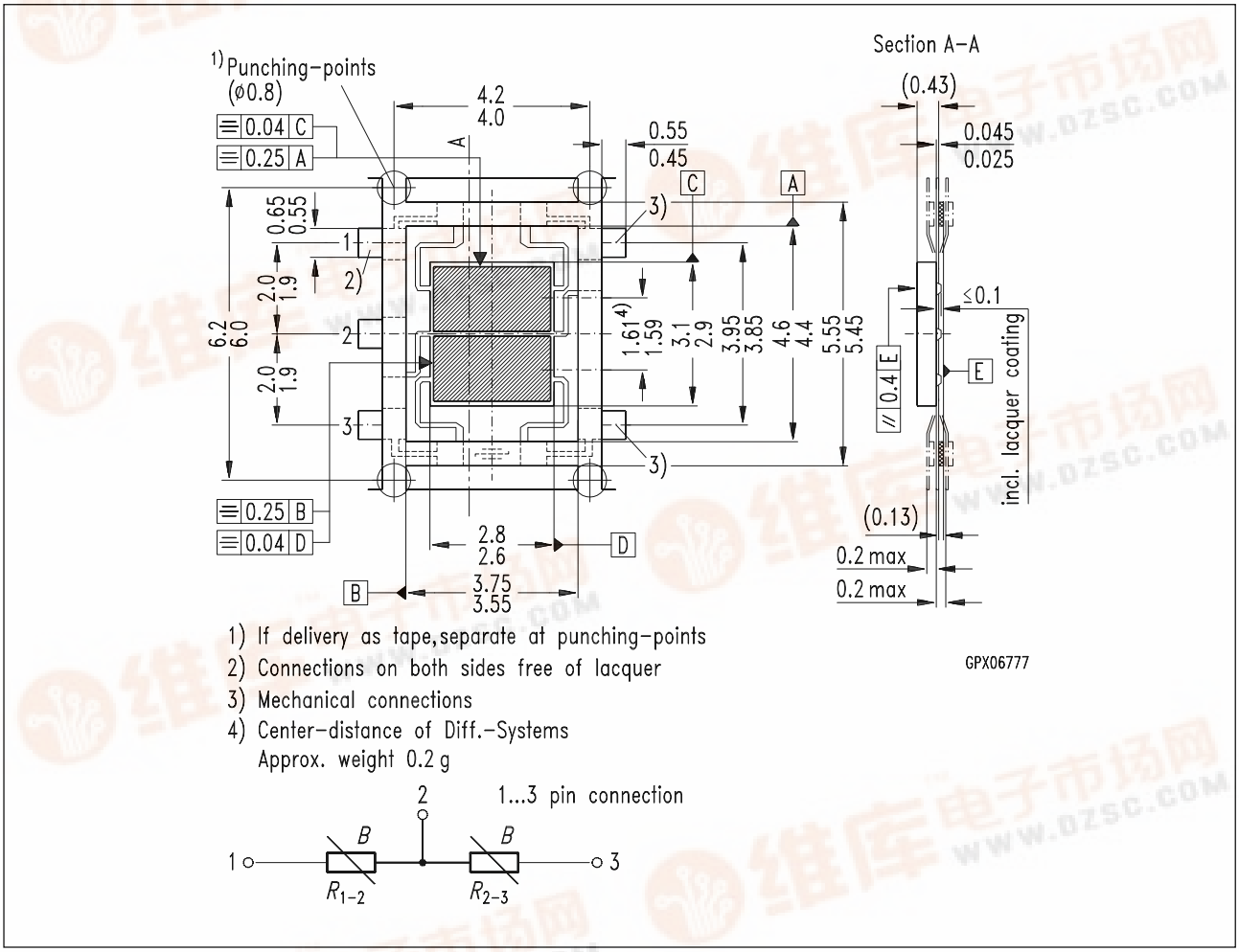
SIEMENS

Differential Magneto Resistor FP 412 L 100



Dimensions in mm

Features

- Accurate intercenter spacing
- High operating temperature range
- High output voltage
- Signal amplitude independent of speed
- Compact construction
- Available in strip form for automatic assembly

Typical applications

- Detection of speed
- Detection of position
- Detection of sense of rotation
- Angular encoders
- Linear position sensing

Type	Ordering Code
FP 412 L 100	Q65412-L100

The differential magneto resistor FP 412 L 100 is a magnetically variable resistor in L-type InSb/NiSb semiconductor material. The MR is glued onto a ferrite substrate and is supplied in a "MICROPACK" copper/polyimide film package. The basic resistance of each of the magneto resistors is 100 Ω. The series coupled MRs 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 = 0.2 T)	V_{IN}	10	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 ($I \leq 1$ mA, B = 0 T)[3]	$R_{01\text{-}3}$	150…250	Ω
Center symmetry[4]	M	≤ 10	%
Relative resistance change $R_0 = R_{01\text{-}3}$, at B = 0 T $B = \pm 0.3$ T $B = \pm 1$ 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

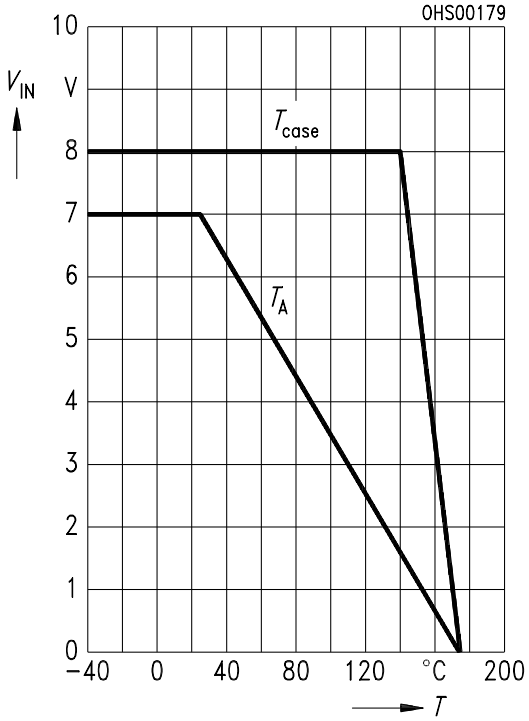
1) Corresponding to diagram $P_{tot} = f(T_{case})$
2) Corresponding to diagram $V_{IN} = f(T_{case})$
3) 1 T = 1 Tesla = 10^4 Gauss
4) $$M = \frac{R_{01-2} - R_{02-3}}{R_{01-2}} \times 100\% \text{ for } R_{01\text{-}2} > R_{02\text{-}3}$$

Max. power dissipation versus temperature

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

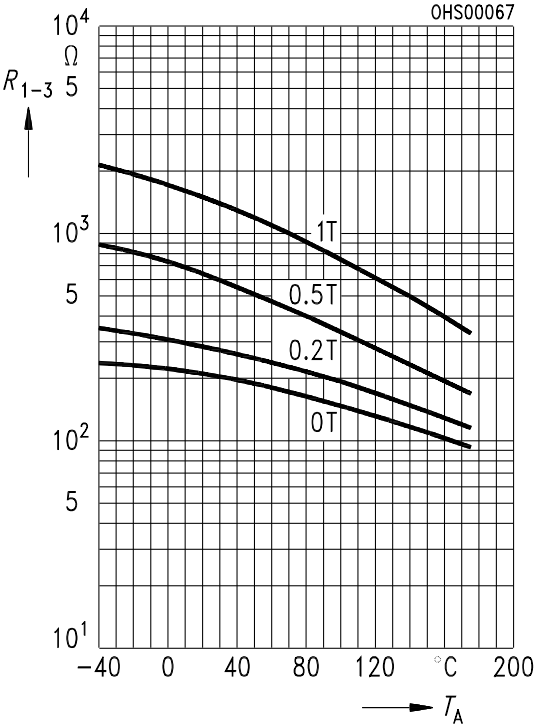
Maximum supply voltage versus temperature

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



Typical MR resistance versus temperature

$R_{1\text{-}3} = f(T_A)$, B = Parameter



Typical MR resistance versus magnetic induction B

$R_{1\text{-}3} = f(B)$, T_A = 25 °C