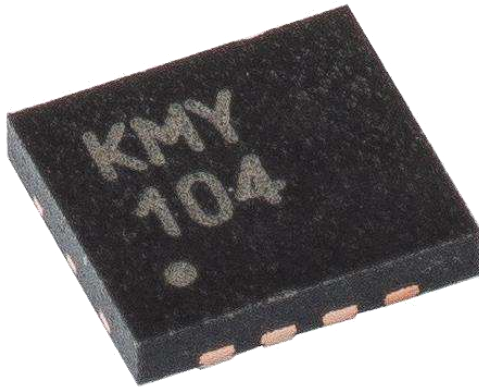




KMY104

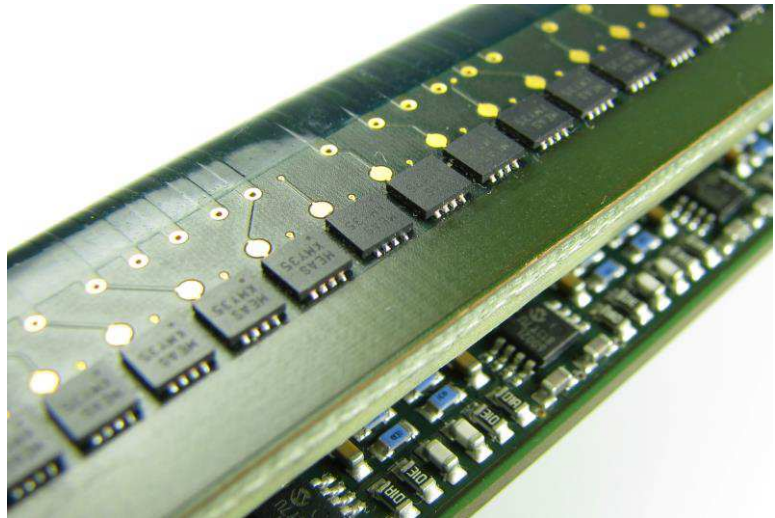
Magnetic Homogeneous Sensor

- AMR gradient sensor
- UDFN-Package 2.8 x 2.5 x 0.5 mm³
- Designed for the detection of magnetic structures on paper by linear arrays without sensitivity gaps
- High sensitivity, low noise
- Robust against disturbing fields

The KMY104 is a magnetic field sensor utilizing the anisotropic magneto resistance effect. This sensor is especially designed to build linear sensor arrays for scanning the magnetic structures on banknotes or other documents, that contain magnetic features. The sensor contains six AMR-barberpole sensor elements. In scanning direction, a resolution of 0.75 mm is achievable. In the perpendicular direction a resolution of 1.00 mm is possible. To ensure reproducible output signals the sensor elements need an auxiliary magnetic field along the array direction.

FEATURES

- For the detection of small, localized magnetic fields generated by hard- or soft magnetic features (depending on the auxiliary field), like for example magnetic ink on bank notes
- High signal/noise ratio
- Low distance dependence due to homogenous field detection
- No insensitive gaps in linear arrays
- REACH & RoHS compliant



[CLICK HERE ›](#)
CONNECT WITH A SPECIALIST

APPLICATIONS

- Banknote validation
- Document validation
- Detection of ferromagnetic particles
- Magnetic ink detection

CHARACTERISTIC VALUES

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Mechanical dimensions						
Length	X			2.80		mm
Width	Y			2.50		mm
Height	Z			0.50		mm
Operating limits						
Supply voltage	V _{CC}	PIN 1/8	-8	5	8	V
Operating temperature			-40		+125	°C
Storage temperature			-40		+125	°C
Sensor specification						
Bridge resistance KMY104	R _{B12}	Pin 1/2	1800	2400	3000	Ω
	R _{B3}	Pin 3/4	3600	4800	6000	Ω
Auxiliary field	H _x		2			kA/m

An auxiliary field applied in X direction is needed for a stable sensor performance. The given minimum value is a recommendation and depends strongly on the magnetic environment in the application. The strength of the auxiliary field determines the sensitivity of the MR sensor.

BLOCK DIAGRAM

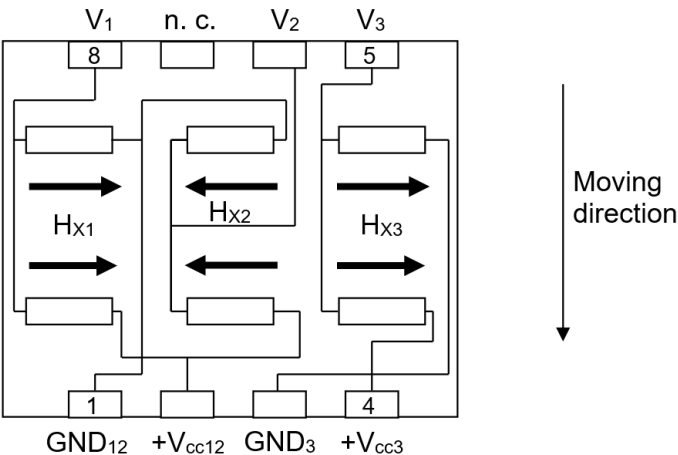


Figure 1: KMY104 - internal and external connections (UDFN, Chip)

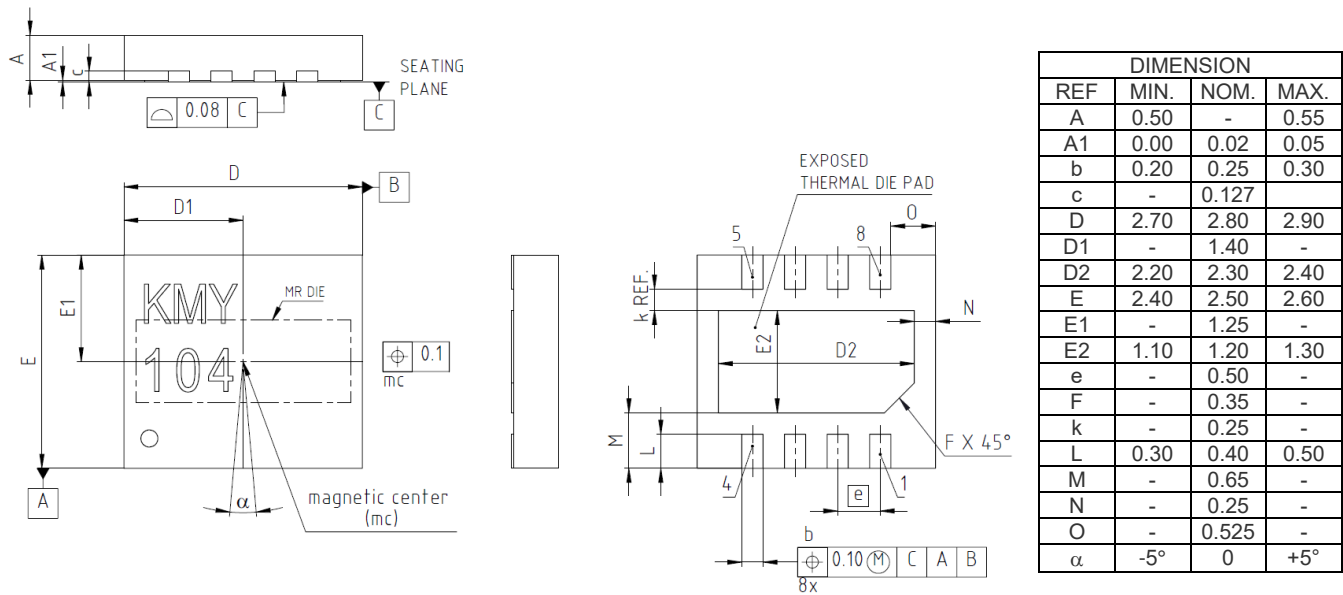
Pin Assignment

Pin (UDFN)	Symbol	Function
1	GND₁₂	Supply voltage ground channel
2	V_{CC12}	Supply voltage channel 1/2
3	GND₃	Supply voltage 3 ground
4	V_{CC3}	Supply voltage 3 ground
5	V₃	Output voltage channel 3
6	V₂	Output voltage channel 2
7	N.C.	not connected
8	V₁	Output voltage channel 1

PACKAGES

UDFN 2.8 X 2.5

KMY104 / G-MRCO-047



Quality information

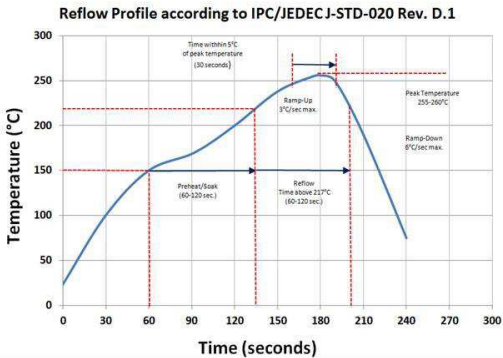
This product has been qualified in accordance with the Automotive Electronics Council (AEC) standard Q101 - Failure mechanism-based stress test for discrete semiconductor.

Solder Profile

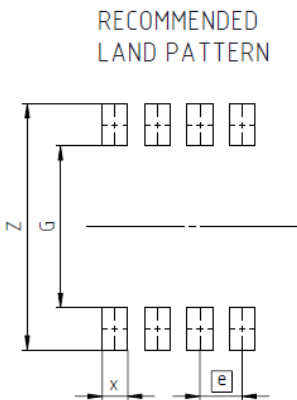
KMY104 / G-MRCO-047

Package: 8L UDFN 2.8 x 2.5

Solder Profile



Recommended Land Pattern



REF	DIMENSION MM		
	MIN.	NOM.	MAX.
X	-	0.30	-
G	1.90	-	-
Z	-	-	2.90
e	-	0.50	-

Moisture Sensitivity Level for KMY104:

MSL1 @ 260°C

Tape and Reel Packaging Information

Description	Reel size	Units/reel	Pin 1 orientation	Note
KMY104	7"	3,000	Top-right of sprocket hole side	

APPLICATION NOTES

Supply Voltage Polarity

The sensor consists of an array of ohmic resistors. Therefore, the polarity of the supply voltage can be chosen freely. Changing the supply voltage will not change the sensor behavior except the polarity of the output signal.

Supply Signal Polarity

The polarity of the output signal depends on the polarity of the supply voltage as well as on the polarity of the auxiliary field. The conditions shown in the block diagrams will create a uniform signal polarity on all channels.

Channel width more than 1 mm

The sensor is intended for building sensor arrays with 1 mm channel pitch. It is possible to create signals representing channel widths with a multiple of 1 mm by direct connection of neighbor channel outputs. In this case it is essential to use signals of the same polarity. When using auxiliary magnet designs with alternating Hx-field direction the KMY104 is recommended due to its enhanced capabilities in adjusting the signal polarity by means of changing supply voltage polarities.

KMY104

Magnetic Homogeneous Sensor

Ordering Information

Description	Part Number
KMY104 8L UDFN 2.8x2.5 ROHS	G-MRCO-047

CLICK HERE ›
CONNECT WITH A SPECIALIST

NORTH AMERICA
Tel +1 800 522 6752

EUROPE
Tel +31 73 624 6999

ASIA
Tel +86 0400 820 6015

te.com/sensors

TE Connectivity, TE, TE Connectivity (logo) and Every Connection Counts are trademarks. All other logos, products and/or company names referred to herein might be trademarks of their respective owners

The information given herein, including drawings, illustrations and schematics which are intended for illustration purposes only, is believed to be reliable. However, TE Connectivity makes no warranties as to its accuracy or completeness and disclaims any liability in connection with its use. TE Connectivity's obligations shall only be as set forth in TE Connectivity's Standard Terms and Conditions of Sale for this product and in no case will TE Connectivity be liable for any incidental, indirect or consequential damages arising out of the sale, resale, use or misuse of the product. Users of TE Connectivity products should make their own evaluation to determine the suitability of each such product for the specific application.

© 2021 TE Connectivity Corporation. All Rights Reserved.

Version 1 09/2023

