

Hall Effect Current Sensors L31S***S05S Series



Features:

- Open Loop type
- Panel mounting
- Unipolar power supply
- Ferrite core
- Sulfur tolerant sensors (Resistors:Gold internal Electrodes)
- Insulated plastic case according to UL94V0
- 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

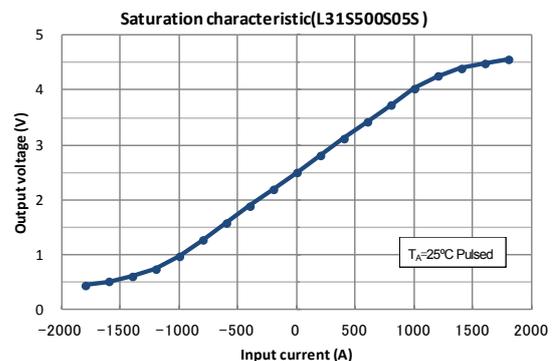
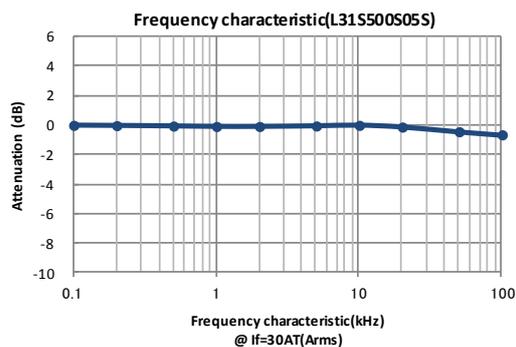
Specifications

 $T_A=25^{\circ}\text{C}$, $V_{CC}=+5\text{V}$, $R_L=10\text{k}\Omega$

Parameters	Symbol	L31S050 S05S	L31S100 S05S	L31S200 S05S	L31S300 S05S	L31S400 S05S	L31S500 S05S	L31S600 S05S
Primary nominal current	I_f	50A	100A	200A	300A	400A	500A	600A
Saturation current	I_{fmax}	$\geq \pm 150\text{A}$	$\geq \pm 300\text{A}$	$\geq \pm 600\text{A}$	$\geq \pm 900\text{A}$	$\geq \pm 900\text{A}$	$\geq \pm 900\text{A}$	$\geq \pm 900\text{A}$
Rated output voltage	V_o	$V_{of}+0.625\text{V} \pm 0.015\text{V}$ (at I_f)						
Offset voltage ¹	V_{of}	$V_{REF} \pm 0.025\text{V}$ (at $I_f = 0\text{A}$)						
Reference voltage	V_{REF}	$+2.495\text{V} \pm 0.020\text{V}$ (at $R_{ref} \geq 1\text{M}\Omega$. Output impedance : typ 200 Ω)						
Output Linearity ² (0A, 0.5 I_f , I_f)	ϵ_L	$\leq \pm 0.5\%$ (at I_f)						
Power supply voltage	V_{CC}	$+5\text{V} \pm 5\%$						
Consumption current	I_{CC}	$\leq 15\text{mA}$						
Response time ³	t_r	$\leq 5\mu\text{s}$ (at $di/dt = 100\text{A} / \mu\text{s}$)						
Thermal drift of gain ⁴	TcV_o	$\leq \pm 1.5\text{mV}/^{\circ}\text{C}$						
Thermal drift of offset	TcV_{of}	$\leq \pm 1.0\text{mV}/^{\circ}\text{C}$ (at $I_f = 0\text{A}$)			$\leq \pm 0.3\text{mV}/^{\circ}\text{C}$ (at $I_f = 0\text{A}$)			
Thermal drift of reference	TcV_{ref}	$\leq \pm 0.012\% / ^{\circ}\text{C}$						
Hysteresis error (at $I_f=0\text{A} \rightarrow I_f \rightarrow 0\text{A}$)	V_{OH}	$\leq 10\text{mV}$			$\leq 2.5\text{mV}$			
Insulation voltage	V_d	AC3300V for 1minute (sensing current 0.5mA), inside of through hole \leftrightarrow terminal						
Insulation resistance	R_{IS}	$\geq 500\text{M}\Omega$ (at DC500V), inside of through hole \leftrightarrow terminal						
Ambient operation temperature	T_A	$-40^{\circ}\text{C} \sim +85^{\circ}\text{C}$						
Ambient storage temperature	T_S	$-40^{\circ}\text{C} \sim +85^{\circ}\text{C}$						

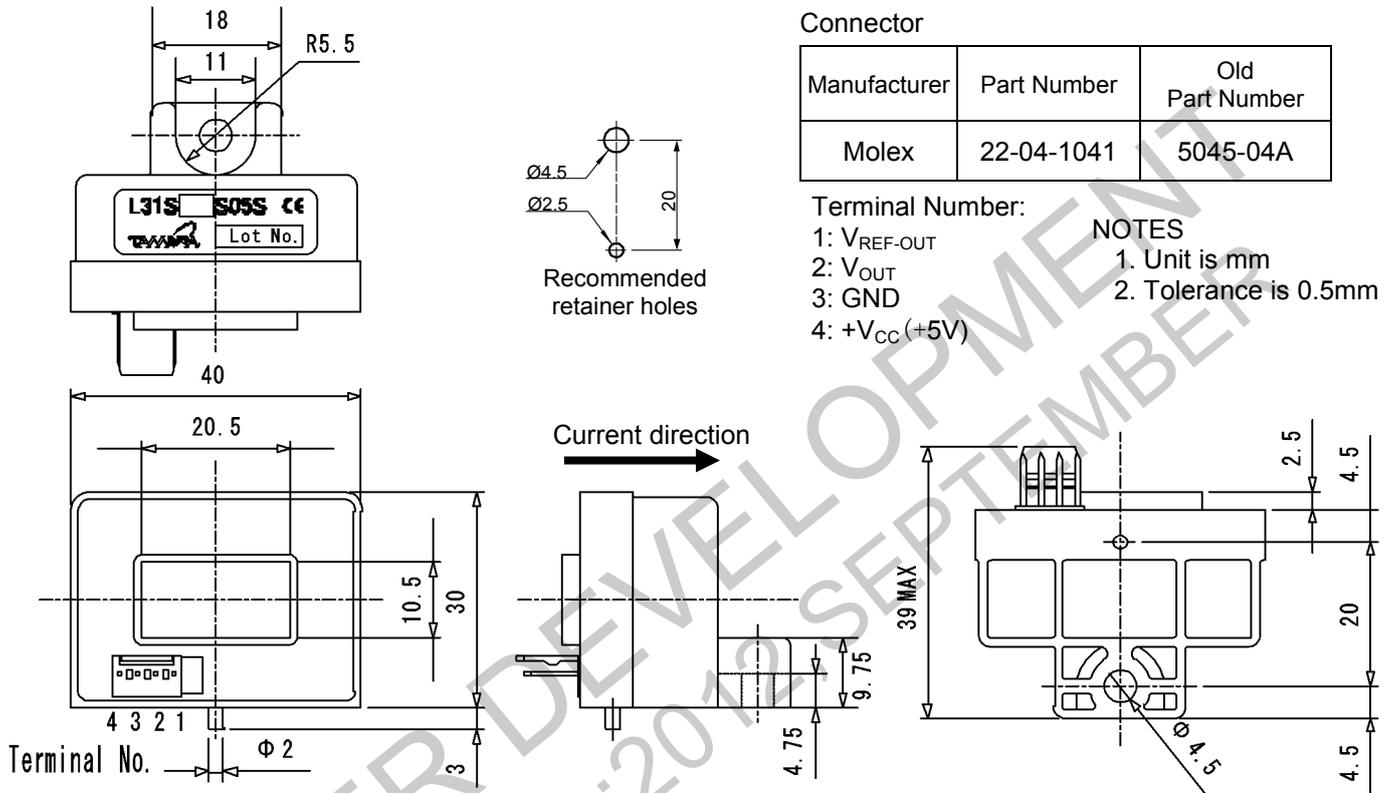
¹ After removal of core hysteresis — ² Without offset — ³ Time between 10% input current full scale and 90% of sensor output full scale — ⁴ Without Thermal drift of offset

Electrical Performances



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Mechanical dimensions in mm



Connector

Manufacturer	Part Number	Old Part Number
Molex	22-04-1041	5045-04A

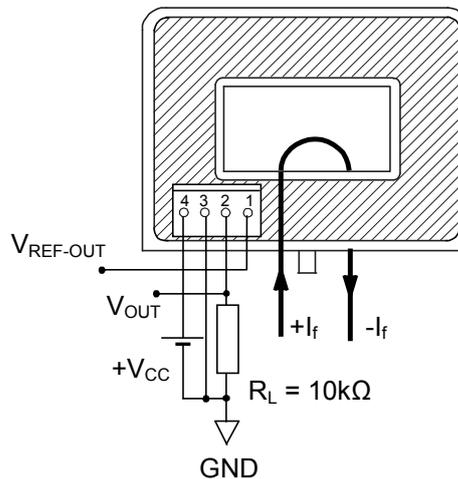
Terminal Number:

- 1: $V_{REF-OUT}$
- 2: V_{OUT}
- 3: GND
- 4: $+V_{CC} (+5V)$

NOTES

1. Unit is mm
2. Tolerance is 0.5mm

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, 85°C.

Package & Weight Information

Weight	Pcs/box	Pcs/carton	Pcs/pallet
37g	20	200	3600