

Hall Effect Current Sensors L32P***S05FS Series

Features:

- Open Loop type
- Printed circuit board mounting
- Unipolar power supply
- Industrial temperature range
- Sulfur-proof as standard
- Insulated plastic case according to UL94V0

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

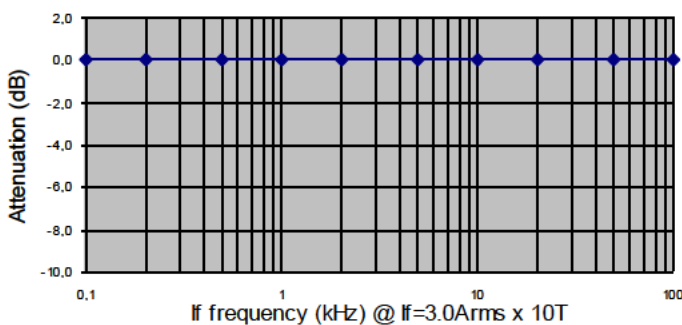
$T_A=25^{\circ}\text{C}$, $V_{CC}=+5\text{V}$, $R_L=10\text{k}\Omega$

Parameters	Symbol	L32P050S05FS	L32P100S05FS	L32P150S05FS	L32P200S05FS	L32P300S05FS	L32P400S05FS
Rated current	I_f	50A	100A	150A	200A	300A	400A
Maximum Current	I_{fmax}	$\pm 150\text{A}$	$\pm 300\text{A}$	$\pm 450\text{A}$	$\pm 600\text{A}$	$\geq \pm 600\text{AT}$	$\geq \pm 600\text{AT}$
Primary conductor		Aperture					
Output Voltage	V_{OUT}	$V_{REF} + 0.625\text{V} \pm 0.015\text{V} @ \pm I_f$					
Offset Voltage	V_{OE}	$V_{REF} \pm 0.025\text{V} @ I_f = 0\text{A}$					
Reference voltage	V_{REF}	$+2.5\text{V} \pm 0.020\text{V}$					
Output Linearity ¹	ϵ_L	$\leq \pm 0.5\% @ 0\text{A}, 0.5 I_f, I_f$					
Power Supply	V_{CC}	$+5\text{V} \pm 5\%$					
Current Consumption	I_C	$\leq 15\text{mA}$					
Response Time ²	t_r	$\leq 5\mu\text{s} (@ di/dt = \text{F.S.} / \mu\text{s})$					
Output Temperature Characteristic ¹	TCV_{OUT}	$\leq \pm 1.5\text{mV}/^{\circ}\text{C}$					
Offset Temperature Characteristic	TCV_{OE}	$\leq \pm 1.0\text{mV}/^{\circ}\text{C} @ I_f = 0\text{A}$	$\leq \pm 0.5\text{mV}/^{\circ}\text{C} @ I_f = 0\text{A}$	$\leq \pm 0.3\text{mV}/^{\circ}\text{C} @ I_f = 0\text{A}$			
Reference Temperature Characteristic	TCV_{REF}	$\leq \pm 0.012\% / ^{\circ}\text{C}$					
Hysteresis error	V_{OH}	$\leq 7.5\text{mV} (0\text{A} \leftrightarrow I_f)$	$\leq 5.0\text{mV} (0\text{A} \leftrightarrow I_f)$	$\leq 2.5\text{mV} (0\text{A} \leftrightarrow I_f)$			
Withstand Voltage	V_d	AC2500V for 1minute (sensing current 0.5mA), inside of aperture \leftrightarrow terminal					
Insulation Resistance	R_{IS}	$> 500\text{M}\Omega (500\text{V DC})$, inside of aperture \leftrightarrow terminal					
Frequency Bandwidth ³	f	DC .. 50kHz					
Operating Temperature	T_A	$-40^{\circ}\text{C} \sim +85^{\circ}\text{C}$					
Storage Temperature	T_S	$-40^{\circ}\text{C} \sim +85^{\circ}\text{C}$					

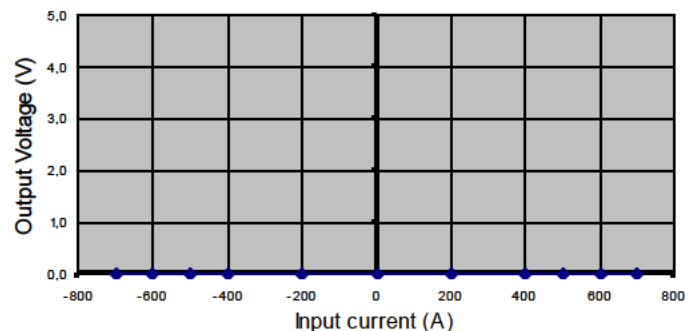
¹ Without offset — ² Time between 10% input current full scale and 90% of sensor output full scale — ³ Small signal only to avoid excessive heating of magnetic core

Electrical Performances

Frequency Characteristic data not yet available

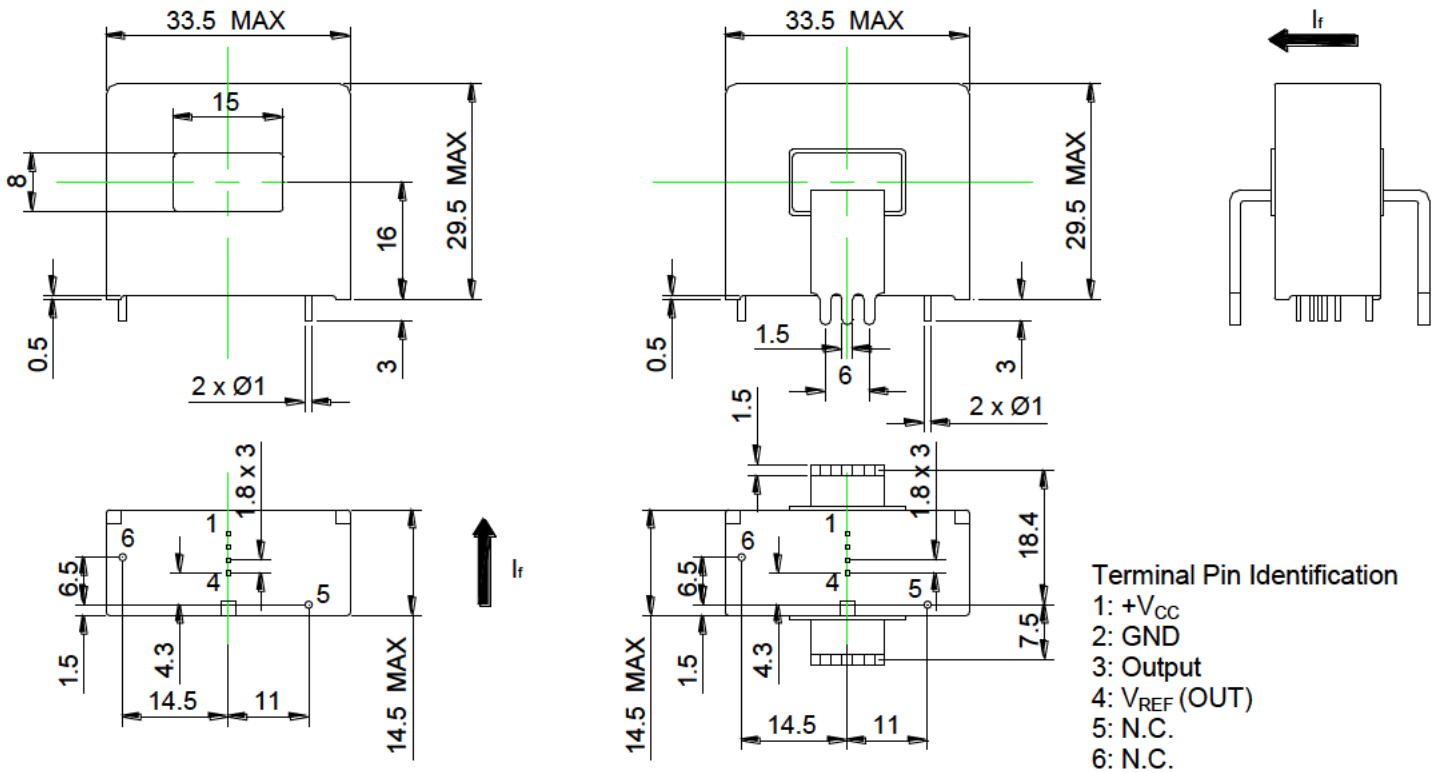


Saturation Characteristic data not yet available

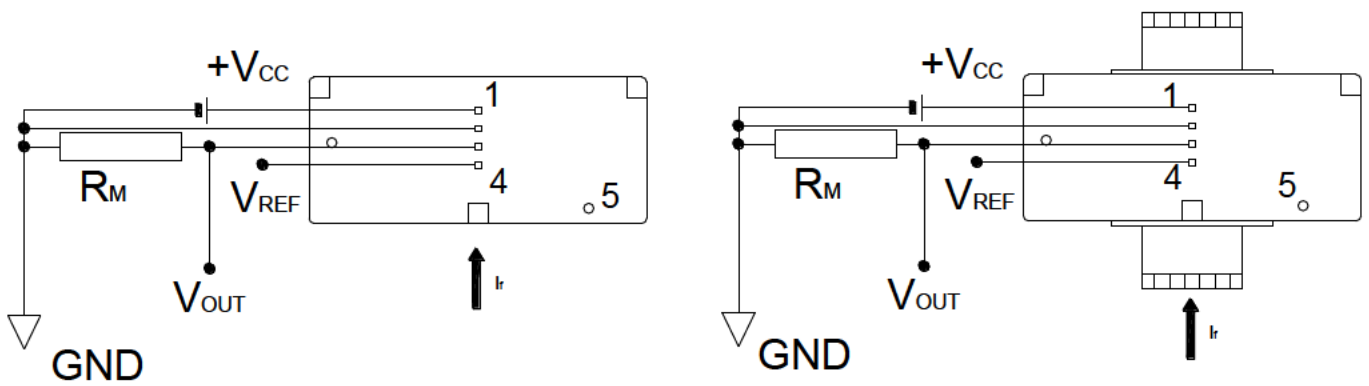


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Mechanical dimensions in mm



Electrical connection diagram



Package & Weight Information

Weight	Pcs/box	Pcs/carton	Pcs/pallet

Saturation Characteristic

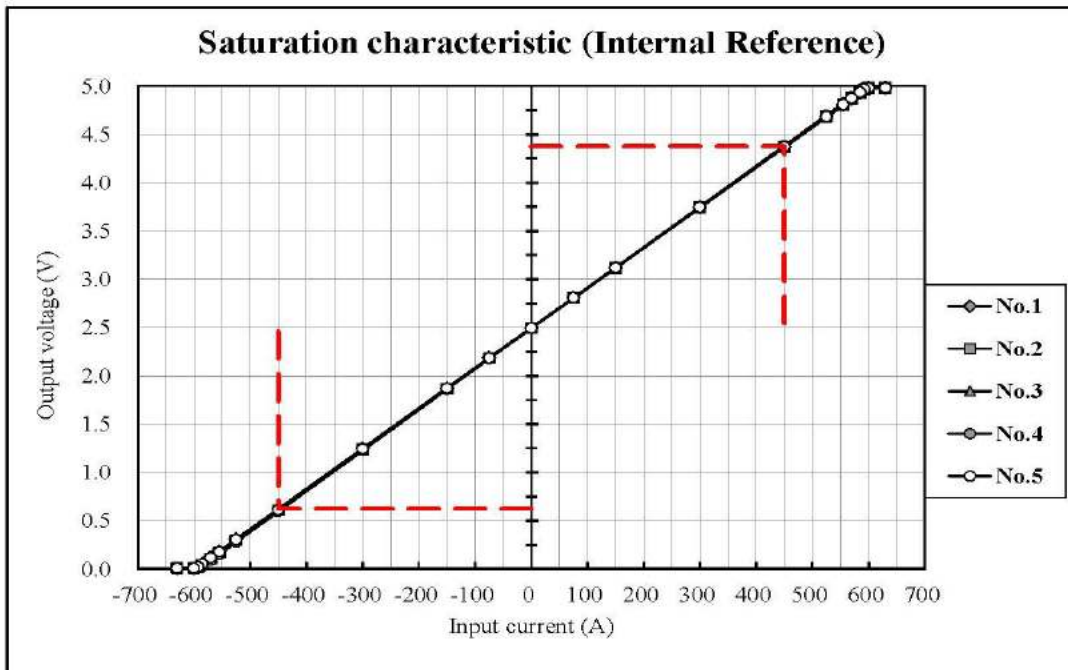
L32P150S05FS

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Saturation characteristic

at $V_{cc}=+5V$, $R_L=10k\Omega$, $T_a=+25^\circ C$

Input current (A)	Output voltage (V)					Theoretical value (V)
	No.1	No.2	No.3	No.4	No.5	
630.0	4.981	4.980	4.981	4.982	4.982	5.000
600.0	4.981	4.980	4.981	4.981	4.981	4.995
592.5	4.961	4.971	4.959	4.980	4.966	4.964
585.0	4.930	4.940	4.928	4.949	4.935	4.933
570.0	4.868	4.877	4.866	4.887	4.872	4.870
555.0	4.806	4.815	4.804	4.824	4.810	4.808
525.0	4.682	4.690	4.679	4.698	4.685	4.683
450.0	4.370	4.376	4.367	4.383	4.373	4.370
300.0	3.745	3.748	3.742	3.752	3.747	3.745
150.0	3.120	3.119	3.116	3.121	3.121	3.120
75.0	2.808	2.806	2.804	2.806	2.808	2.808
0.0	2.497	2.493	2.493	2.491	2.496	2.495
-75.0	2.187	2.182	2.184	2.179	2.186	2.183
-150.0	1.874	1.867	1.870	1.863	1.872	1.870
-300.0	1.248	1.238	1.244	1.230	1.244	1.245
-450.0	0.622	0.609	0.617	0.597	0.616	0.620
-525.0	0.310	0.295	0.304	0.281	0.303	0.308
-555.0	0.185	0.169	0.179	0.155	0.178	0.183
-570.0	0.122	0.106	0.117	0.092	0.115	0.120
-585.0	0.060	0.044	0.055	0.029	0.052	0.058
-592.5	0.029	0.013	0.024	0.008	0.021	0.026
-600.0	0.008	0.008	0.008	0.008	0.008	0.000
-630.0	0.007	0.008	0.008	0.008	0.008	0.000



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Frequency Characteristics

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Frequency characteristic (Reference)

at Detected current $I_f = 3.2 \times 1.2 \text{ A}$, $V_{cc} = +5 \text{ V}$, $R_L = 10 \text{ k}\Omega$, $T_a = +25^\circ \text{C}$

If frequency (kHz)	Output voltage - Offset voltage (mVrms)					Remarks
	CH1	CH2	CH3	CH4	CH5	
0.1	165	165	168	166	166	
0.2	165	165	168	166	166	
0.5	164	164	167	165	165	
1.0	165	164	168	166	166	
2.0	165	164	168	166	165	
5.0	165	166	169	166	166	
10.0	165	168	171	166	165	
20.0	166	176	178	168	163	
50.0	165	185	188	170	158	
70.0	165	186	191	170	157	
100.0	161	182	188	166	152	
120.0	160	181	189	166	151	
150.0	154	174	183	160	151	
200.0	145	163	175	154	143	
250.0	134	151	166	147	134	
300.0	122	137	156	139	124	

If frequency (kHz)	Output voltage attenuate quantity (dB)					Remarks
	CH1	CH2	CH3	CH4	CH5	
0.1	0.000	0.000	0.000	0.000	0.000	
0.2	-0.011	-0.003	-0.022	-0.011	-0.016	
0.5	-0.054	-0.054	-0.054	-0.058	-0.052	
1.0	-0.029	-0.029	-0.028	-0.038	-0.029	
2.0	-0.034	-0.033	-0.031	-0.044	-0.039	
5.0	-0.005	0.031	0.009	-0.026	-0.029	
10.0	0.003	0.170	0.111	-0.008	-0.071	
20.0	0.030	0.541	0.457	0.107	-0.153	
50.0	0.002	0.995	0.960	0.189	-0.422	
70.0	-0.026	1.040	1.067	0.180	-0.505	
100.0	-0.229	0.853	0.954	-0.037	-0.793	
120.0	-0.287	0.822	0.986	-0.021	-0.838	
150.0	-0.621	0.456	0.702	-0.340	-0.833	
200.0	-1.155	-0.090	0.327	-0.693	-1.333	
250.0	-1.805	-0.768	-0.111	-1.106	-1.876	
300.0	-2.623	-1.593	-0.667	-1.594	-2.548	

