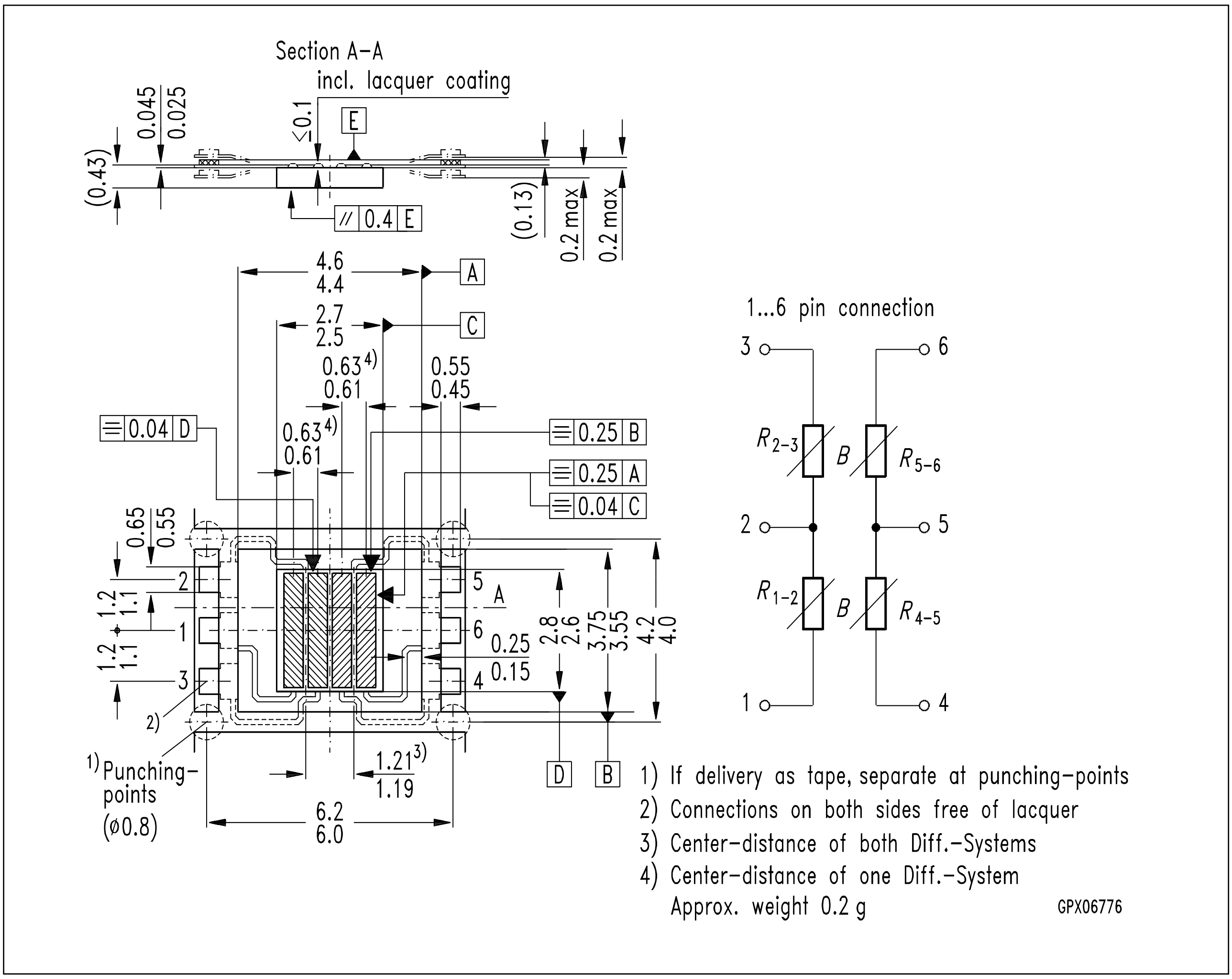
Double Differential Magneto Resistor FP 410 L (4 x 80) FM



Dimensions in mm

Features

- Double differential magneto resistor on same carrier
- Accurate intercenter spacing
- High operating temperature range
- High output voltage
- Compact construction
- Available in strip form for automatic assembly

Typical applications

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

Type	Ordering Code
FP 410 L (4×80) FM	Q65410-L80E (taped)
FP 410 L (4×80) FM	Q65110-L80F (singular)

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 ferrite substrate. Contact to the magneto resistors is achieved using a copper/polyimide carrier film known as Micropack.

The basic resistance of each of the magnetic resistors is 80 Ω. The two series coupled pairs of magnetic resistors 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[1)]	P_{tot}	1000	mW
Supply voltage[2)] (B = 0.3 T)	V_{IN}	8	V
Thermal conductivity –attached to heatsink –in still air	 $G_{th\ case}$ $G_{th\ A}$	 ≥ 20 2	mW/K

Characteristics (T_A = 25 °C)

Basic resistance (I ≤ 1 mA; B = 0 T)	R_{01-3} R_{04-6}	110…220	Ω
Center symmetry[3)]	M	≤ 6	%
Relative resistance change (R = R_{01-3}, R_{04-6} at B = 0 T) B = ± 0.3 T[4)] B = ± 1 T	R_B/R_0	 > 1.7 > 7	 –
Temperature coefficient B = 0 T B = ± 0.3 T B = ± 1 T	TC_R	 – 0.16 – 0.38 – 0.54	 %/K %/K %/K

1) Corresponding to diagram $P_{tot} = f(T_{case})$
2) Corresponding to diagram $V_{IN} = f(T_{case})$

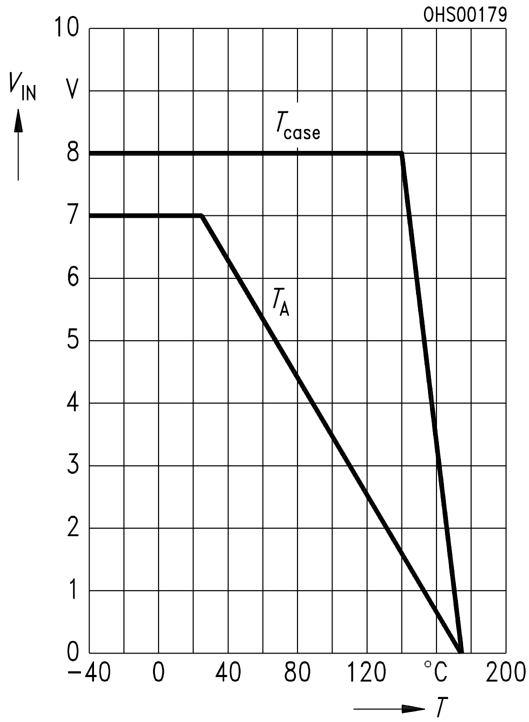
3)
$$M = \frac{R_{01-2} - R_{02-3}}{R_{01-2}} \times 100\% \text{ for } R_{01-2} > R_{02-3}$$

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

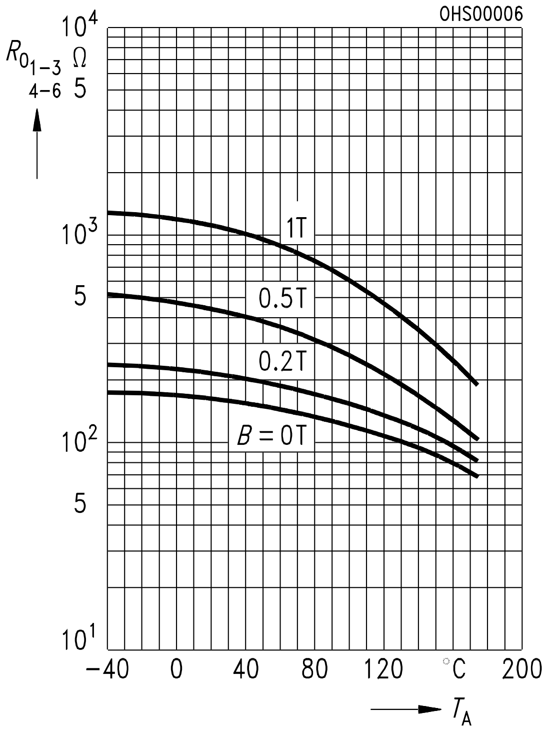
4) 1 T = 1 Tesla = 10^4 Gauss

Max. power dissipation versus temperature
$P_{tot} = f(T)$, $T = T_{case}$, T_A

Maximum supply voltage versus temperature
$V_{IN\ 1\text{-}3,\ 4\text{-}6} = f(T)$, B = 0.3 T



Typical MR resistance versus temperature
$R_{01\text{-}3,\ 4\text{-}6} = f(T_A)$, B = Parameter



Typical MR resistance versus magnetic induction *B*
$R_{01\text{-}3,\ 4\text{-}6} = f(B)$, T_A = 25 °C