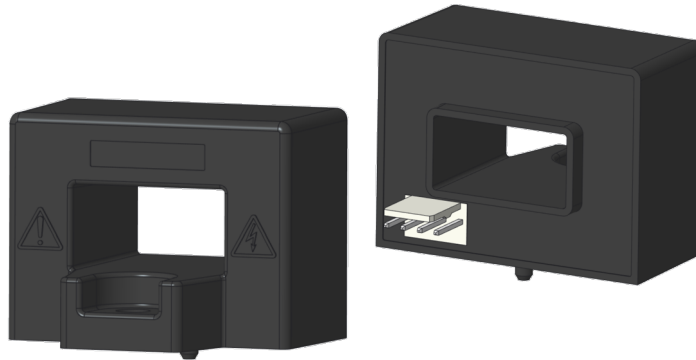


HS1V H05 SERIES

Current Sensor

Model Number:

HS1V 50 H05
HS1V 100 H05
HS1V 200 H05
HS1V 300 H05
HS1V 400 H05
HS1V 500 H05
HS1V 600 H05



For the electronic measurement of current:DC,AC,pulsed...,with galvanic insulation between the primary and the secondary circuit.

Features

- ✧ Open loop sensor using the Hall Effect
- ✧ Output voltage is proportional to supply voltage
- ✧ Galvanic insulation between primary and secondary
- ✧ Insulating plastic case recognized according to UL 94-V0
- ✧ No insertion loss
- ✧ Small size
- ✧ Standards:
 - IEC 60664-1:2020
 - IEC 61800-5-1:2022
 - IEC 62109-1:2010

Applications

- ✧ AC variable speed drives
- ✧ Uninterruptible power supplies (UPS)
- ✧ Static converters for DC motor drives
- ✧ Switch mode power supplies (SMPS)
- ✧ Power supplies for welding applications
- ✧ Battery management

Safety

The sensor must be used according to IEC 61800-5-1.

The sensor must be used in electric/electronic equipment with respect to applicable standards and safety requirements in accordance with the following manufacture's operating instructions.

Caution, risk of electrical shock !



When operating the sensor, certain parts of the module can carry hazardous voltage (e.g., Primary busbar, power supply). Ignore this warning can lead to injury and/or cause serious damage.

This sensor is a built-in device, whose conducting parts must be inaccessible after installation. A protective housing or additional shield could be used.

Main supply must be able to be disconnected.

HS1V H05 SERIES

Absolute maximum ratings(not operating)

Parameter	Symbol	Unit	Value
Supply voltage	V_C	V	$\pm 18V$
Primary conductor temperature	T_B	$^{\circ}C$	100

- ✘ Stresses above these ratings may cause permanent damage.
- ✘ Exposure to absolute maximum ratings for extended periods may degrade reliability.

Environmental and mechanical characteristics

Parameter	Symbol	Unit	Min	Typ	Max	Comment
Ambient operating temperature	T_A	$^{\circ}C$	-40		105	
Ambient storage temperature	T_S	$^{\circ}C$	-40		105	
Mass	m	g		60		

Insulation coordination

Parameter	Symbol	Unit	Value	Comment
Rms voltage for AC insulation test @ 50Hz, 1min	V_d	kV	3.6	According to IEC 60664-1
Impulse withstand voltage 1.2/50 μ s	V_W	kV	6.6	According to IEC 60664-1
Clearance (pri.- sec.)	d_{cl}	mm	4.33	
Creepage distance (pri.- sec.)	d_{cp}	mm	7.08	
Plastic case	-	-	UL94-V0	
Comparative tracking index	CTI	PLC	Ⅲa	
Application example	-	-	300V	Reinforced insulation, According to IEC 61800-5-1, IEC 62109-1CATⅢ, PD2
Application example	-	-	600V	Basic insulation, According to IEC 61800-5-1, IEC 62109-1CATⅢ, PD2

HS1V H05 SERIES

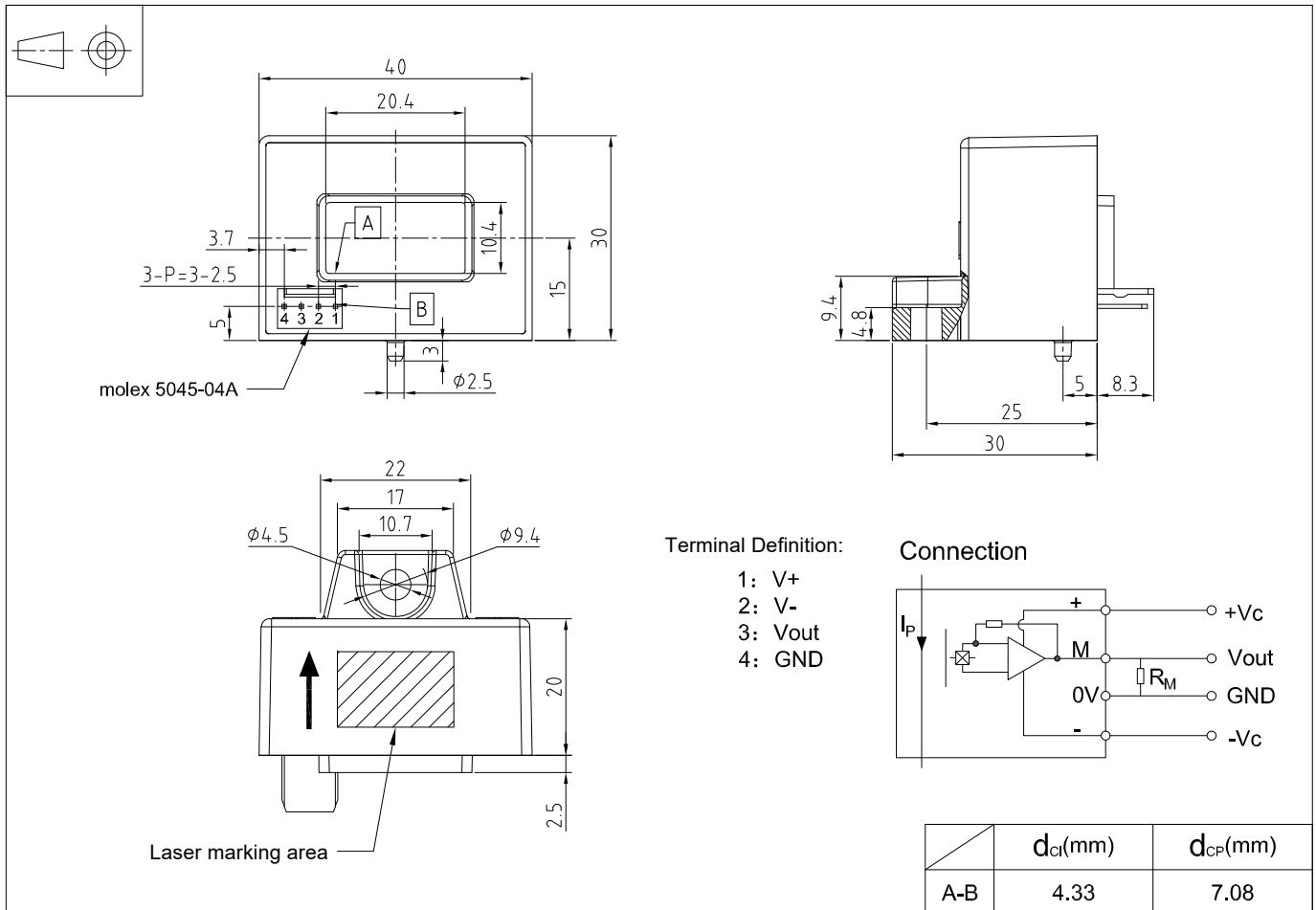
Electrical data

※ With $T_A = 25^\circ\text{C}$, $V_C = \pm 15\text{V}$, $R_L = 10\text{k}\Omega$, unless otherwise noted.

Parameter	Symbol	Unit	Min	Typ	Max	Comment
Primary nominal rms current	I_{PN}	A	-50		50	HS1V 50 H05
			-100		100	HS1V 100 H05
			-200		200	HS1V 200 H05
			-300		300	HS1V 300 H05
			-400		400	HS1V 400 H05
			-500		500	HS1V 500 H05
			-600		600	HS1V 600 H05
Primary current, measuring range ^{*1}	I_{PM}	A	-150		150	HS1V 50 H05
			-300		300	HS1V 100 H05
			-600		600	HS1V 200 H05
			-900		900	HS1V 300...600 H05
Supply voltage ^{*1}	V_C	V	± 12		± 15	@ 5%
Current consumption	I_C	mA		32 0.6		@+15V @-15V
Load resistance	R_L	k Ω	10			
Output voltage (Analog) @ I_{PN}	V_{OUT}	V		± 4.000		
Electrical offset voltage	V_{OE}	mV	-20		20	
Temperature coefficient of V_{OE} ^{*2}	TCV_{OE}	mV/K	-0.8		0.8	@ -40°C~105°C
Theoretical sensitivity	G_{th}	mV/A		80.00		HS1V 50 H05
				40.00		HS1V 100 H05
				20.00		HS1V 200 H05
				13.33		HS1V 300 H05
				10.00		HS1V 400 H05
				8.00		HS1V 500 H05
				6.67		HS1V 600 H05
Sensitivity error	ε_G	%	-0.5		0.5	Exclusive of V_{OE}
Temperature of G	TCG	%/K	-0.1	± 0.05	0.1	@ -40°C~105°C
Linearity error 0... I_{PN}	ε_L	% of I_{PN}	-0.5	± 0.2	0.5	Exclusive of V_{OE}
Hysteresis offset voltage @ $p=0$ after $1 \times I_{PN}$	V_{OM}	mV	-10	± 4	10	
Accuracy @ I_{PN}	X	% of I_{PN}	-1		1	Exclusive of V_{OE}
Response time @ 90% of I_{PN}	t_r	μs		3	5	
Frequency bandwidth (-3dB)	BW	kHz	50			

HS1V H05 SERIES

Dimensions (in mm. 1 mm = 0.0394 inch)



Mechanical characteristic

- General tolerance: ± 0.5 mm
- Connection of secondary: Molex 5045-04A
- Primary hole: 20.4mm×10.4mm
- Sensor: 1pc $\Phi 4.5$ mm through-hole
1pc M4 metal screws

Recommended fastening torque: 0.9 N•m ($\pm 10\%$)(pad)

Remarks

- V_{OUT} and I_P are in the same direction, when I_P flows in the direction of arrow.
- Temperature of primary conductor should not exceed 100℃.
- Dynamic performances (di/dt and response time) are best with a single bar completely filling the primary hole.