

Hall Effect Current Sensors L18P***S12 Series

Features:

- Open Loop type
- Printed circuit board mounting
- Integrated primary
- Unipolar power supply
- Busbar version from 40A to 60A
- Insulated plastic case according to UL94V0
- Regulated offset voltage
- UL Recognition

Advantage:

- Excellent accuracy and linearity
- Wide nominal current range
- Low temperature drift
- Wide frequency bandwidth
- No insertion loss
- High Immunity To External Interference
- Optimised response time
- Current overload capability



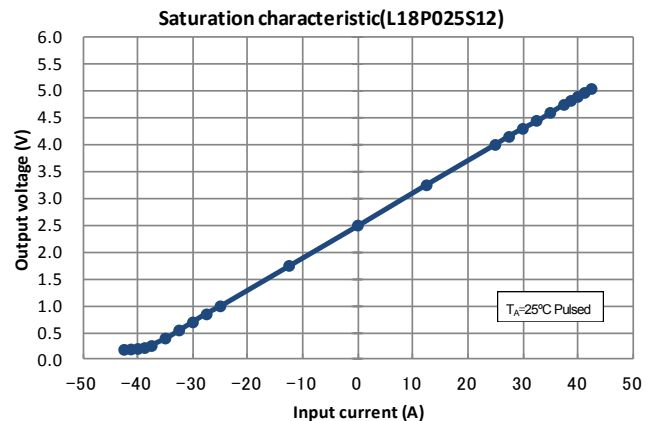
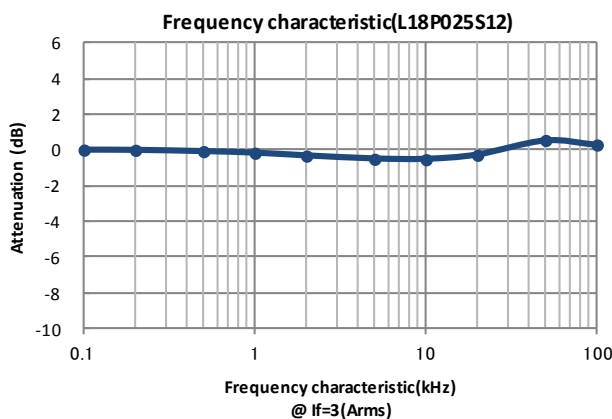
Specifications

 $T_A=25^{\circ}\text{C}$, $V_{CC}=+12\text{V}$, $R_L=10\text{k}\Omega$

| Parameters | Symbol | L18P003 S12 | L18P005 S12 | L18P010 S12 | L18P015 S12 | L18P020 S12 | L18P025 S12 | L18P030 S12 | L18P040 S12 | L18P050 S12 | L18P060 S12 |
|--|--------------|--|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Primary nominal current | I_f | 3A | 5A | 10A | 15A | 20A | 25A | 30A | 40A | 50A | 60A |
| Saturation current | I_{fmax} | $\geq \pm I_f \times 1.25$ | | | | | | | | | |
| Rated output voltage | V_o | $V_{of} + 1.5\text{V} \pm 0.045\text{V}$ (at I_f) | | | | | | | | | |
| Offset voltage ¹ | V_{of} | $2.5\text{V} \pm 0.035\text{V}$ (at $I_f=0\text{A}$) | | | | | | | | | |
| Output linearity ² (0A~ I_f) | ϵ_L | $\leq \pm 1\%$ (at I_f) | | | | | | | | | |
| Power supply voltage | V_{CC} | $+12\text{V} \pm 5\%$ | | | | | | | | | |
| Consumption current | I_{CC} | $\leq 15\text{mA}$ | | | | | | | | | |
| Response time ³ | t_r | $\leq 5\mu\text{s}$ (at $di/dt = I_f / \mu\text{s}$) | | | | | | | | | |
| Thermal drift of gain ⁴ | TcV_o | $\leq \pm 2.0\text{mV}/^{\circ}\text{C}$ | | | | | | | | | |
| Thermal drift of offset | TcV_{of} | $\leq \pm 2.0\text{mV}/^{\circ}\text{C}$ | | | | | | | | | |
| Hysteresis error | V_{OH} | $\leq 25\text{mV}$ (at $I_f=0\text{A} \rightarrow I_f \rightarrow 0\text{A}$) | | | | | | | | | |
| Insulation voltage | V_d | AC3000V for 1minute (sensing current 0.5mA), primary \leftrightarrow secondary | | | | | | | | | |
| Insulation resistance | R_{IS} | $\geq 500\text{M}\Omega$ (at DC500V), primary \leftrightarrow secondary | | | | | | | | | |
| Ambient operation temperature | T_A | $-30^{\circ}\text{C} \sim +80^{\circ}\text{C}$ | | | | | | | | | |
| Ambient storage temperature | T_S | $-40^{\circ}\text{C} \sim +85^{\circ}\text{C}$ | | | | | | | | | |

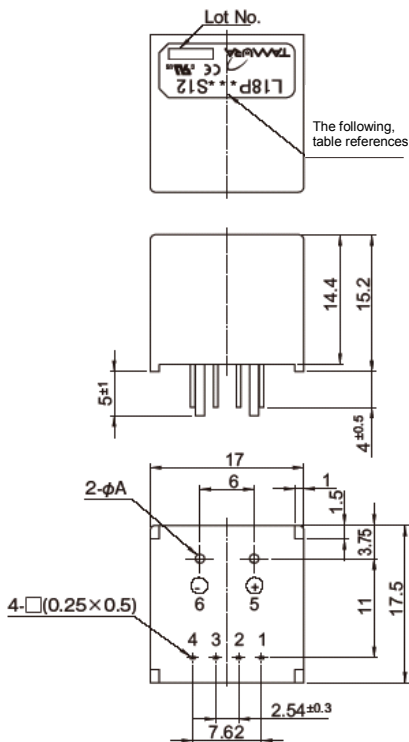
¹ V_{of} is fixed (independent of V_{CC}). After removal of core hysteresis — ² Without offset — ³ Time between 10% input current full scale and 90% of sensor output full scale — ⁴ Without Thermal drift of offset

Electrical Performances



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Mechanical dimensions



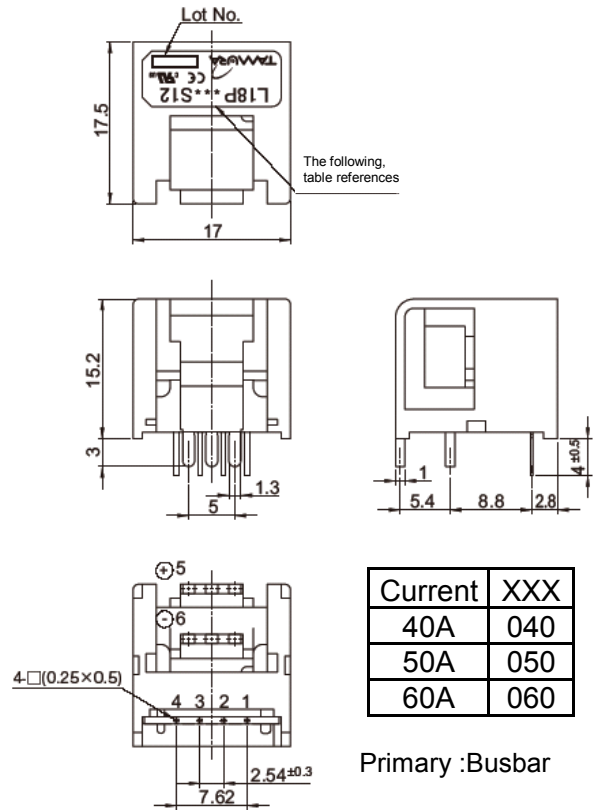
Terminal Number:

- 1: GND
- 2: GND
- 3: +V_{CC}(+12V)
- 4: V_{OUT}
- 5: Primary input current (+)
- 6: Primary input current (-)

| Current | XXX | φA |
|---------|-----|------|
| 3A | 003 | φ0.6 |
| 5A | 005 | φ0.8 |
| 10A | 010 | φ1.1 |
| 15A | 015 | φ1.4 |
| 20A | 020 | φ1.6 |
| 25A | 025 | φ1.6 |
| 30A | 030 | φ1.6 |

NOTES

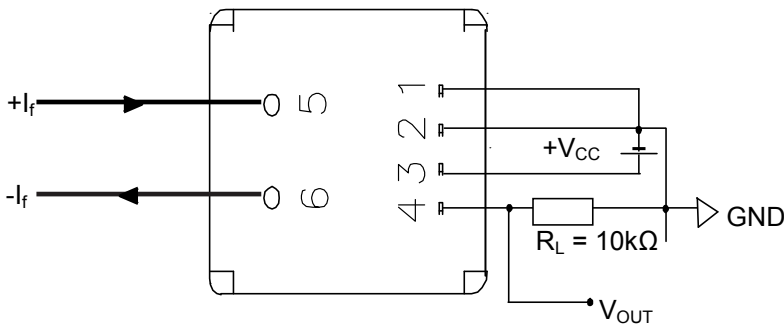
1. Unit is mm
2. Tolerance is 0.5mm



| Current | XXX |
|---------|-----|
| 40A | 040 |
| 50A | 050 |
| 60A | 060 |

Primary :Busbar

Electrical connection diagram



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, 80°C.

Package & Weight Information

| nominal current | Weight | Pcs/box | Pcs/carton | Pcs/pallet |
|-----------------|--------|---------|------------|------------|
| 10A..60A | 8g | 100 | 600 | 12000 |
| 3A , 5A | 8g | 50 | 1200 | 28800 |