

Dimensions in mm

### Features

- Double differential magneto resistor on one carrier
- Accurate intercenter spacing
- High operating temperature range
- High output voltage
- Compact construction
- Available in strip form for automatic assembly
- Optimized intercenter spacing on modules  
 $m = 0.5 \text{ mm}$
- Reduced temperature dependence of offset voltage

### Typical applications

- Incremental angular encoders
- Detection of sense of rotation
- Detection of speed
- Detection of position

<b>Type</b>	<b>Ordering Code</b>
FP 425 L 90	Q65425-L90 (singular)
FP 425 L 90	Q65425-L0090E001 (taped)

The double differential magneto resistor assembly consists of two pairs of magneto resistors, (L-type InSb/NiSb semiconductor resistors whose resistance value can be magnetically controlled), which are fixed to a silicon substrate. Contact to the magneto resistors is achieved using a copper/polyimide carrier film known as TAB.

The basic resistance of each of the magneto resistors is 90  $\Omega$ . The two series coupled pairs of magneto resistor are actuated by an external magnetic field or can be biased by a permanent magnet and actuated by a soft iron target.

## Maximum ratings

Parameter	Symbol	Value	Unit
Operating temperature	$T_A$	- 40 / + 175	°C
Storage temperature	$T_{stg}$	- 40 / + 185	°C
Power dissipation <sup>1)</sup>	$P_{tot}$	800	mW
Supply voltage ( $B = 0.2$ T, $T_A = 25$ °C)	$V_{IN}$	8	V
Thermal conductivity –attached to heatsink –in still air	$G_{thcase}$ $G_{thA}$	20 2	mW/K mW/K

## Characteristics ( $T_A = 25$ °C)

Nominal supply voltage ( $B = 0.2$ T) <sup>2)</sup>	$V_{INN}$	5	V
Basic resistance ( $I < 1$ mA, $B = 0$ T)	$R_{01-3}$	160 – 280	Ω
Center symmetry <sup>3)</sup>	$M$	≤ 3	%
Relative resistance change ( $R_0 = R_{01-3}$ , $R_{04-6}$ at $B = 0$ T) $B = \pm 0.3$ T <sup>4)</sup> $B = \pm 1$ T	$R_B/R_0$	> 1.7 > 7	–
Temperature coefficient $B = 0$ T $B = \pm 0.3$ T $B = \pm 1$ T	$TC_R$	- 0.16 - 0.38 - 0.54	%/K %/K %/K

1)  $T = T_{case}$

2)  $T = T_{case}$ ,  $T < 80$  °C

3)

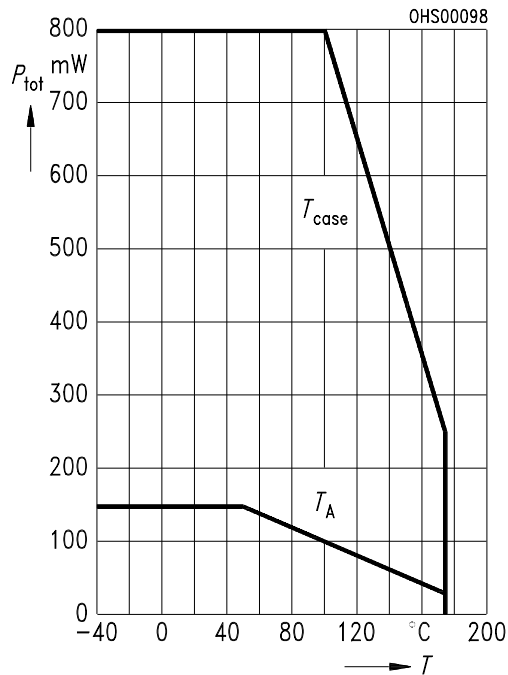
$$M = \frac{R_{01-2} - R_{02-3}}{R_{01-2}} \times 100\% \text{ for } R_{01-2} > R_{02-3}$$

$$M = \frac{R_{04-5} - R_{05-6}}{R_{04-5}} \times 100\% \text{ for } R_{04-5} > R_{05-6}$$

4) 1 T = 1 Tesla =  $10^4$  Gauss

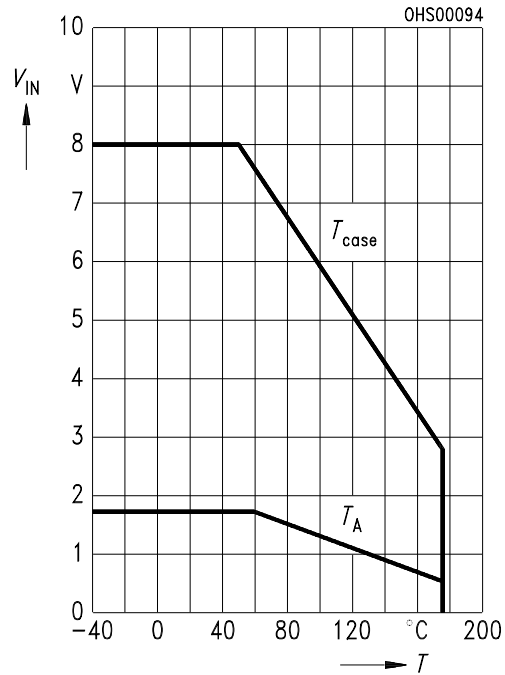
**Max. power dissipation versus temperature**

$P_{tot} = f(T), T = T_{case}, T_A$



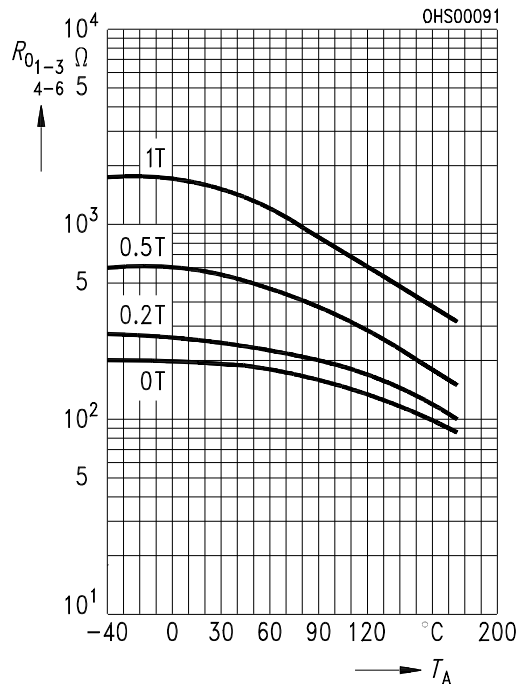
**Maximum supply voltage versus temperature**

$V_{IN} = f(T), B = 0.2 T$



**Typical MR resistance versus temperature**

$R_{01-3, 4-6} = f(T_A), B = \text{Parameter}$



**Typical MR resistance versus magnetic induction B**

$R_{01-3, 4-6} = f(B), T_A = 25 °C$

