

Hall Effect Current Sensors S23P***D15M2 Series

Features:

- Closed Loop type
- Current or voltage output
- Conversion ratio $K_N = 1:2000$
- Printed circuit board mounting
- Integrated primary
- Insulated plastic case according to UL94V0
- UL Recognition
- dV/dt improvement type

Advantages:

- Excellent accuracy and linearity
- Low temperature drift
- Wide frequency bandwidth
- No insertion loss
- High Immunity to external interferences
- Optimised response time
- Current overload capability



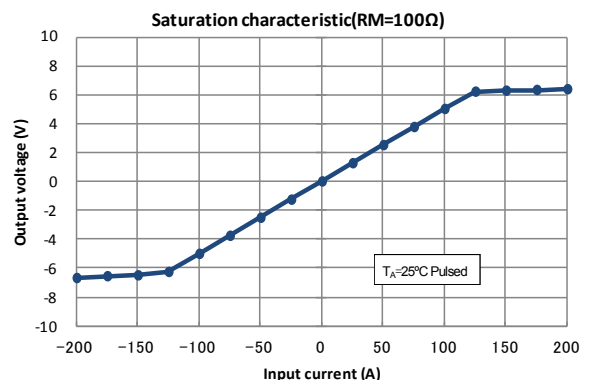
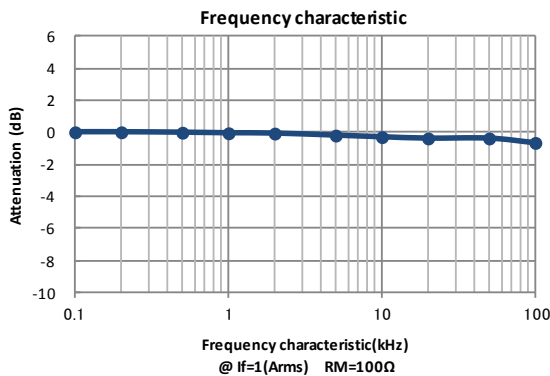
Specifications

 $T_A=25^{\circ}\text{C}, V_{CC}=\pm 15\text{V}$

| Parameters | Symbol | S23P50/100D15M2 | |
|--|--------------|---|--|
| Primary nominal current | I_f | 50A | 100A |
| Maximum current ¹ (at 85°C) | I_{fmax} | $\pm 110\text{A}$ (at $R_M \leq 71\Omega$) | $\pm 160\text{A}$ (at $R_M \leq 25\Omega$) |
| Measuring resistance ($I_f = \pm A_{DC}$ at 85°C) | R_M | 0Ω~217Ω (at $V_{CC} = \pm 12\text{V}$) 0Ω~327Ω (at $V_{CC} = \pm 15\text{V}$) | 0Ω~57Ω (at $V_{CC} = \pm 12\text{V}$) 45Ω~114Ω (at $V_{CC} = \pm 15\text{V}$) |
| Conversion Ratio | K_N | 1 : 2000 | 1 : 2000 |
| Rated output current | I_o | 25mA | 50mA |
| Output current accuracy ² (at I_f) | X | $I_o \pm 0.25\%$ | |
| Offset current ³ (at $I_f=0\text{A}$) | I_{of} | $\leq \pm 0.15\text{mA}$ (at $I_f=0\text{A}$) | |
| Output linearity ² (0A~ I_f) | ϵ_L | $\leq \pm 0.15\%$ (at I_f) | |
| Power supply voltage ¹ | V_{CC} | $\pm 12\text{V} \dots \pm 15\text{V} \pm 5\%$ | |
| Consumption current | I_{CC} | $\leq \pm 16\text{mA}$ (Output current is not included) | |
| Response time ⁴ | t_r | $\leq 0.5\mu\text{s}$ (at $di/dt = 100\text{A} / \mu\text{s}$) | |
| Thermal drift of gain ⁵ | T_{clo} | $\leq \pm 0.01\% / ^{\circ}\text{C}$ | |
| Thermal drift of offset current | T_{clof} | $\leq \pm 0.5\text{mA}$ max (at $T_A = -25^{\circ}\text{C} \leftrightarrow +85^{\circ}\text{C}$) | |
| Hysteresis error | I_{oH} | $\leq 0.3\text{mA}$ (at $I_f=0\text{A} \rightarrow I_f \rightarrow 0\text{A}$) | |
| Insulation voltage | V_d | AC5000V, for 1minute (sensing current 0.5mA), Primary \leftrightarrow Secondary | |
| Insulation resistance | R_{is} | $\geq 500\text{M}\Omega$ (at DC500V) Primary \leftrightarrow Secondary | |
| Secondary coil resistance | R_s | 115Ω (at $T_A = 70^{\circ}\text{C}$) 121Ω (at $T_A = 85^{\circ}\text{C}$) | |
| Ambient operation temperature | T_A | $-40^{\circ}\text{C} \sim +85^{\circ}\text{C}$ | |
| Ambient storage temperature | T_s | $-40^{\circ}\text{C} \sim +90^{\circ}\text{C}$ | |

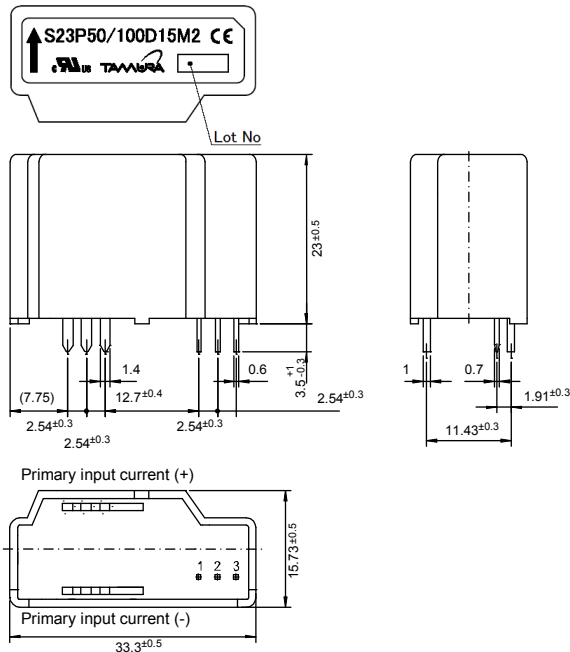
¹ At $V_{CC}=\pm 15\text{V}$, I_{fmax} Operating Time: ≤ 10 Seconds. Maximum current is restricted by V_{CC} — ² Without offset current — ³ After removal of core hysteresis — ⁴ Time between 90% input current full scale and 90% of sensor output full scale — ⁵ Without Thermal drift of offset current

Electrical Performances



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Mechanical dimensions



NOTES

1. Unit is mm
2. Tolerance is 0.5mm

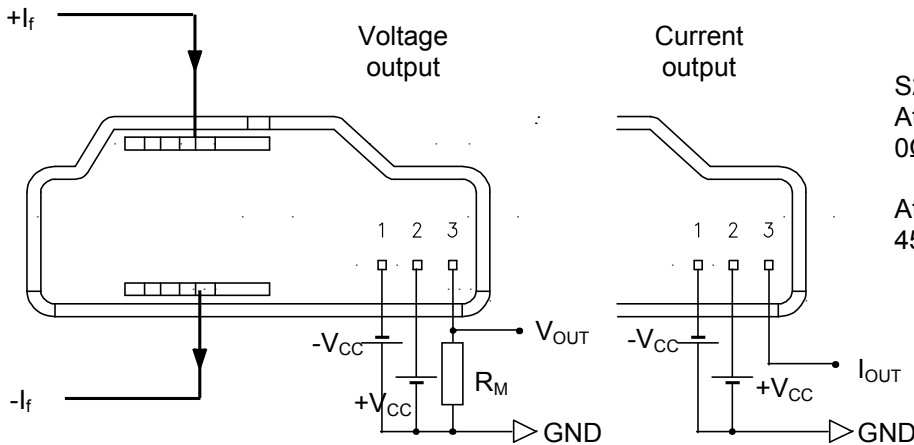
Terminal number:

1. -V_{CC}(-15V)
2. +V_{CC}(+15V)
3. I_{OUT}

Connection specific

1. The primary connection
6Pins 1.4×1mm
Recommended PCB hole diameter:Φ2mm
2. The secondary connection
3Pins 0.7×0.6mm
Recommended PCB hole diameter:Φ1.2mm

Electrical connection diagram



S23PxxxD15M2

At $I_f = 50A$ & $V_{CC} = \pm 15V_{DC}$
 $0\Omega \leq R_M \leq 327\Omega$

At $I_f = 100A$ & $V_{CC} = \pm 15V_{DC}$
 $45\Omega \leq R_M \leq 114\Omega$

UL Standard

UL 508 , CSA C22.2 No.14 (UL FILE No.E243511)

- For use in Pollution Degree 2 Environment.
- Maximum Surrounding air temperature rating, 85°C.

CAUTION

Provide two min. 100 by 85 mm, 0.5 mm thick copper conductor-cum-heat sink as primary conductor of each side for safe usage. The primary conductor temperature and PCB should not exceed 100°C.

Package & Weight Information

| Weight | Pcs/box | Pcs/carton | Pcs/pallet |
|--------|---------|------------|------------|
| 26g | 100 | 400 | 9600 |