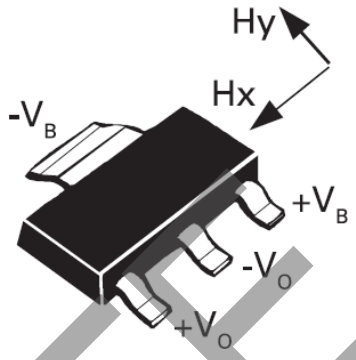
MAGNETIC FIELD SENSOR WITH INTERNAL MAGNET

Description

The ZMY20M is an extremely sensitive magnetic sensor employing the magneto-resistive effect of thin film permalloy. It allows the measurement of magnetic fields or the detection of magnetic parts. The highly sensitive and small size magnetoresistive sensors consist of chip covered with thin film permalloy stripes. These stripes form a Wheatstone bridge, whose output voltage is proportional to the magnetic field component Hy. The required perpendicular field Hx which is necessary to stabilize sensor operation, is created by an internal permanent magnet.



Features

- Package: SOT223
- Supply voltage 12V
- Internal magnet for creation of auxiliary field Hx
- Available on 12mm tape
- **For automotive applications requiring specific change control (i.e. parts qualified to AEC-Q100/101/200, PPAP capable, and manufactured in IATF 16949 certified facilities), please contact us or your local Diodes representative. https://www.diodes.com/quality/product-definitions/**

Applications

- Linear position measurement
- Angular position measurement
- Navigation (electronic compass)
- Revolution measurement

Ordering Information

DEVICE	REEL SIZE	TAPE WIDTH	QUANTITY PER REEL
ZMY20MTA	7″	12mm	1,000
ZMY20MTC	13″	12mm	4,000

Marking Information

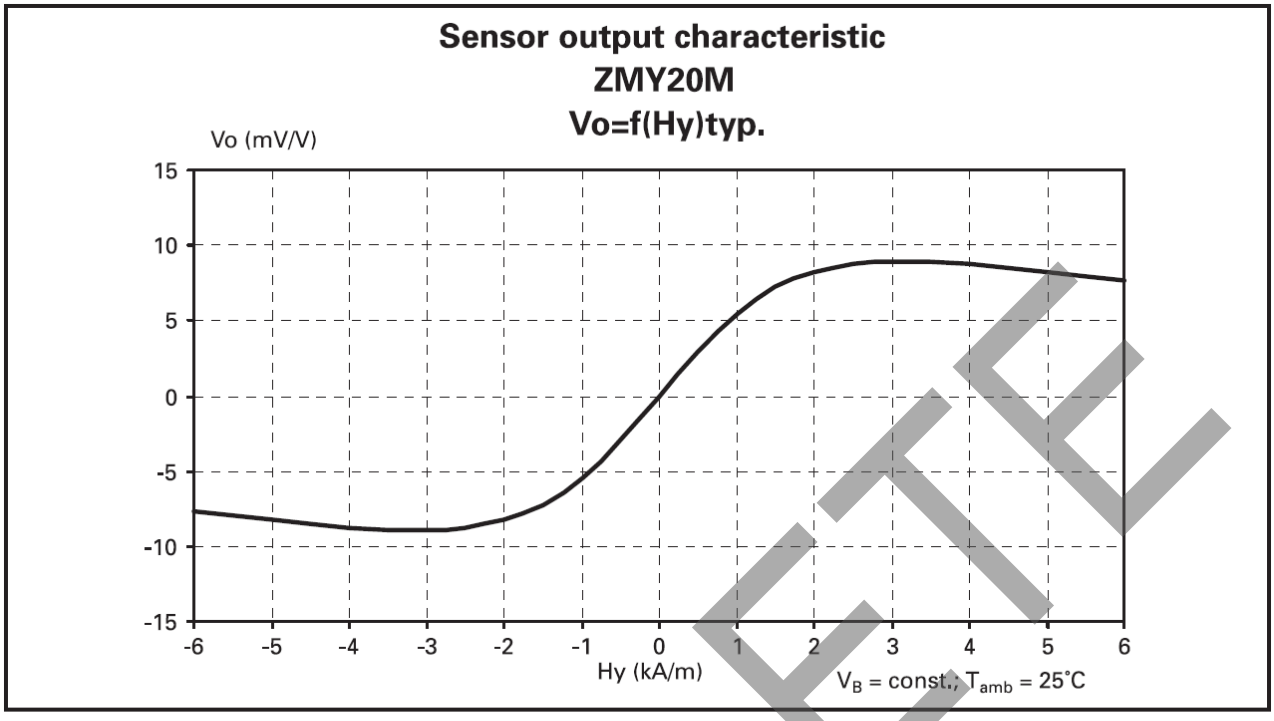
- ZMY20M

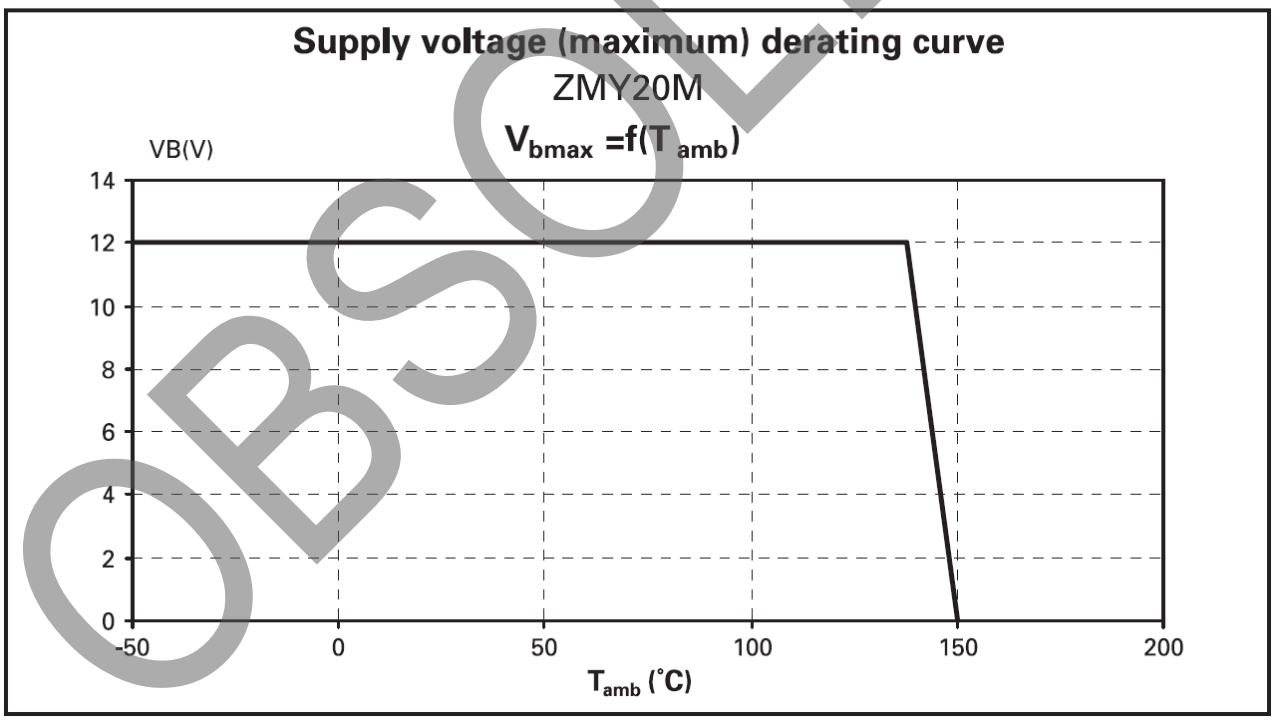
Absolute Maximum Ratings

PARAMETER	SYMBOL	LIMIT	UNIT
Supply voltage	V_B	12	V
Total power dissipation	P_{TOT}	120	mW
Operating temperature range	T_{amb}	-25 to +125	°C
Storage temperature range	T_{stg}	-25 to +125	°C

Electrical Characteristics (@T_A = +25°C, unless otherwise stated.)

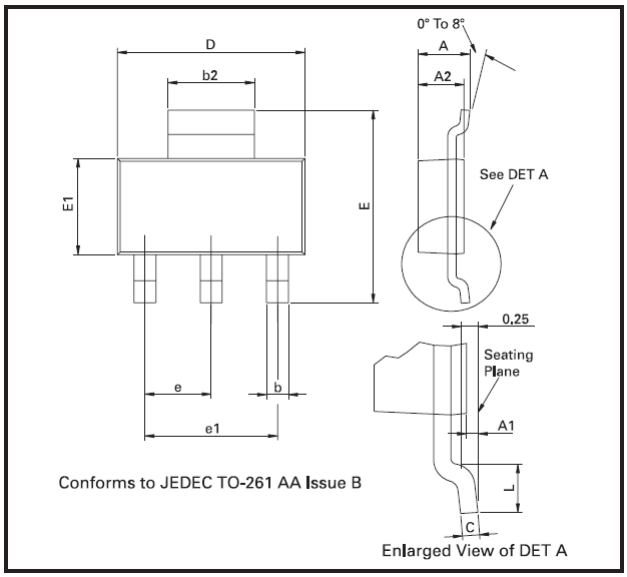
PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	CONDITIONS
Bridge resistance	R_{br}	1.2	1.7	2.2	kΩ	
Output voltage range	V_O/V_B	12	18	24	mV/V	
Auxiliary field	Hx	-	2	-	kA/m	
Disturbing field	Hd	-	-	30	kA/m	
Open circuit sensitivity	S	3.0	5.5	7.0	(mV/V)/ (kA/m)	No disturbing field H_d allowed V_B = const.
Hysteresis of output voltage	V_{OH}/V_B	-	-	50	µV/V	Hy ≤ 2kA/m
Offset voltage	V_{off}/V_B	-1.5	-	+1.5	mV/V	
Operating frequency	f_{max}	0	-	1	MHz	
Temperature coefficient of offset voltages	TCV_{off}	-3	-	+3	(µV/V)/K	T_{amb} = -25 to +125°C
Temperature coefficient of bridge resistance	TCR_{br}	0.25	0.3	0.35	%/K	T_{amb} = -25 to +125°C
Temperature coefficient of open circuit sensitivity V_B= 5V	TCS_V	-0.25	-0.3	-0.35	%/K	T_{amb} = -25 to +125°C
Temperature coefficient of open circuit sensitivity I_B= 3mA	TCS_I	-	0.05	-	%/K	T_{amb} = -25 to +125°C





Package Outline Dimensions

Please see http://www.diodes.com/package-outlines.html for the latest version.



Controlling dimensions are in millimeters. Approximate conversions are given in inches

DIM	Millimeters		Inches		DIM	Millimeters		Inches	
	Min	Max	Min	Max		Min	Max	Min	Max
A	-	1.80	-	0.071	e	2.30 BSC		0.0905 BSC	
A1	0.02	0.10	0.0008	0.004	e1	4.60 BSC		0.181 BSC	
b	0.66	0.84	0.026	0.033	E	6.70	7.30	0.264	0.287
b2	2.90	3.10	0.114	0.122	E1	3.30	3.70	0.130	0.146
C	0.23	0.33	0.009	0.013	L	0.90	-	0.355	-
D	6.30	6.70	0.248	0.264	-	-	-	-	-

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