

Hall Effect Current Sensor S25P050D15X



Features:

- Closed Loop type
- Current or voltage output
- Conversion ratio $K_N = 1:1000$
- Printed circuit board mounting
- Aperture
- Insulated plastic case according to UL94V0
- UL Recognition

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

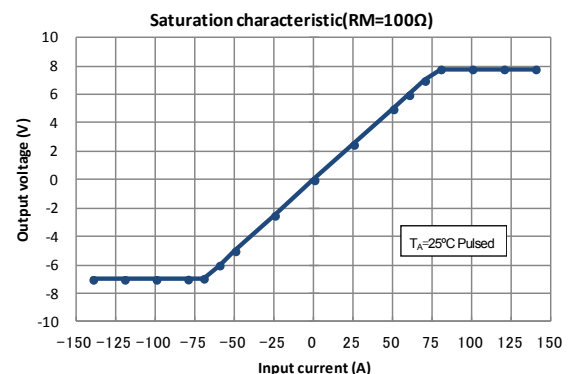
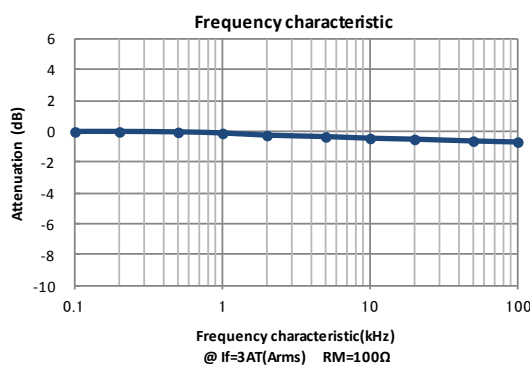
Specifications

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

Parameters	Symbol	S25P050D15X
Primary nominal current	I_f	50A
Maximum current ¹ (at 85°C)	I_{fmax}	$\pm 55\text{A}$ (at $R_M = 135\Omega$)
Measuring resistance ($I_f = \pm A_{DC}$ at 85°C)	R_M	60Ω ~ 95Ω (at $V_{CC} = \pm 12\text{V}$) 135Ω ~ 155Ω (at $V_{CC} = \pm 15\text{V}$)
Conversion Ratio	K_N	1 : 1000
Rated output current	I_o	50mA
Output current accuracy ² (at I_f)	X	$I_o \pm 0.5\%$
Offset current ³ (at $I_f=0\text{A}$)	I_{of}	$\leq \pm 0.2\text{mA}$
Output linearity ² (0A ~ I_f)	ϵ_L	$\leq \pm 0.15\%$ (at I_f)
Power supply voltage ¹	V_{CC}	$\pm 12\text{V}.. \pm 15\text{V} \pm 5\%$
Consumption current	I_{CC}	$\leq \pm 16\text{mA}$ (Output current is not included)
Response time ⁴	t_r	$\leq 1.0\mu\text{s}$ (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}	$\leq \pm 0.5\text{mA}$ (at $T_A = -40^\circ\text{C} \leftrightarrow +85^\circ\text{C}$)
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	AC 3000V, for 1minute (sensing current 0.5mA), inside of through hole \leftrightarrow terminal
Insulation resistance	R_{IS}	$\geq 500\text{M}\Omega$ (at DC 500V) , inside of through hole \leftrightarrow terminal
Secondary coil resistance	R_s	80Ω (at $T_A = 70^\circ\text{C}$) 85Ω (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	$-40^\circ\text{C} \sim +90^\circ\text{C}$

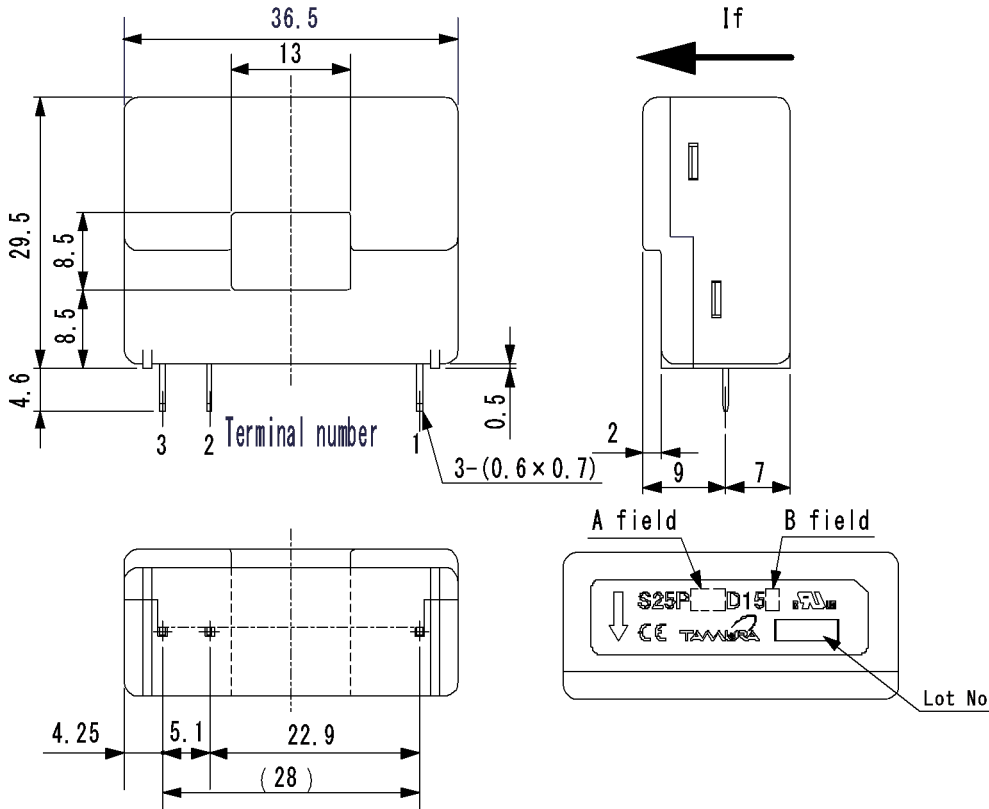
¹ At $T_A = 70^\circ\text{C}$, $I_{fmax} = 70\text{A}$ (at $50\Omega \leq R_L \leq 90\Omega$). Maximum current is restricted by V_{CC} — ² Without offset current — ³ After removal of core hysteresis — ⁴ Time between 90% input current full scale and 90% of sensor output full scale — ⁵ Without Thermal drift of offset current

Electrical Performances



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Mechanical dimensions



NOTES

1. Unit is mm
2. Tolerance is 0.5mm

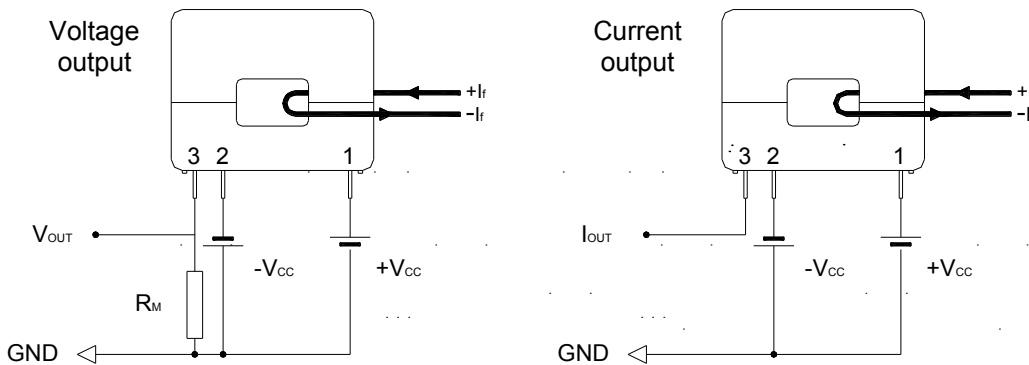
Terminal number:

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

A field display		B field display	
Current	A field	Coil turn	B field
50A	050	1000T	X
100A	100	2000T	Y
150A	150		

50A is 1000T only
150A is 2000T only

Electrical connection diagram



S25P050D15X

At I_f = 50A & V_{CC} = ±15V_{DC}
135Ω ≤ R_M ≤ 155Ω

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

Do not wrap the primary conductor around the core part of the product to increase measured current.

Package & Weight Information

Weight	Pcs/box	Pcs/carton	Pcs/pallet
20g	100	300	7200