

Description

The ZMZ20M is an extremely sensitive magnetic field sensor in a 4 pin E-line package employing the magneto-resistive effects of thin film Permalloy. It allows the measurement of magnetic fields or the detection of metallic parts. The sensor consists of a chip covered with Permalloy stripes which form a Wheatstone bridge, whose output voltage is proportional to the magnetic field component H_y . A perpendicular field H_x is necessary to suppress the hysteresis and this is provided by an internal permanent magnet.

Features

- Output voltage proportional to magnetic field H_y
- Magnetic fields vertical to the chip level are not effective
- **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](mailto:info@diodes.com) or your local Diodes representative. <https://www.diodes.com/quality/product-definitions/>**

Applications

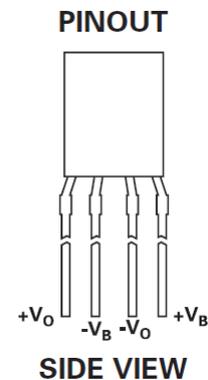
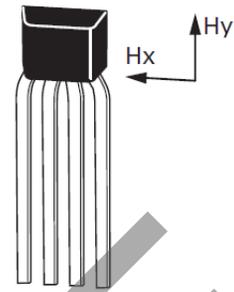
- Linear position sensors for process control, door interlocks, proximity detectors, machine tool sensing
- Scalar measurement for compassing
- Automotive - door switches, engine position and speed sensing
- Metering of fluids by sensing rotation of impeller
- Traffic counting and vehicle-type sensing
- Measurement of current in a conductor without connection

Ordering Information

DEVICE	BOX
ZMZ20M	Bulk in box (2,000 components per box)

Marking Information

- M2M



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

Electrical Characteristics (@ $T_A = +25^\circ\text{C}$, unless otherwise stated.)

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	CONDITIONS
Bridge resistance	R_{br}	1.2	1.7	2.2	k Ω	
Output voltage range	V_O/V_B	12	18	24	mV/V	
Auxiliary field	H_x	-	2.5	-	kA/m	
Disturbing field	H_d	-	-	30	kA/m	
Open circuit sensitivity	S	3.0	5.0	7.0	(mV/V)/(kA/m)	No disturbing field H_d allowed
Hysteresis of output voltage	V_{OH}/V_B	-	-	50	$\mu\text{V}/\text{V}$	$H_y \leq 2\text{kA/m}$
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	($\mu\text{V}/\text{V}$)/K	$T_{amb} = -25$ to $+125^\circ\text{C}$
Temperature coefficient of bridge resistance	TCR_{br}	0.25	0.3	0.35	%/K	$T_{amb} = -25$ to $+125^\circ\text{C}$
Temperature coefficient of open circuit sensitivity	TCS_V	-0.25	-0.3	-0.35	%/K	$T_{amb} = -25$ to $+125^\circ\text{C}$

$V_B = 5\text{V}$

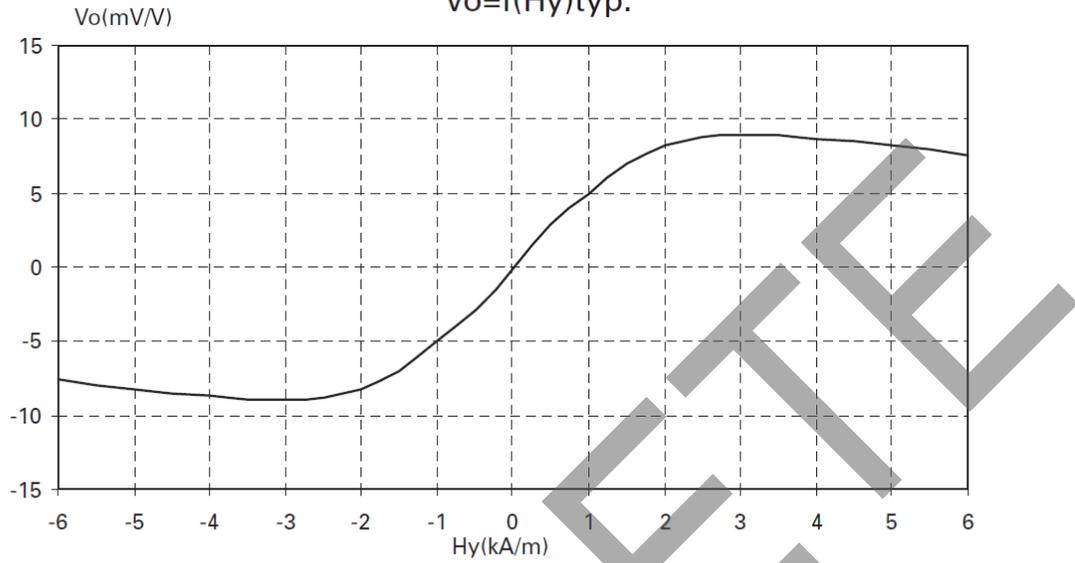
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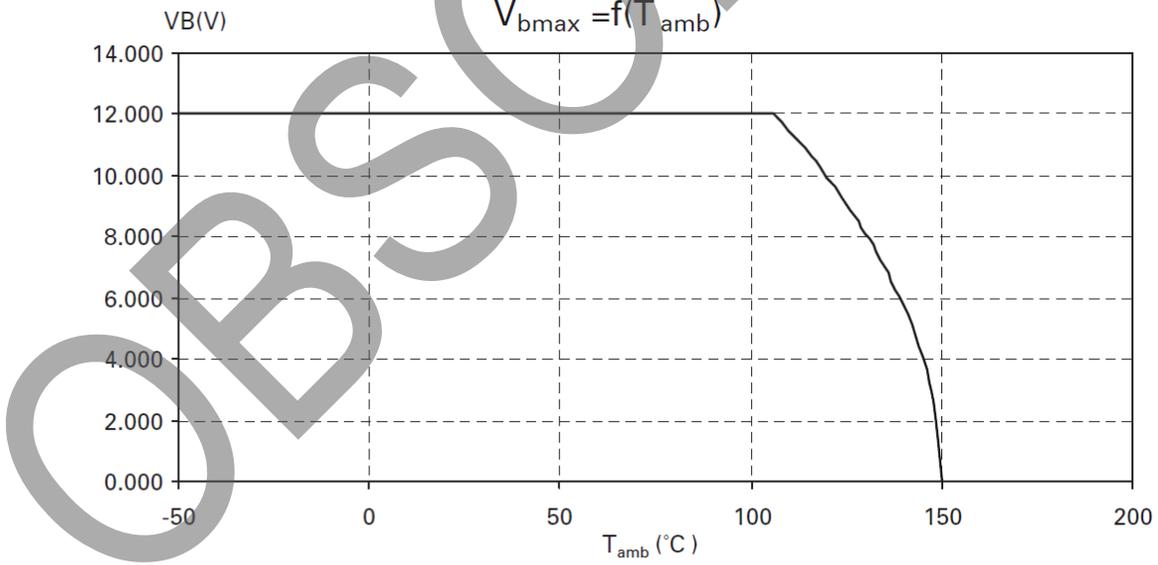
**Sensor output characteristic
ZMZ20M**

$V_o = f(H_y)_{typ.}$



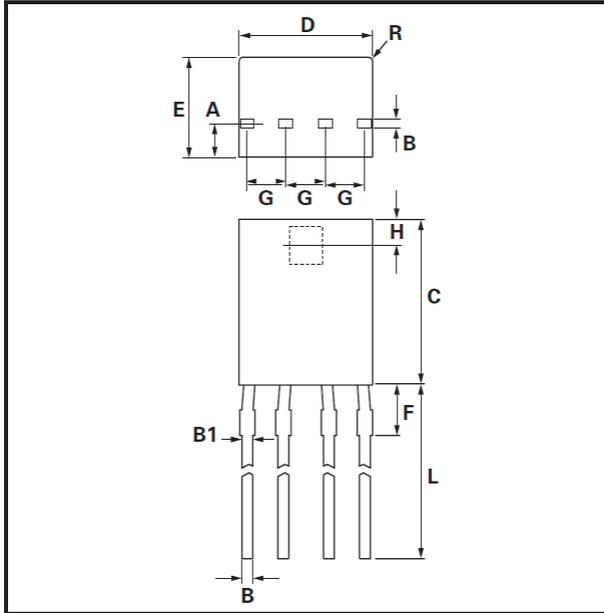
**Supply voltage (maximum) derating curve
ZMZ20M**

$V_{bmax} = f(T_{amb})$



Package Outline Dimensions

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



DIM	Millimeters		Inches	
	Min	Max	Min	Max
A	0.8	1.0	0.032	0.039
B	0.35	0.48	0.014	0.019
B1	0.45	0.60	0.018	0.024
C	4.0	4.4	0.158	0.173
D	3.8	4.2	0.150	0.165
E	2.4	2.8	0.094	0.110
F	1.2	-	0.047	-
G	1.25	-	0.049	-

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

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