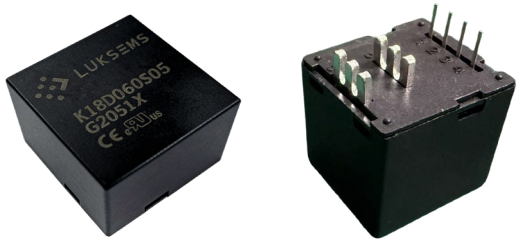
K18D060S05 Current Sensor

The K18D060S05 is an Open-Loop current sensor based on the Hall effect. It provides electronic measurement of DC, AC or pulse currents at same time, and their combinations with galvanic between the primary (high current) and secondary circuits, PCB mount design is suitable for general low power applications.



Features

- Non-contact measurement of high current
- Output voltage proportional to carried current
- Max. nominal range ±60 A (DC or AC peak)
- RoHs compliance (Lead-Free)

Advantages

- Compact design for general industrial measurement
- Excellent dv / dt performance
- Enhanced humidity and dust resistance
- High ESD sensitivity (Human Body Model) 4 kV

Applications

- Frequency converters
- Servo motor drives
- Battery management systems
- Welding applications

Standards

- EN 50178:1997
- IEC 61010-1:2010
- IEC 61800-5-1:2007

Absolute maximum ratings

Symbol	Parameter	Min.	Max.	Unit
$V_{DD\ max.}$	Maximum supply voltage (not destructive)	-0.3	6.5	V
I_{PM}	Maximum measuring current	- 90	90	A
T_A	Ambient operating temperature	-30	85	°C
T_S	Storage temperature range	-40	85	°C
$V_{ESD-HBM}$	ESD sensitivity HBM (Human Body Model)		4	kV

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

Specifications (T_A = 25 °C, V_{CC} = 5.0 V)

Symbol	Parameter	Test condition	Min.	Typ.	Max.	Unit
V_{CC}	Supply voltage		4.75	5	5.25	V
I_C	Current consumption	I_P = 0 A without load		14	18	mA
I_{PN}	Current nominal measuring range	K18D060S05	-90	±60	90	A
R_L	Output load resistance	V_{OUT} to GND		5		kΩ
C_L	Output load capacitance	V_{OUT} to GND		1	10	nF
V_0	Zero current output voltage	I_P = 0 A		V_{CC} / 2		V
V_{OUT}	Nominal output voltage	at ± I_{PN}		V_{CC} / 2 ± 1.5 ± 0.04		V
V_{OE}	Offset voltage	I_P = 0 A	-20		20	mV
ε_L	Non-linearity error	±I_{PN} without offset		<±1		% / I_{PN}
T_{CV0}	Temperature coefficient of V_0	T_A = -30 °C ... 85 °C	-0.5	0.25	0.5	mV / K
T_{CVOUT}	Temperature coefficient of V_{OUT}	T_A = -30 °C ... 85 °C (except T_{CVOE})	-1	0.5	1	mV / K
T_R	Step response to 90% of I_{PN}			3	5	µs
BW	Frequency bandwidth(-3 dB)			120		kHz

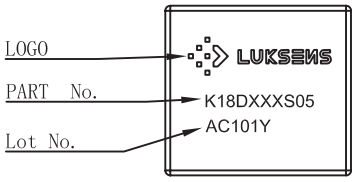
Insulation characteristics

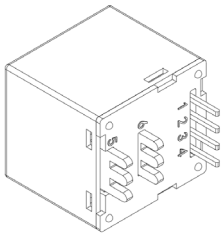
Symbol	Parameter	Value	Unit	Comment
V_D	Insulation voltage for isolation, 50 Hz, 1 min	3000	V	
R_{ISO}	Isolation resistance @ 500 VDC	>500	MΩ	

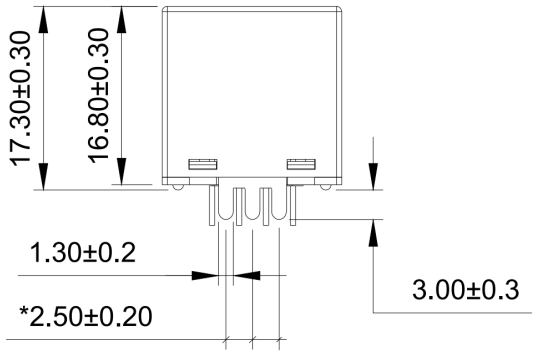
General characteristics

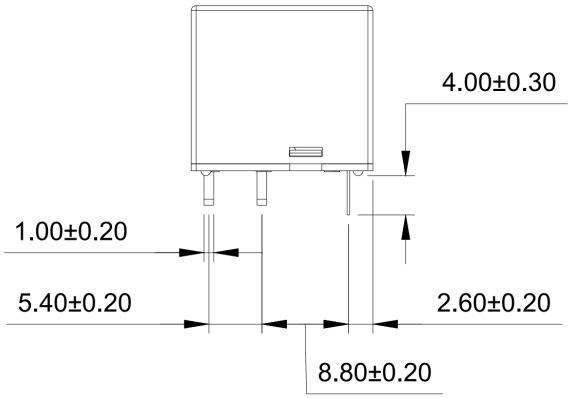
Symbol	Parameter	Value	Unit	Comment
m-HSE	Housing material	V0		Flame retardant UL 94-V0 (PBT)
m-CDT	Conductor material	H62		Copper + Sn plating
m	Mass	8	grams	

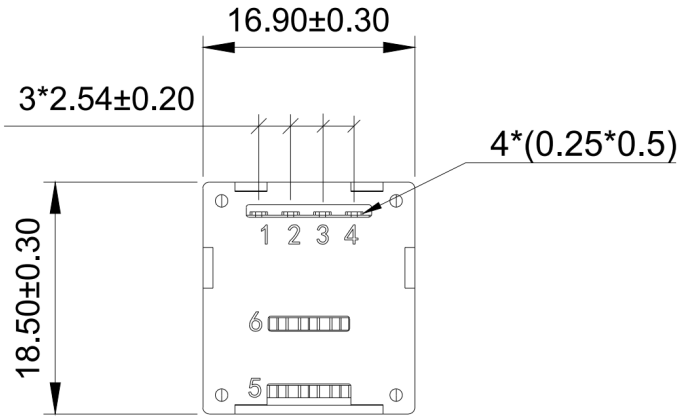
Dimension (mm)





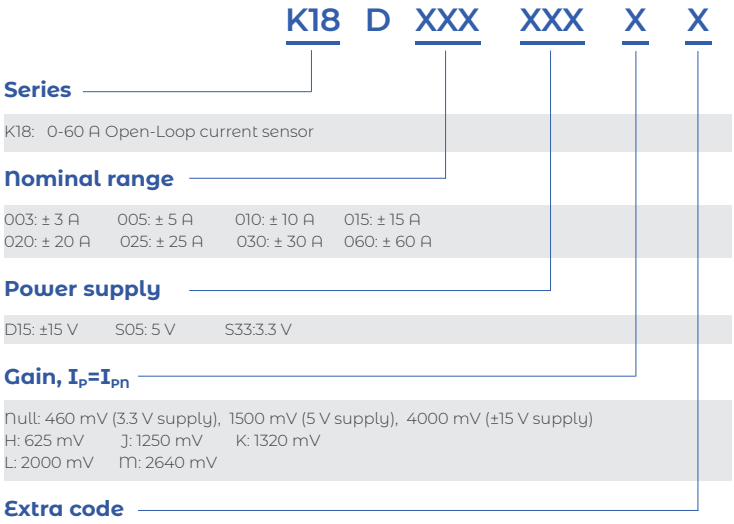






Pin	Symbol
1	GND
2	GND
3	$+V_{CC}$
4	V_{OUT}
5	$+I_P$
6	$-I_P$

Name Guide Description



Notes

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Safety and Environment

The product is to be installed by manufacturer trained personnel or competent person trained in accordance with manufacturer installation instructions.

With respect to applicable standards IEC 61010-1 / EN 61010-1 *safety requirements for electrical equipment for measurement, control and laboratory use part 1 general requirements*, the product should be used in limited energy secondary circuits.

Risk of electrical shock

Certain parts of the module can carry hazardous voltage during the operation process of the product because hazardous live voltage of primary conductor, power supply occurs, injury and / or serious damage will be caused if this warning is ignored.

Conducting parts must be inaccessible after installation of the product. Additional protection including shield or protective housing could be used according to IEC 60664 Insulation coordination for equipment within low-voltage supply systems.

Disconnection of the main supply will protect against possible injury and serious damage.

ESD protection

Damage from an ESD event will occur if the personnel is not well grounded when handling.

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