

Hall Effect Sensor Flatpack

multicomp **PRO**

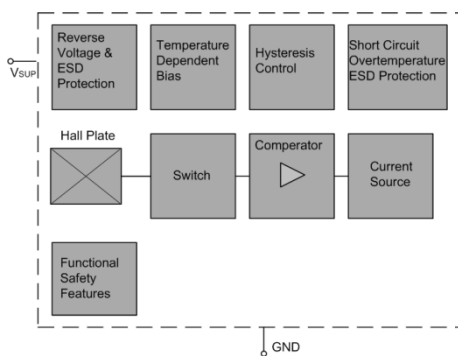
RoHS
Compliant



Features

- Compact size
- Various switching sensitivities
- Various switching points available
- Customized types available

Block Diagram



Absolute Maximum Ratings

Stresses beyond those listed in the "Absolute Maximum Ratings" may cause permanent damage to the device. Functional operation of the device at these conditions is not implied. Exposure to the absolute rating conditions for extended periods will affect device reliability.

| Symbol | Parameter | Wire colour | Min. | Max. | Unit | Conditions |
|------------------|------------------------|-------------|------|------|------|--|
| V _{SUP} | Supply voltage | Red | -18 | | V | t < 1000 h ¹⁾ |
| | | | -- | 28 | | t < 96 h ¹⁾ |
| | | | -- | 32 | | t < 5 min ¹⁾ |
| | | | -- | 40 | | t < 5 x 400 ms ¹⁾ with series resistor R _V > 100Ω |
| V _{OUT} | Output voltage | | -0.5 | | V | t < 1000 h ¹⁾ |
| | | | -- | 28 | | t < 96 h ¹⁾ |
| | | | -- | 32 | | t < 5 min ¹⁾ |
| | | | -- | 40 | | t < 5 x 400 ms ¹⁾ with series resistor R _V > 100Ω |
| I _O | Output current | -- | 65 | mA | | |
| I _{OR} | Reverse output current | -50 | | | | |

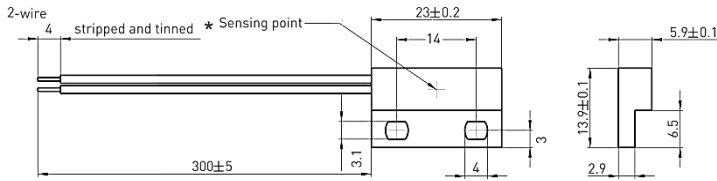
1) No cumulative stress All voltages listed are referenced to ground (GND)

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sg.element14.com/b/multicomp-pro

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Dimensions



| Wire Assignment | | |
|-----------------|---------------------------|--------------|
| Name | Function | Cable colour |
| VSUP | Supply voltage and output | Red |
| GND | Ground | Black |

Environmental Characteristics

Operating temperature - 20°C to + 85°C

| Material Information | | |
|----------------------|---------------------|------------|
| | Material | Colour |
| Housing | ABS | Nickel |
| Cable | UL1007/1569, AWG 24 | Red, Black |
| Potting compound | Epoxy | Black |

Characteristics

At recommended operation conditions if not otherwise specified in the column "Conditions".

Typical characteristics for $T_J = 25^\circ\text{C}$ and $V_{SUP} = 12\text{ V}$

| Symbol | Parameter | Wire colour | Min. | Typ. | Max. | Unit | Conditions |
|---------------|---|-------------|------|------|------|---------------|---|
| Supply | | | | | | | |
| I_{SUPlo} | Low supply current | Red | 2 | | 7 | mA | for $V_{SUP} = -18\text{ V}$ |
| I_{SUPlo} | High supply current | | 12 | | 17 | | |
| I_{SUPhi} | Reverse current | | | | 1 | | |
| Output | | | | | | | |
| t_f | Output fall time ¹⁾ | -- | | | 1 | μs | ¹⁾ $V_{SUP} = 12\text{ V};$ $B > B_{on} + 2\text{ mT}$ or $B < B_{off} - 2\text{ mT}$ |
| t_r | Output rise time | | | | 1 | | |
| t_d | Delay time ¹⁾ | | | 16 | -- | | |
| t_{smp} | Output refresh period | | 1.6 | 2 | 2.66 | | |
| t_{en} | Enable time of output after settling of V_{SUP} | | | 50 | | | |

Recommended Operating Conditions

| Symbol | Parameter | Wire colour | Min. | Max. | Unit |
|-----------|----------------|-------------|------|------|------|
| V_{SUP} | Supply voltage | Red | 3 | 24 | V |

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Magnetic Characteristics Overview

| Symbol | Parameter | Min. | Typ. | Max. | Unit |
|--------------------|---|------|------|-------|-------|
| B _{ONth} | ON threshold range ¹⁾ | -30 | | 30 | mT |
| B _{OFFth} | OFF threshold range ¹⁾ | -30 | | 30 | |
| B _{th} | Adjustable step size ²⁾ | | 0.5 | | |
| T _C | Temperature compensation of magnetic thresholds ³⁾ | 0 | | -3000 | ppm/K |

1) Available range
 2) Small steps at small values, bigger steps at higher values. May not be undercut
 3) Different temperature compensation available on request

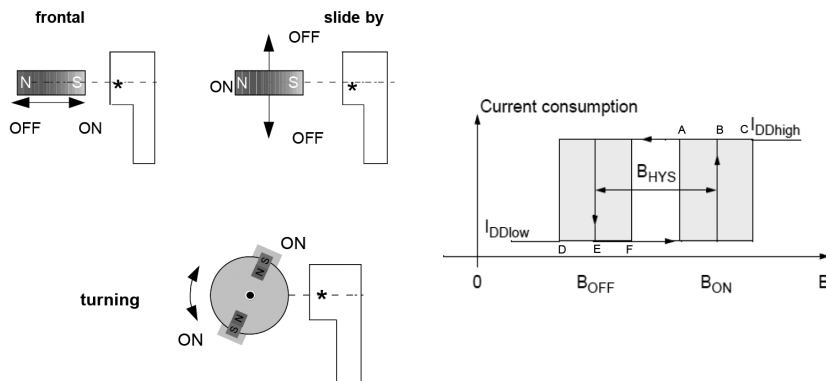
Magnetic Characteristics

| SwitchingType | Temp. coeff. of magnetic thresh. TC [ppm/K] | On point B _{ON} [mT] | | | Off point B _{OFF} [mT] | | | Hysteresis B _{HYS} ¹⁾ [mT] | | |
|---------------|---|-------------------------------|------|------|---------------------------------|------|------|--|------|------|
| | | Min. | Typ. | Max. | Min. | Typ. | Max. | Min. | Typ. | Max. |
| latching | 0 | tbd. | 6 | tbd. | tbd. | 4 | tbd. | - | 2 | - |
| | | A | B | C | D | E | F | | | |

¹⁾ The hysteresis is the difference between the switching points B_{HYS} = B_{ON} - B_{OFF}

Magnetic Approach (for example)

unipolar type



★ Sensing point

Part Number Table

| Description | Part Number |
|--|-------------------|
| 2 Wire, Flat Pack Hall Effect Sensor, Unipolar | MP-HS-324-05-0300 |

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