

AM256R2D – Dual angular magnetic encoder IC

Features

- Contactless angular position encoding over 360°
- Ideal for harsh environments due to magnetic sensing
- Complete system-on-chip solution
- 8 bit absolute encoder
- Output options:
 - Incremental
 - Serial SSI
 - Analogue sinusoidal
 - Factory optimized linearity
- High rotational speed up to 60,000 rpm
- 5 V power supply
- Low power consumption. 13 mA typical.
- Extended operating temperature range (-40 °C to +125 °C)
- SMD package LQFP44
- RoHS compliant (lead free)

Applications

Non-contact position or velocity measurements:

- Motor motion control
- Flow measurement
- Robotics
- Camera positioning
- Front panel switches
- Workshop equipment
- Mobility aids

General description

The AM256R2D incorporates two AM256 dice in one chip. With two totally separate sensors enclosed within the same chip this dual sensor can offer redundant functionality. Each sensor is totally isolated from the other and can be supplied with a separate power supply.

Each sensor can output absolute SSI or incremental position information. Position error between the two sensors is always better than ± 1 bit.

For detailed sensor information, please refer to the AM256 datasheet that can be found on www.rls.si.

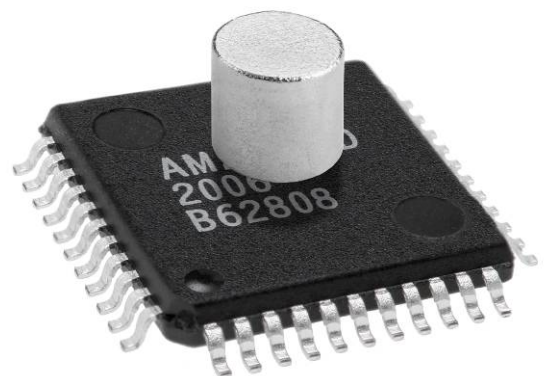


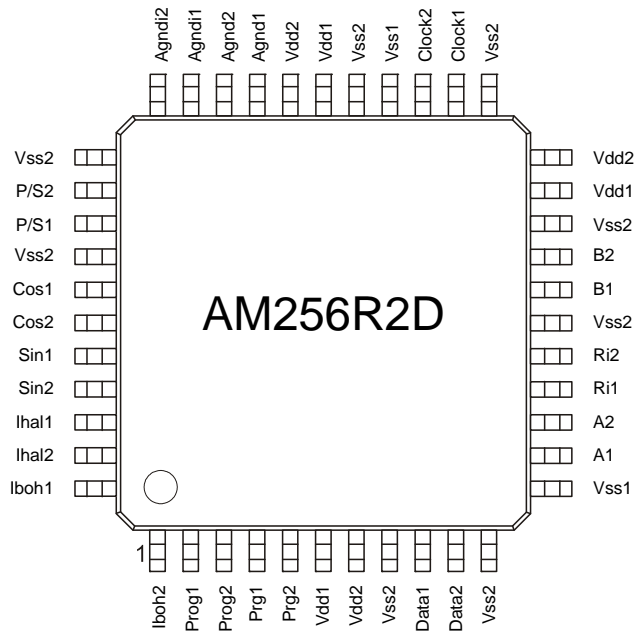
Fig. 1: AM256R2D with magnet



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Pin description



Magnet position

The typical distance between the magnet and the PCB where the chip is soldered onto must be 3.00 mm for the recommended magnet.

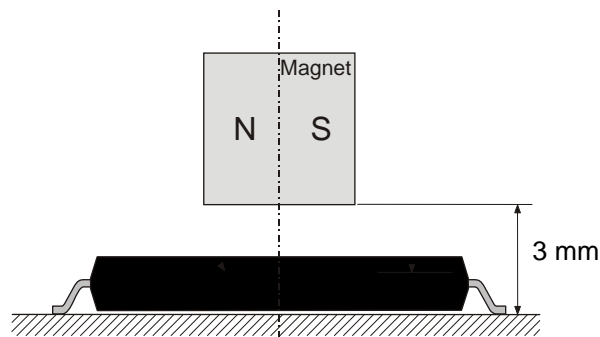
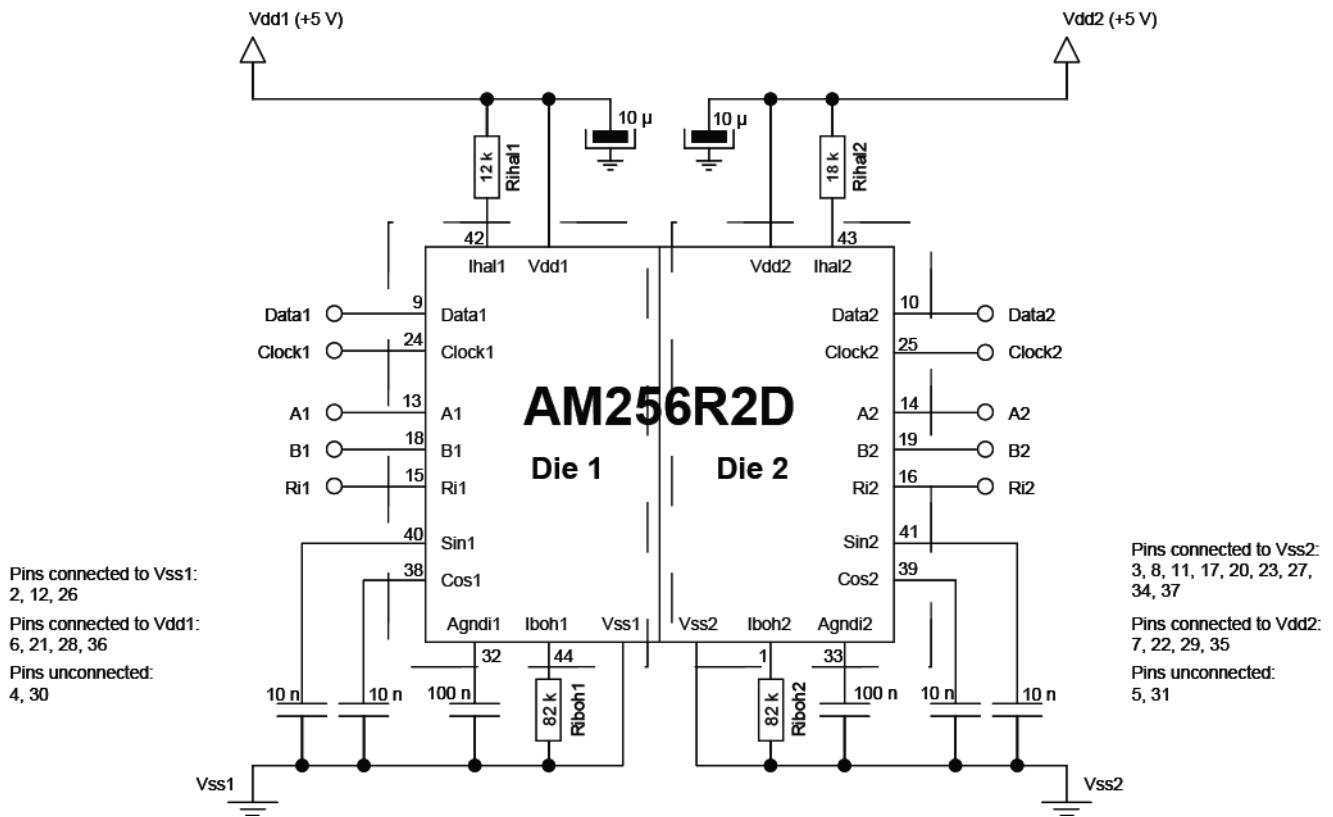


Fig. 2: Distance PCB surface / magnet

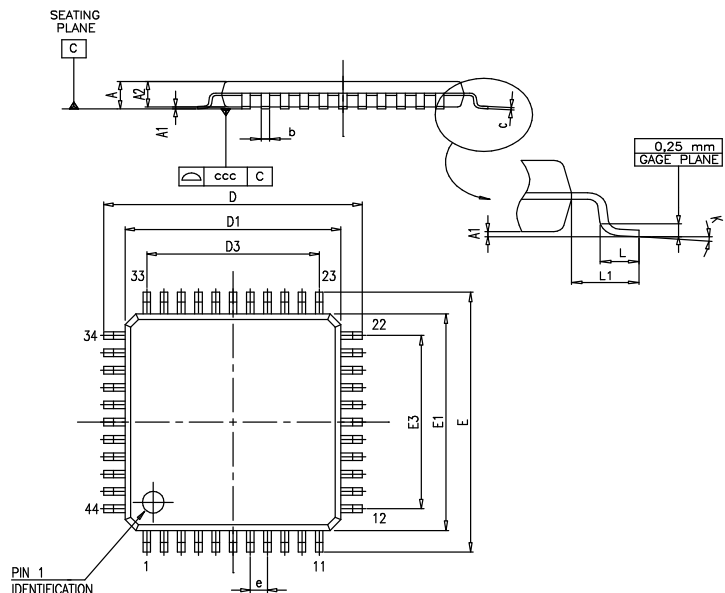
Electrical schematic



LQFP44 Package Dimensions


Dimensions:

Symbol	Min.	Typ.	Max.	Unit
A			1.6	mm
A1	0.05		0.15	mm
A2	1.35	1.40	1.45	mm
b	0.30	0.37	0.45	mm
c	0.09		0.20	mm
D	11.80	12.00	12.20	mm
D1	9.80	10.00	10.20	mm
D3		8.00		mm
E	11.80	12.00	12.20	mm
E1	9.80	10.00	10.20	mm
E3		8.00		mm
e		0.80		mm
L	0.45	0.60	0.75	mm
L1		1.00		mm
K	0	3.5	7	°



Ordering information


1. Angular Magnetic Encoder IC

Part Number	Description
AM256R2D 	AM256R2D Dual Angular Magnetic Encoder IC with default functionality Outputs: - SSI - Incremental - Analogue Sine/Cosine LQFP44 plastic package Delivered in trays (160 units per tray)

NOTE: order quantity must be a multiple of 160 (one tray).

NOTE: magnet must be ordered separately! The Angular Magnetic Encoder IC part number does not include a magnet.

2. Magnet

Part Number	Description
RMM44A2C00 	Diametrically polarized magnet Dimensions: \varnothing 4 mm x 4 mm

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Document issues

Document issue	Date	Changes
03	8. 11. 2007	Changed layout Page 1: Changed the RLS colour to bright yellow Page 2: Inserted index Page 5: Corrected the contact information
03	12. 2. 2008	Page 5: Added the ordering information
03	13. 5. 2008	Page 1: Added the "more information" paragraph
04	14. 1. 2009	General: New layout
05	12. 11. 2010	Page 4: Electrical schematic update

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