

# ZMY20M

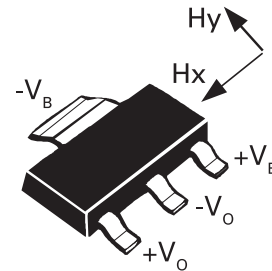
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## MAGNETIC FIELD SENSOR WITH INTERNAL MAGNET

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### 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  $H_y$ . The required perpendicular field  $H_x$  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  $H_x$
- Available on 12mm tape

### 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

### DEVICE MARKING

- ZMY20M

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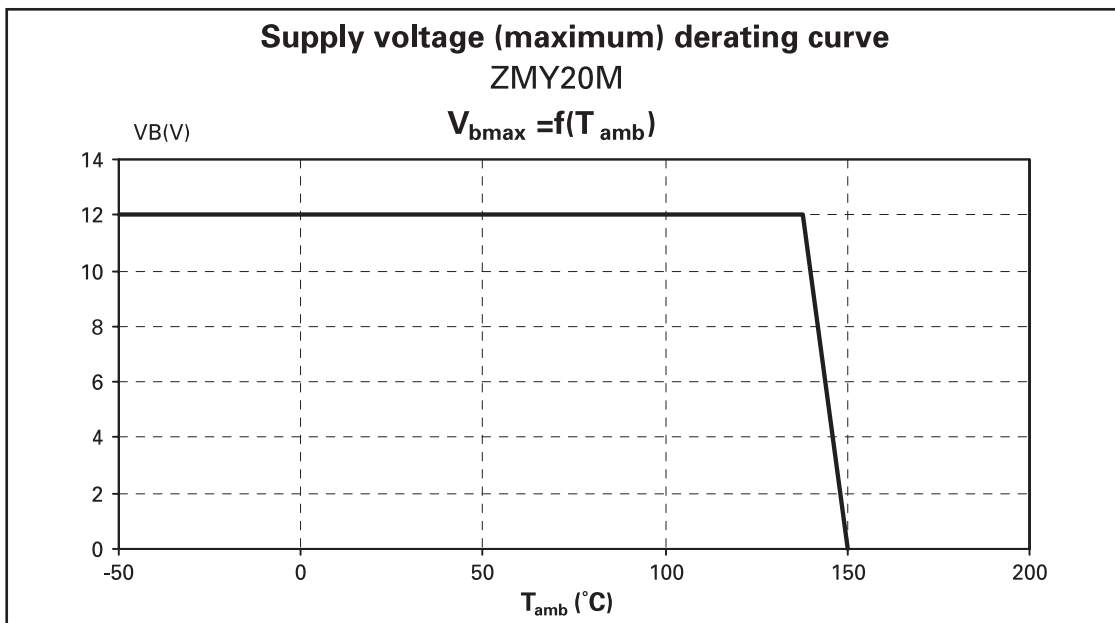
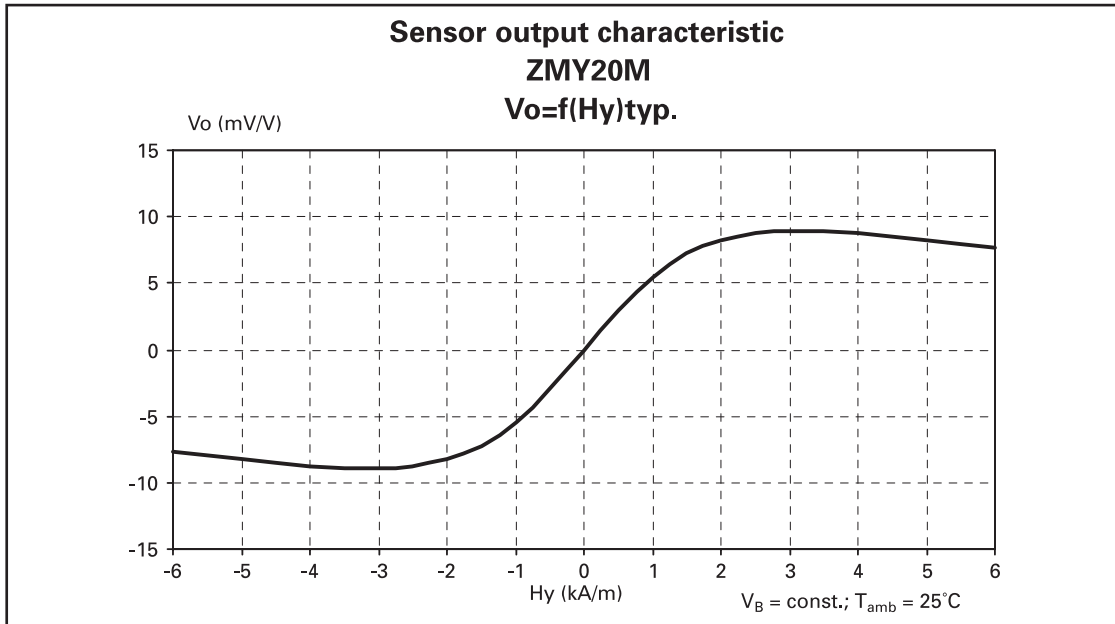
## ABSOLUTE MAXIMUM RATINGS

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

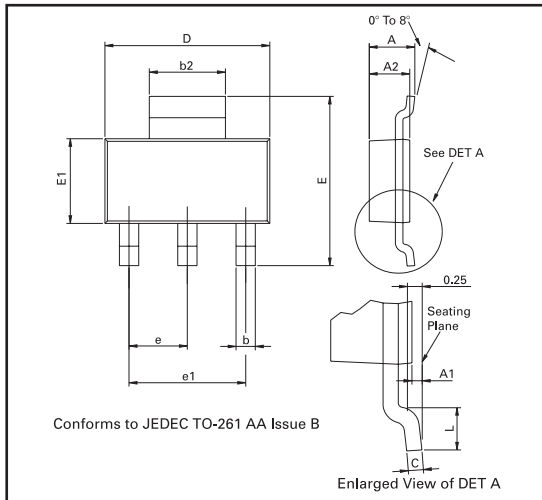
PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	CONDITIONS
Bridge resistance	$R_{br}$	1.2	1.7	2.2	$k\Omega$	
Output voltage range	$V_O/V_B$	12	18	24	mV/V	
Auxiliary field	$H_x$	-	2	-	kA/m	
Disturbing field	$H_d$	-	-	30	kA/m	
Open circuit sensitivity	$S$	3.0	5.5	7.0	(mV/V)/(kA/m)	No disturbing field $H_d$ allowed $V_B = \text{const.}$
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	$T_{amb} = -25 \text{ to } +125^\circ\text{C}$
Temperature coefficient of bridge resistance	$TCR_{br}$	0.25	0.3	0.35	%/K	$T_{amb} = -25 \text{ to } +125^\circ\text{C}$
Temperature coefficient of open circuit sensitivity $V_B = 5\text{V}$	$TCS_V$	-0.25	-0.3	-0.35	%/K	$T_{amb} = -25 \text{ to } +125^\circ\text{C}$
Temperature coefficient of open circuit sensitivity $I_B = 3\text{mA}$	$TCS_I$	-	0.05	-	%/K	$T_{amb} = -25 \text{ to } +125^\circ\text{C}$

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## PACKAGE OUTLINE



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

## PACKAGE DIMENSIONS

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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ISSUE 2 - JANUARY 2004