

# ZMZ20M

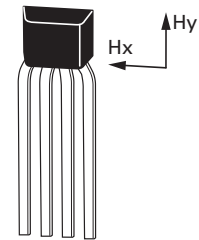
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## MAGNETIC FIELD SENSORS

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### 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.



**E-LINE**

### FEATURES

- Output voltage proportional to magnetic field  $H_y$
- Magnetic fields vertical to the chip level are not effective

### 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 & vehicle-type sensing
- Measurement of current in a conductor without connection

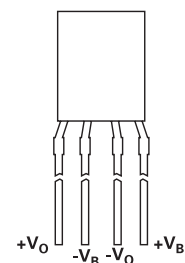
### ORDERING INFORMATION

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

### DEVICE MARKING

- M2M

### PINOUT



**SIDE VIEW**

# ZMZ20M

## 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 (at $T_{amb} = 25^\circ\text{C}$ unless otherwise stated)

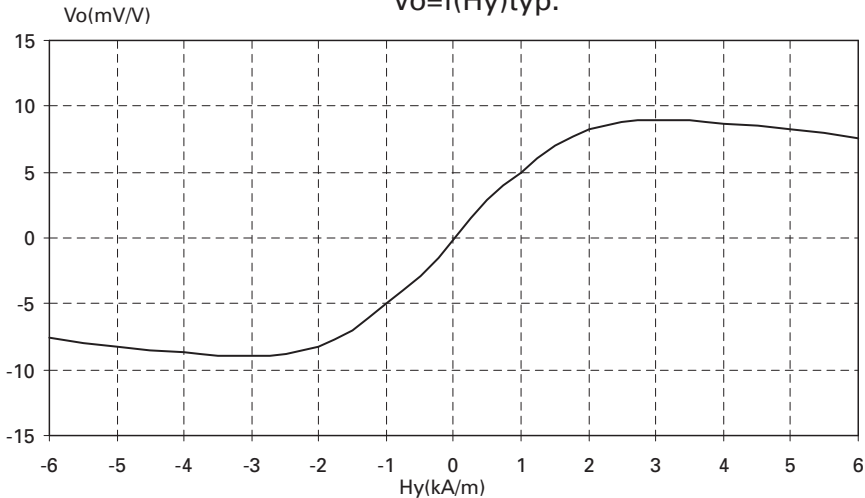
PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	CONDITIONS
Bridge resistance	$R_{br}$	1.2	1.7	2.2	k $\Omega$	
Output voltage range	$V_O/V_B$	12	18	24	mV/V	
Auxiliary field	$H_x$	-	2.5	-	kA/m	
Disturbing field	$H_d$	-	-	30	kA/m	
Open circuit sensitivity	S	3.0	5.0	7.0	(mV/V)/(kA/m)	No disturbing field $H_d$ allowed
Hysteresis of output voltage	$V_{OH}/V_B$	-	-	50	$\mu\text{V/V}$	$H_y \leq 2\text{kA/m}$
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	( $\mu\text{V/V}$ )/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 $+125^\circ\text{C}$

$V_B = 5\text{V}$

# ZMZ20M

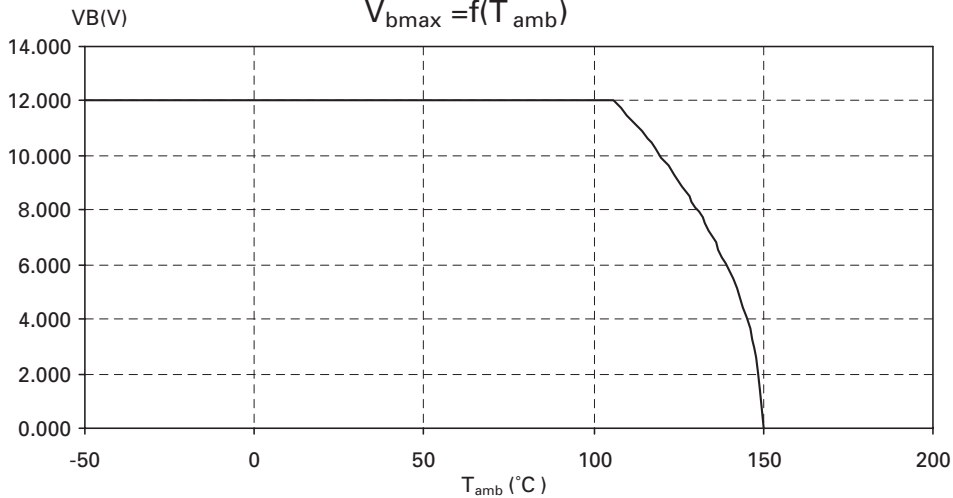
## Sensor output characteristic ZMZ20M

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



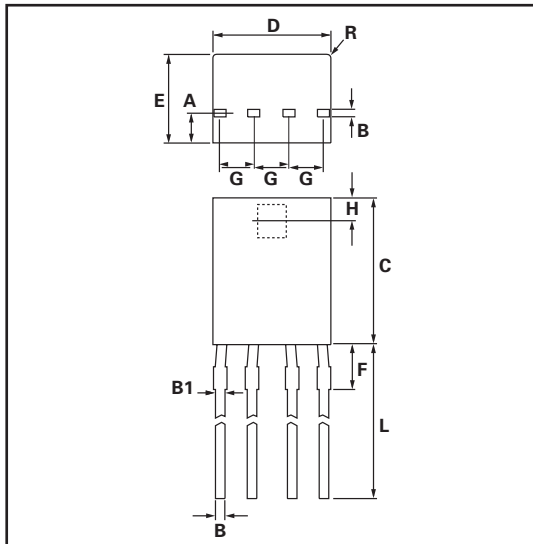
## Supply voltage (maximum) derating curve ZMZ20M

$$V_{b\text{max}} = f(T_{\text{amb}})$$



# ZMZ20M

## PACKAGE OUTLINE



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

## PACKAGE DIMENSIONS

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	-

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