Hall Effect Current Sensors L32P***S05BFS Series

Features:

- Open Loop type
- Printed circuit board mounting
- Unipolar power supply
- Industrial temperature range
- Sulfur-proof as standard
- Bus bar version available for 50A & 100A models
- 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

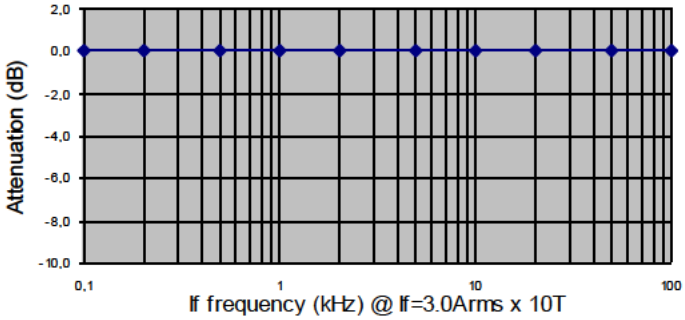
T_A=25ºC, V_{CC}=+5V, R_L=10kΩ

Parameters	Symbol	L32P050S05BFS	L32P100S05BFS	L32P150S05BFS	L32P200S05BFS	L32P300S05BFS	L32P400S05BFS
Rated current	I_f	50A	100A	150A	200A	300A	400A
Maximum Current	I_{fmax}	±150A	±300A	±450A	±600A	≥±600AT	≥±600AT
Primary conductor		Aperture or Bus Bar		Aperture			
Output Voltage	V_{OUT}	V_{REF} +0.625V ± 0.015V @ ± I_f					
Offset Voltage	V_{OE}	V_{REF} ± 0.025V @ I_f = 0A					
Reference voltage	V_{REF}	+2.5V ± 0.020V					
Output Linearity[1]	ε_L	≤ ± 0.5% @ 0A, 0.5 I_f, I_f					
Power Supply	V_{CC}	+ 5V ±5 %					
Current Consumption	I_C	≤ 15mA					
Response Time[2]	t_r	≤ 5µs (@ di/dt = F.S. / µs)					
Output Temperature Characteristic[1]	TCV_{OUT}	≤ ± 1.5mV/ºC					
Offset Temperature Characteristic	TCV_{OE}	≤ ± 1.0 mV/ºC @ I_f = 0A		≤ ± 0.5 mV/ºC @ I_f = 0A		≤ ± 0.3 mV/ºC @ I_f = 0A	
Reference Temperature Characteristic	TCV_{REF}	≤ ± 0.012% / ºC					
Hysteresis error	V_{OH}	≤ 7.5mV (0A ⇔ I_f)		≤ 5.0mV (0A ⇔ I_f)		≤ 2.5mV (0A ⇔ I_f)	
Withstand Voltage	V_d	AC2500V for 1minute (sensing current 0.5mA), inside of aperture ⇔ terminal					
Insulation Resistance	R_{IS}	> 500MΩ (500V DC), inside of aperture ⇔ terminal					
Frequency Bandwidth[3]	f	DC .. 50kHz					
Operating Temperature	T_A	-40ºC~+85ºC					
Storage Temperature	T_S	-40ºC~+85ºC					

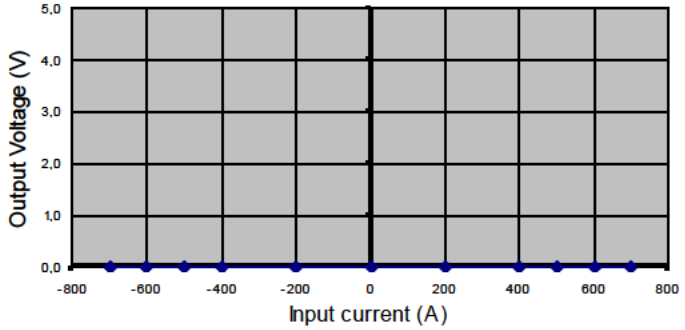
[1] Without offset — [2] Time between 10% input current full scale and 90% of sensor output full scale — [3] Small signal only to avoid excessive heating of magnetic core

Electrical Performances

Frequency Characteristic data not yet available



Saturation Characteristic data not yet available



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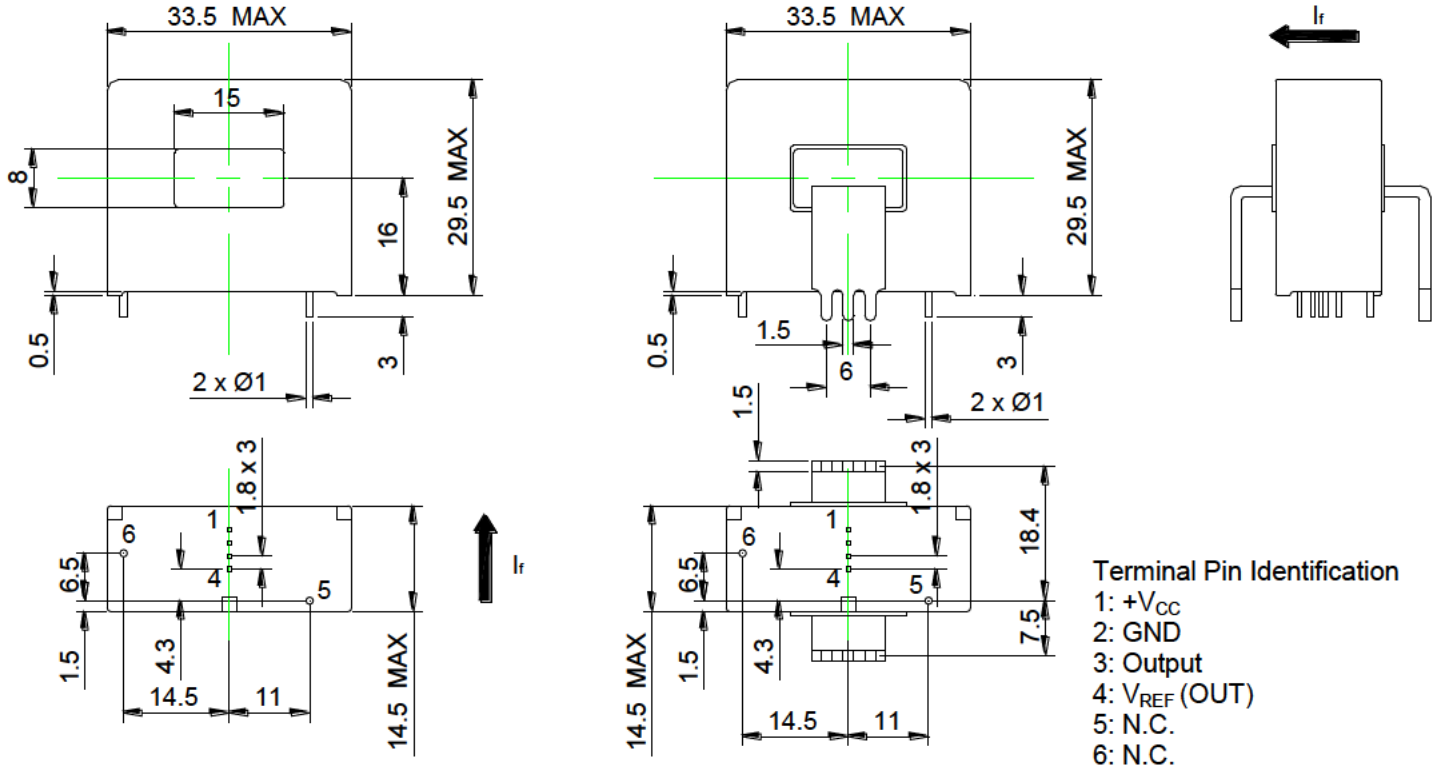
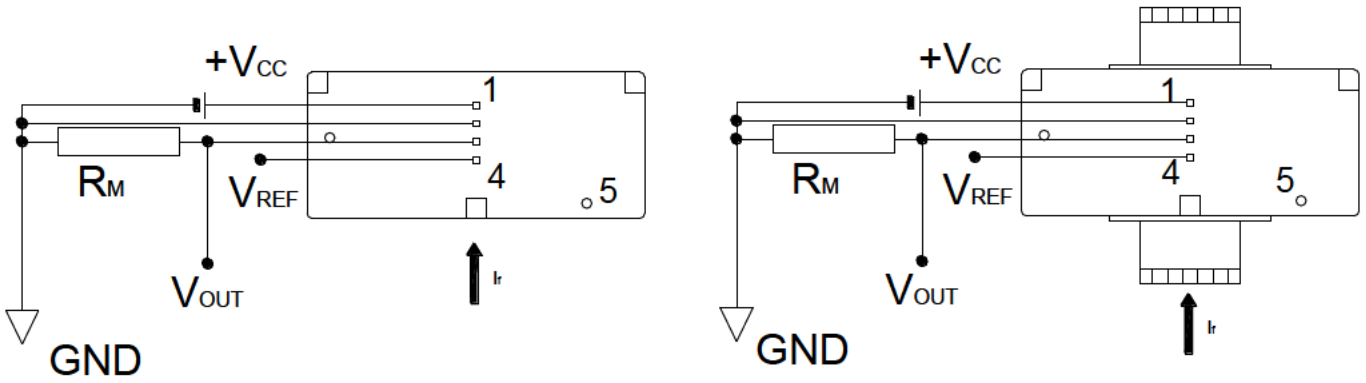
Mechanical dimensions in mm



Terminal Pin Identification
1: $+V_{CC}$
2: GND
3: Output
4: V_{REF} (OUT)
5: N.C.
6: N.C.

Electrical connection diagram



Package & Weight Information

Weight	Pcs/box	Pcs/carton	Pcs/pallet

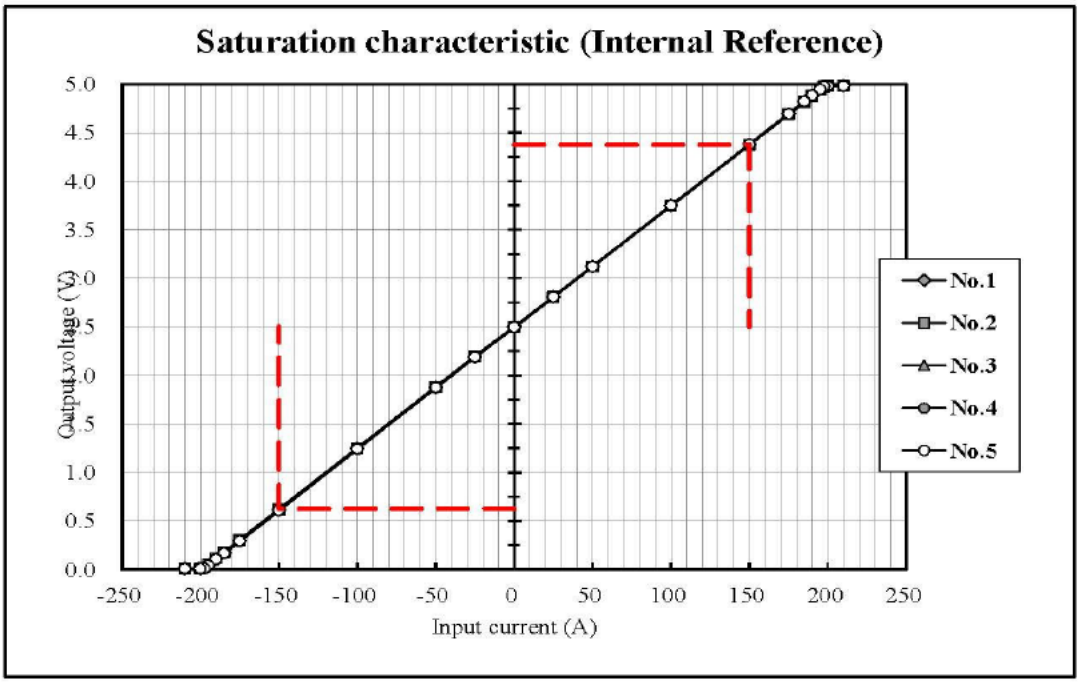
Saturation Characteristics

L32P050S05(B)FS P.3

Saturation characteristic

at Vcc=+5V, RL=10kΩ, Ta=+25°C

Input current (A)	Output voltage (V) No.1	No.2	No.3	No.4	No.5	Theoretical value (V)
210.0	4.981	4.981	4.981	4.981	4.981	5.000
200.0	4.980	4.981	4.980	4.980	4.980	4.995
197.5	4.975	4.975	4.971	4.978	4.976	4.964
195.0	4.945	4.945	4.940	4.947	4.945	4.933
190.0	4.882	4.882	4.877	4.884	4.882	4.870
185.0	4.819	4.819	4.814	4.821	4.819	4.808
175.0	4.693	4.693	4.689	4.695	4.693	4.683
150.0	4.378	4.378	4.374	4.380	4.378	4.370
100.0	3.749	3.750	3.746	3.749	3.748	3.745
50.0	3.120	3.122	3.120	3.119	3.120	3.120
25.0	2.807	2.809	2.807	2.805	2.807	2.808
0.0	2.495	2.499	2.498	2.494	2.495	2.495
-25.0	2.190	2.194	2.195	2.188	2.189	2.183
-50.0	1.874	1.878	1.880	1.871	1.873	1.870
-100.0	1.243	1.248	1.251	1.239	1.242	1.245
-150.0	0.612	0.617	0.621	0.606	0.610	0.620
-175.0	0.296	0.301	0.306	0.290	0.295	0.308
-185.0	0.169	0.175	0.180	0.163	0.168	0.183
-190.0	0.106	0.112	0.117	0.100	0.105	0.120
-195.0	0.043	0.049	0.054	0.037	0.042	0.058
-197.5	0.013	0.018	0.022	0.008	0.011	0.026
-200.0	0.008	0.008	0.008	0.008	0.008	0.000
-210.0	0.008	0.008	0.008	0.008	0.008	0.000



Frequency Characteristics

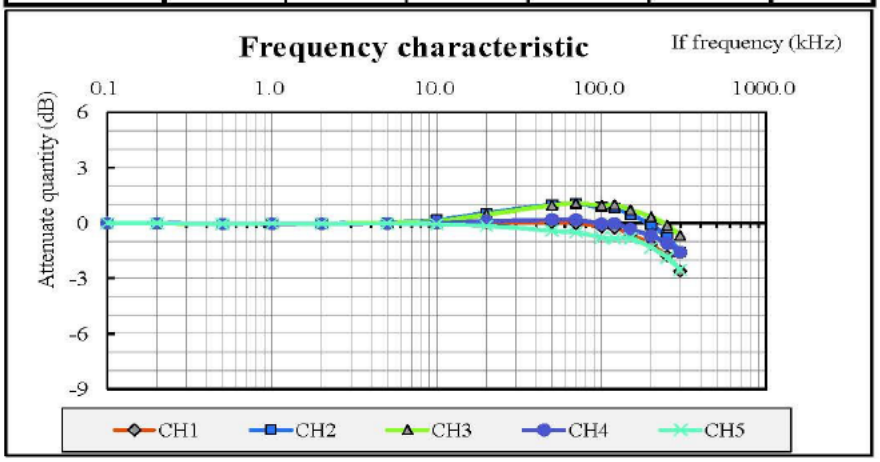
L32P150S05FS P.4

Frequency characteristic (Reference)

at Detected current If= 3.2*12AT, Vcc=+5V, RL=10kΩ, Ta=+25°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	



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L32P050S05BFS L32P100S05BFS