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With the principle of "Quality Parts,Customers Priority,Honest Operation,and Considerate Service",our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



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# Hall Effect Current Sensors S23P\*\*\*D15 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

## Advantage:

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



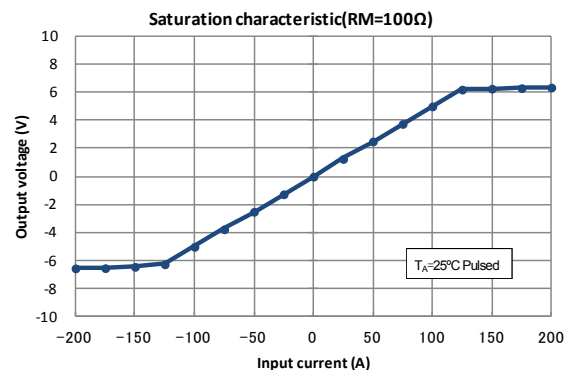
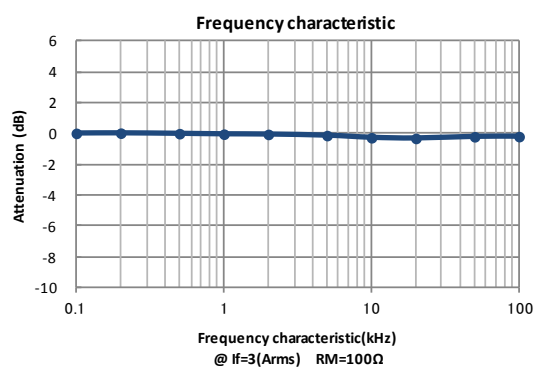
## Specifications

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

Parameters	Symbol	S23P50/100D15	
Primary nominal current	$I_f$	50A	100A
Maximum current <sup>1</sup> (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 <sup>2</sup> (at $I_f$ )	$X$	$I_o \pm 0.25\%$	
Offset current <sup>3</sup> (at $I_f=0\text{A}$ )	$I_{of}$	$\leq \pm 0.15\text{mA}$	
Output linearity <sup>2</sup> (0A~ $I_f$ )	$\epsilon_L$	$\leq \pm 0.15\%$ (at $I_f$ )	
Power supply voltage <sup>1</sup>	$V_{CC}$	$\pm 12\text{V} \dots \pm 15\text{V} \pm 5\%$	
Consumption current	$I_{CC}$	$\leq \pm 16\text{mA}$ (Output current is not included)	
Response time <sup>4</sup>	$t_r$	$\leq 0.5\mu\text{s}$ (at $di/dt = 100\text{A} / \mu\text{s}$ )	
Thermal drift of gain <sup>5</sup>	$T_{clo}$	$\leq \pm 0.01\%/^{\circ}\text{C}$	
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	$T_S$	$-40^{\circ}\text{C} \sim +90^{\circ}\text{C}$	

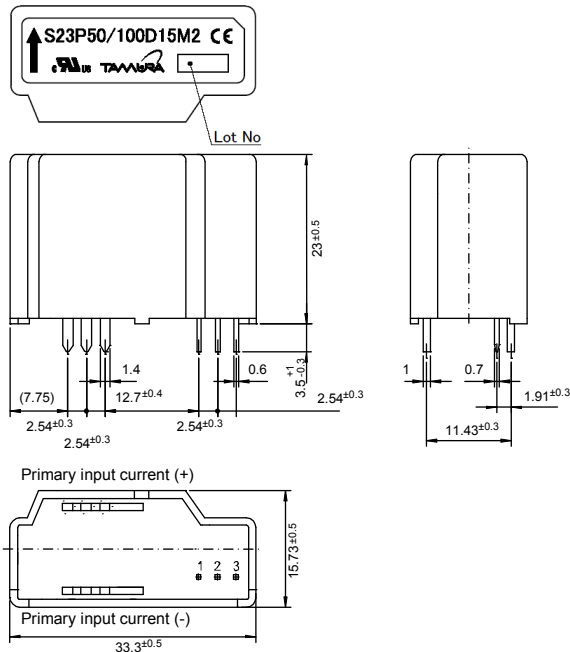
<sup>1</sup> At  $V_{CC}=\pm 15\text{V}$ ,  $I_{fmax}$  Operating Time:  $\leq 10$  Seconds. Maximum current is restricted by  $V_{CC}$  — <sup>2</sup> Without offset current — <sup>3</sup> After removal of core hysteresis — <sup>4</sup> Time between 90% input current full scale and 90% of sensor output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

## Electrical Performances



# Hall Effect Current Sensors S23P\*\*\*D15 Series

## Mechanical dimensions



### NOTES

1. Unit is mm
2. Tolerance is 0.5mm

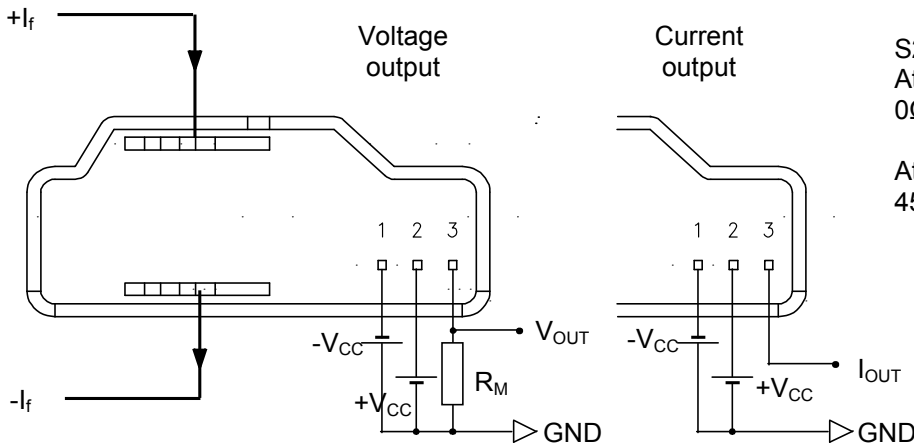
### Terminal number:

1. -V<sub>CC</sub>(-15V)
2. +V<sub>CC</sub>(+15V)
3. I<sub>OUT</sub>

### 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



S23PxxxD15  
At I<sub>f</sub> = 50A & V<sub>CC</sub> = ±15V<sub>DC</sub>  
0Ω ≤ R<sub>M</sub> ≤ 327Ω

At I<sub>f</sub> = 100A & V<sub>CC</sub> = ±15V<sub>DC</sub>  
45Ω ≤ R<sub>M</sub> ≤ 114Ω

## 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