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With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



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# ZMY20

## MAGNETIC FIELD SENSOR

### DESCRIPTION

The ZMY20 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 a chip covered with thin film permalloy stripes. These stripes form a Wheatstone bridge, whose output voltage is proportional to the magnetic field component  $H_y$ . A perpendicular field  $H_x$  is necessary to stabilize sensor operation. This can be done by using a small permanent magnet.

### FEATURES

- Output voltage proportional to magnetic field  $H_y$
- Adjustment of sensitivity and suppression of hysteresis by the auxiliary magnetic field  $H_x$
- 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 & speed sensing
- Metering of fluids by sensing rotation of impeller
- Traffic counting & vehicle-type sensing

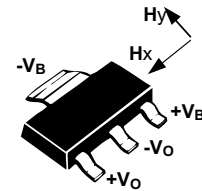
### ORDERING INFORMATION

DEVICE	REEL SIZE	TAPE WIDTH	QUANTITY PER REEL
ZMY20TA	7"	12mm	1000 units
ZMY20TC	13"	12mm	4000 units

- Measurement of current in a conductor without connection

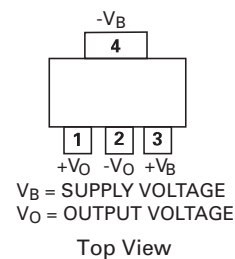
### DEVICE MARKING

- ZMY20



SOT223S

### PINOUT



# ZMY20

## ABSOLUTE MAXIMUM RATINGS.

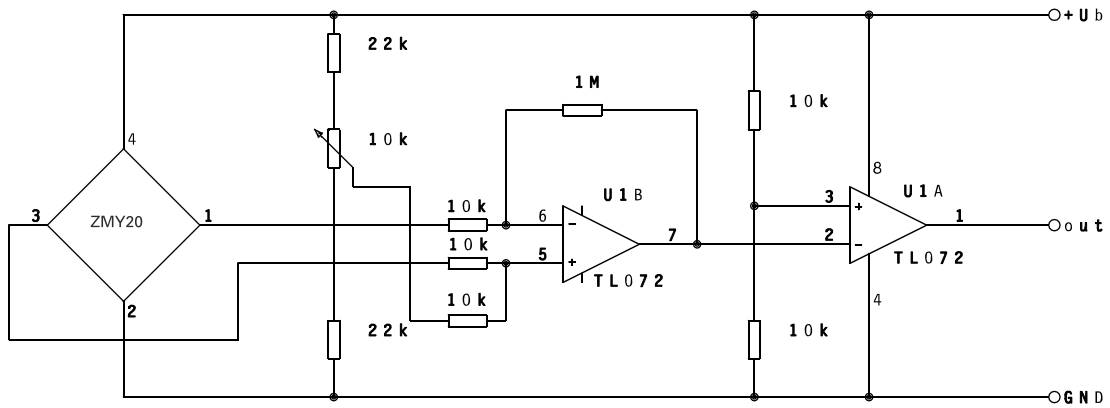
PARAMETER	SYMBOL	LIMIT	UNIT
Supply Voltage	$V_B$	12	V
Total power dissipation	$P_{TOT}$	120	mW
Operating Temperature Range	$T_{amb}$	-40 to +150	°C
Storage Temperature Range	$T_{stg}$	-65 to +150	°C

## ELECTRICAL CHARACTERISTICS.(at $T_{amb}=25^{\circ}\text{C}$ and $H_X=3\text{ kA/m}$ unless otherwise stated)

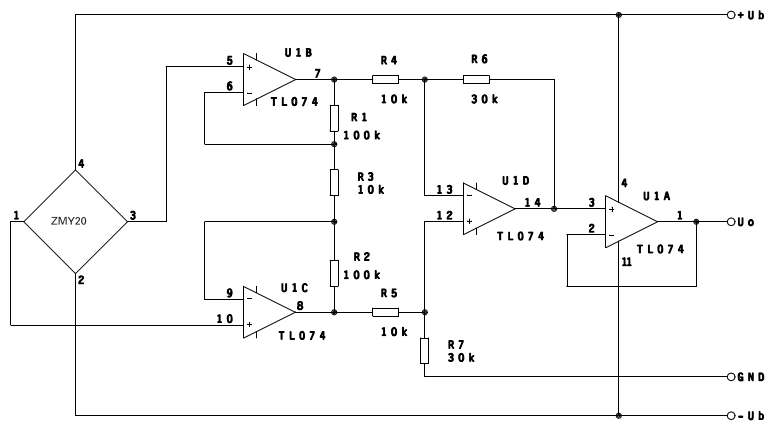
PARAMETER	SYMBOL	MIN	TYP	MAX	UNIT	TEST CONDITIONS
Bridge resistance	$R_{br}$	1.2	1.7	2.2	$k\Omega$	
Output voltage range	$V_O/V_B$	16	20	24	mV/V	
Open circuit sensitivity	S	3.7	4.7	5.7	(mV/V)/(kA/m)	No disturbing field $H_d$ allowed
Hysteresis of output voltage	$V_{OH}/V_B$	-	-	50	$\mu\text{V/V}$	$H_y \leq 2\text{ kA/m}$
Offset Voltage	$V_{off}/V_B$	-1.0	-	+1.0	mV/V	
Operating Frequency	$f_{max}$	0	-	1	MHz	
Temp. Coeff. of offset voltage	$TCV_{off}$	-3	-	+3	( $\mu\text{V/V}$ )/K	$T_{amb} = -25$ to $+125^{\circ}\text{C}$
Temp. Coeff. Of bridge resistance	$TCR_{br}$	0.25	0.3	0.35	%/K	$T_{amb} = -25$ to $+125^{\circ}\text{C}$
Temp. Coeff. of open circuit sensitivity $V_B=5\text{V}$	$TCS_V$	-0.25	-0.3	-0.35	%/K	$T_{amb} = -25$ to $+125^{\circ}\text{C}$
Temp. Coeff. of open circuit sensitivity $I_B=3\text{mA}$	$TCS_I$	-	-0.1	-	%/K	$T_{amb} = -25$ to $+125^{\circ}\text{C}$

# ZMY20

Application 1 (digital output)

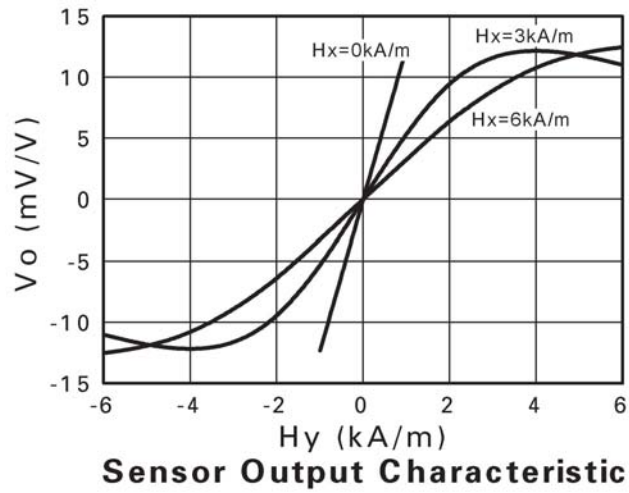


Application 2 (analog output)

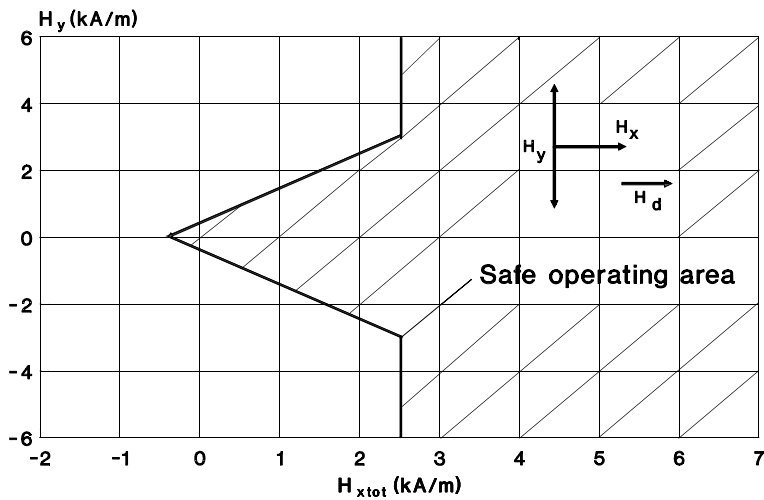


# ZMY20

Sensor output characteristic  
 $V_O = f(H_Y)$ ;  $H_X$ -parameter  
 $V_B = \text{const}$ ;  $T_{\text{amb}} = 25^\circ\text{C}$



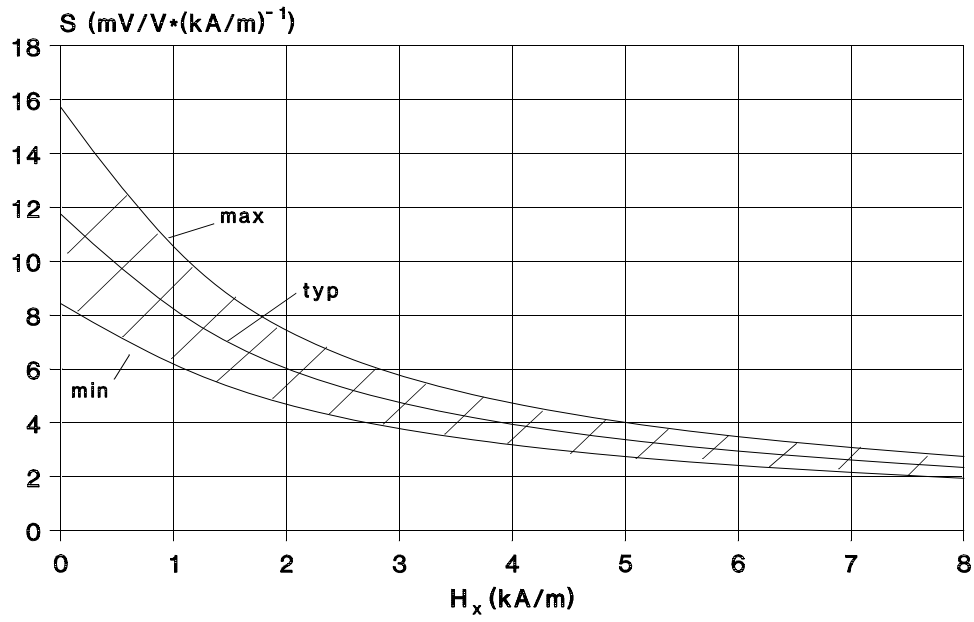
Safe operating area  
 $H_{X\text{tot}} = H_X + H_d$ ;  $T_{\text{amb}} = 25^\circ\text{C}$ ; ( $H_d$ =disturbing field)



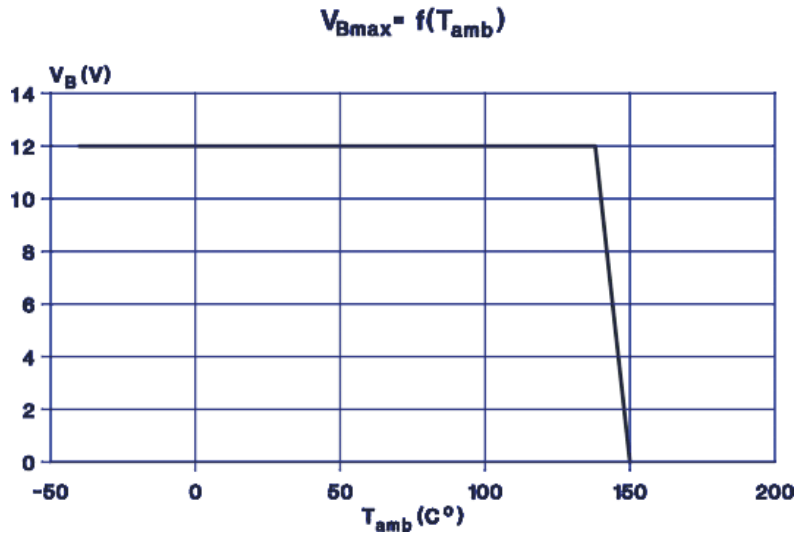
The sensor has to be reset after leaving the safe operating area by an auxiliary field of  $H_X = 3 \text{ kA/m}$

# ZMY20

Sensor sensitivity characteristic  
 $S=f(H_x)$   
 $V_b=const; T_{amb}=25^{\circ}C$



Supply voltage (maximum) derating curve  
 $V_{Bmax}=f(T_{amb})$



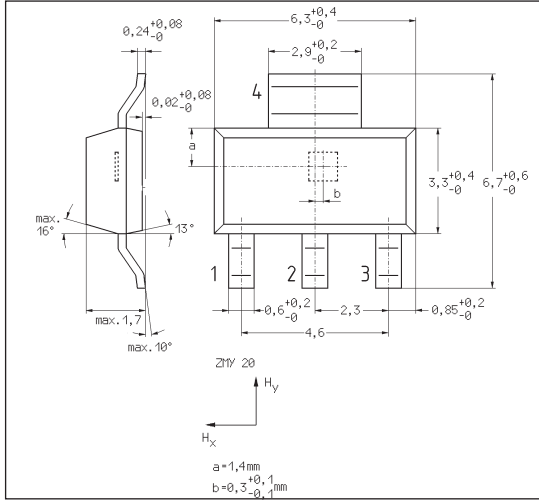
Device mounted on 40 x 40 mm<sup>2</sup> board (copper area 600mm<sup>2</sup>)

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# ZMY20

## PACKAGE OUTLINE



## Definitions

### Product change

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### Applications disclaimer

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A. Life support devices or systems are devices or systems which:

1. are intended to implant into the body  
or
2. support or sustain life and whose failure to perform when properly used in accordance with instructions

for use provided in the labeling can be reasonably expected to result in significant injury to the user.

B. A critical component is any component in a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or to affect its safety or effectiveness.

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For the latest information on technology, delivery terms and conditions and prices, please contact your nearest Zetex sales office.

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Semiconductor devices are susceptible to damage by ESD. Suitable precautions should be taken when handling and transporting devices. The possible damage to devices depends on the circumstances of the handling and transporting, and the nature of the device. The extent of damage can vary from immediate functional or parametric malfunction to degradation of function or performance in use over time. Devices suspected of being affected should be replaced.

### Green compliance

Zetex Semiconductors is committed to environmental excellence in all aspects of its operations which includes meeting or exceeding regulatory requirements with respect to the use of hazardous substances. Numerous successful programs have been implemented to reduce the use of hazardous substances and/or emissions.

All Zetex components are compliant with the RoHS directive, and through this it is supporting its customers in their compliance with WEEE and ELV directives.

### Product status key:

"Preview"Future device intended for production at some point. Samples may be available

"Active"Product status recommended for new designs

"Last time buy (LTB)"Device will be discontinued and last time buy period and delivery is in effect

"Not recommended for new designs"Device is still in production to support existing designs and production

"Obsolete"Production has been discontinued

Datasheet status key:

"Draft version" This term denotes a very early datasheet version and contains highly provisional information, which may change in any manner without notice.

"Provisional version" This term denotes a pre-release datasheet. It provides a clear indication of anticipated performance. However, changes to the test conditions and specifications may occur, at any time and without notice.

"Issue" This term denotes an issued datasheet containing finalized specifications. However, changes to specifications may occur, at any time and without notice.



# ZMY20

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