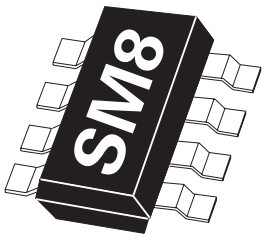
ZMT31

ANGLE SENSOR

DESCRIPTION



The ZMT31 allows the contactless counting of thr revolutions of a rotating magnet which is mounted on the axis of a wheel. Zero output voltages of the Wheatstones bridges are used as trigger signals. The sense of rotation of the wheel is taken into account by comparing the signal outputs of both Wheatstone bridges which are proportional to sin2(α) or sin2(α+45°). the angle can be determined by evaluating these signals. Alternatively it is possible to use the voltage signals of four half bridges which are trimmed on $V_{b/2}$.

FEATURES

- Measures the magnetic field hrot (> 50kA/m) generated by a permanent magnet which rotates over the sensor
- Magnetic field hrot parallel to the chip surface causes a sinusoidal output signal
- Package : SM-8 (available on 12mm tape)

APPLICATION

- Contactless counting of the revolutions of a rotating magnet (watermeters etc.)
- Contactless angular measurement
- Automotive (pedal position etc.)
- Contactless rotary switches
- Contactless potentiometer

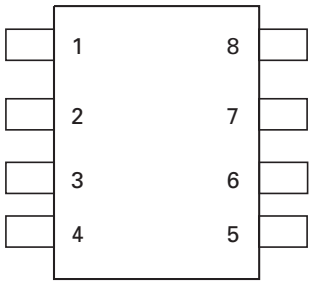
ORDERING INFORMATION

DEVICE	REEL SIZE	TAPE WIDTH	QUANTITY PER REEL
ZMT31TA	7	12mm	1000
ZMT31TC	13	12mm	4000

DE VICE MARKING

- ZMT31

PINOUT DIAGRAM



Pin connection:

Bridge1: pin 1: $-V_O$ pin 5: $+V_O$
pin 8: $-V_B$ (GND) pin 4: $+V_B$
Bridge 2: pin 2: $-V_O$ pin 6: $+V_O$
pin 7: $-V_B$ (GND) pin 3: $+V_B$

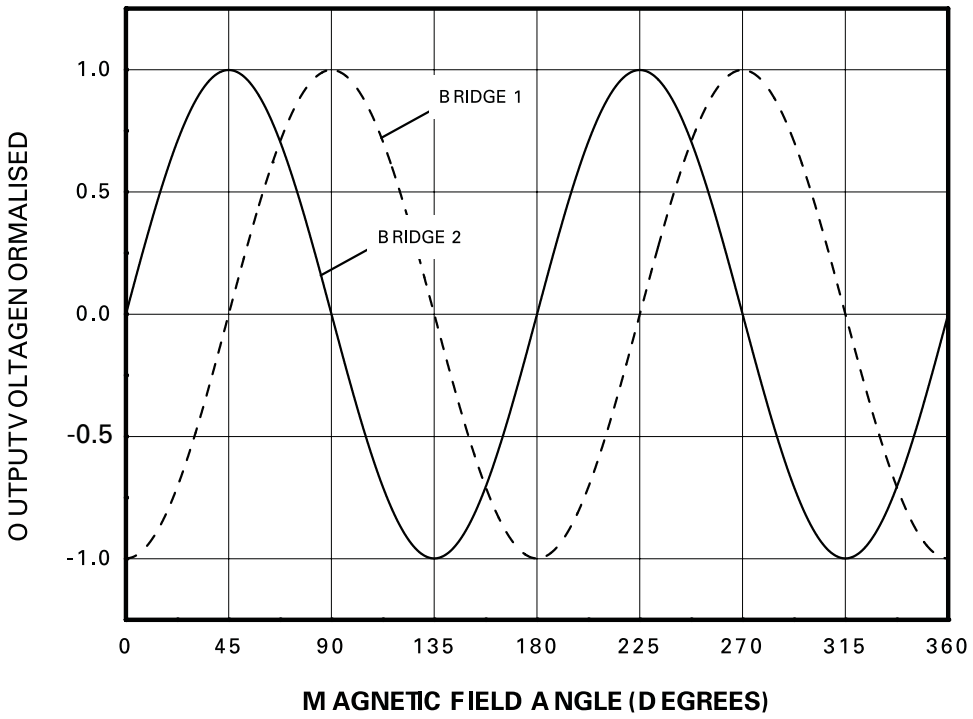
V_O - output voltage V_B - supply voltage

ZMT31

PARAMETER	SYMBOL	LIMIT	UNIT
Supply Voltage	V_B	5	V
Total power dissipation	P_{tot}	120	mW
Operating tempersture range	T_{amb}	-25 to +100	°C
Storage temperature range	T_{stg}	-40 to +125	°C
Sensor chip alignment error	α_e	≤2	°

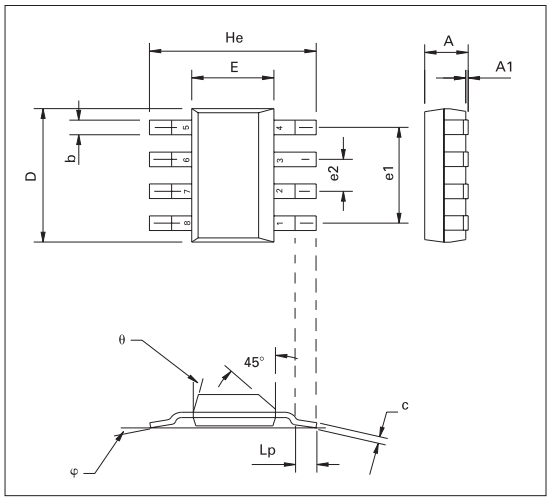
PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
Bridge resistance	R_{br}	2.0	3.0	4.0	kΩ	
Offset voltage	V_{Off} / V_B	-2.0		+2.0	mV/V	bridge 1: α=45°; bridge 2: α=0°
Sensitivety	S_α	0.2			(mV/V)/°	bridge 1: α=0°; bridge 2: α=45°
Half bridge symmetry	$(V_S/2-V_O)/V_B$	-2.0		+2.0	mV/V	bridge 1: α=0°; bridge 2: α=45°
Output voltage range	$(\|Vmax\|+\|Vmin\|) /V_B$	16			mV/V	
Zero offset angle hysteresis	$\Delta\alpha$			2	°	
Temperature coefficient of the bridge resistance -25°C <T_{amb} <100°C	T_{CBR}	0.25	0.30	0.35	%/K	
Temperature coefficient of the open circuit sensitivity -25°C <T_{amb} <100°C	T_{CSV}	-0.35	-0.30	-0.25	%/K	V_B = const.
	T_{CSI}	-0.05	0	0.05	%/K	I_B = const
Temperature coefficient of the offset voltage -25°C <T_{amb} <100°C	T_{COFF}	-3		+3	(μV/V)/K	

Output Voltage of both Wheatstone bridges versus angle α of the magnetic fielddirection



ZMT31

PACKAGE OUTLINE



PACKAGE DIMENSIONS

DIM	MILLIMETRES	
	MIN	MAX
A	—	1.7
A1	0.02	0.1
b	0.7 TYP	
c	0.24	0.32
D	6.3	6.7
E	3.3	3.7
e1	4.59 TYP	
e2	1.53 TYP	
He	6.7	7.3
Lp	0.9	—
θ	—	15°
φ	10° TYP	

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