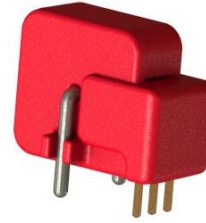


MS Series

High Performance Current Sensor

Based on Magtron Programmable ASIC Solution



Features

- ◆ Ultra small packaging
- ◆ Magtron Quadracore technology
- ◆ Open loop programmable solution
- ◆ Single 5V supply voltage
- ◆ Printed circuit board mounting
- ◆ Casing and materials UL-listed
- ◆ Appearance patented

Characteristics

- ◆ Stable accuracy
- ◆ Low temperature coefficient
- ◆ High immunity to external interference
- ◆ Programmable analog output
- ◆ Low insertion loss
- ◆ Integration frequency filter
- ◆ Easy to mount with automatic handling system

Applications

- ◆ Inverter and Servo
- ◆ Home appliance
- ◆ Shunt solution replacement
- ◆ Uninterruptible Power Supply

Standards

- ◆ EN50178 : 1997
- ◆ IEC61010-1 : 2010
- ◆ UL508 : 2010

Select Part List

Part Number	Primary current measuring range	Quantity/Carton
MS20	20A	480 pcs

Overview

The MS series device is a high performance current sensor based on Magtron programmable ASIC Quadracore technology with high accuracy in the full temperature range, adjustable analog output.

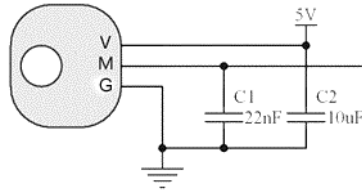
It's suitable for the application of industrial products, such as the inverter, UPS, servo motor driver and other industrial products. The ultra-small package is designed for the high power density application and easy to use.

MS series is designed for the replacement of shunt solution and the transformer solution with high cost effective.

MS Series

High Performance Current Sensor

Application circuit



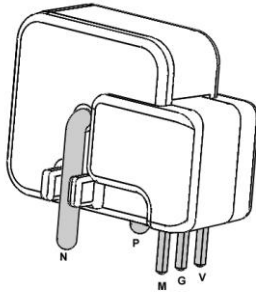
Note :C1, C2 needs to be close to the current sensor pin
Component selection reference :

Designator	Description
C1	TDK,X7R,22nF/16V,±10%,0603
C2	TDK,X5R,10uF/16V,±10%,0603

Pin Definition

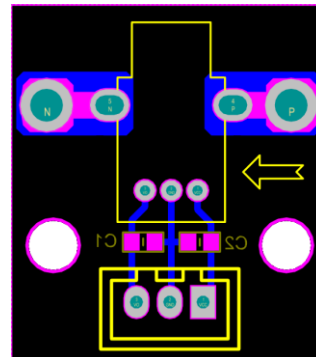
Symbol	Description
V	Power supply pin
G	Power GND pin
M	Signal output pin

Assembly PIN output :



- ① N,P: The primary side Pin
- ② V,G,M: Secondary side Pin

PCB Layout Reference



MS Demo board

Absolute Maximun ratings

Parameter	Symbol	Min	Typ	Max	Unit
Supply Voltage(not operating)	V_C			9	V
Jumper temperature	T_J		120		°C
Ambient operating temperature	T_A	-40		+85	°C
Ambient storage temperature	T_A	-40		+105	°C
ESD rating,Human Body Model(HBM)	U_{ESD}		2		kV

Isolation characteristics

Parameter	Symbol	Min	Unit	Comment
RMS Voltage for AC Insulation test 50/60Hz/1 min	V_D	3	kV	
Through hole conductor isolation distance suggestion	D_{CP}	5.7	mm	

MS Series

High Performance Current Sensor

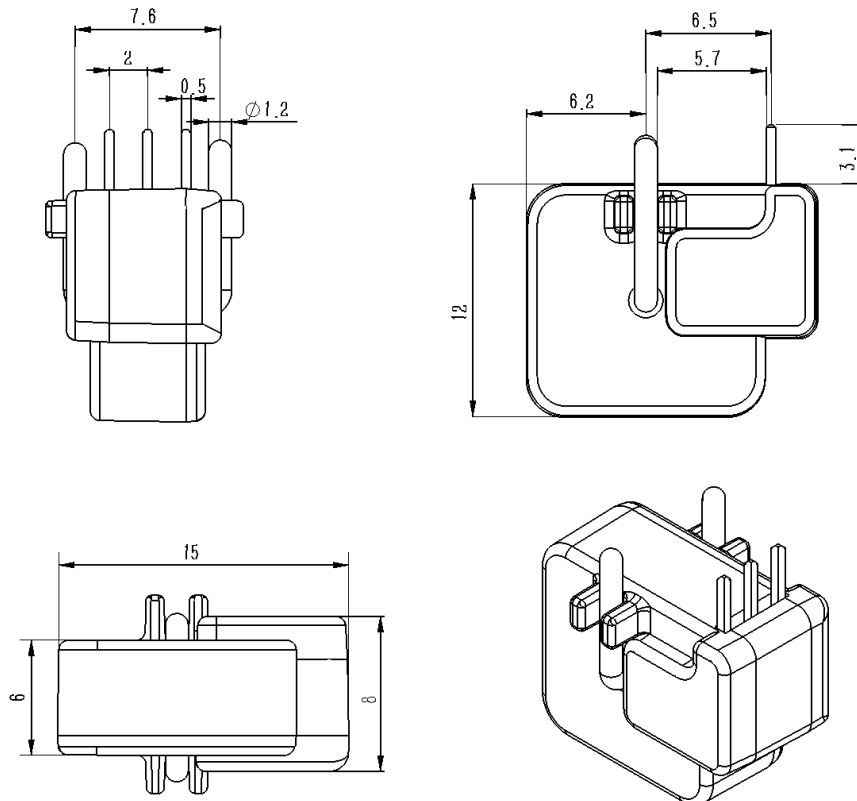
Electrical data MS20

At Ta=25°C, Vc=5V, RL=100KΩ, unless otherwise noted

Parameter	Symbol	Min	Typ	Max	Unit	Comment
Primary nominal rms current	I_{PN}		10		A	
Primary current , measuring range	I_{PM}		20		A	
Supply voltage	V_C		5		V	
Number of primary turns	N_P		1			
Current consumption	I_C		13		mA	
Output Voltage range@ I_{PM}	V_O		2.5±2		V	
Temperature coefficient of V_O	TCV_O		±300		PPM/K	
Theoretical Sensitivity	G_{TH}		100		mV/A	
Gain error	ϵ_G		3		%	@+85°C
Temperature coefficient of Gain	TCG		200		PPM/K	@-40~+85°C
Linearity error 0~ I_{PM}	ϵ_L		2		% of I_{PM}	
Magnetic offset voltage	V_{OM}		5		mV	
Accuracy @ I_{PM}	X		2		% of I_{PN}	@-40~+85°C
Frequency bandwidth(-3 dB)	BW		150		kHz	
Reaction time@10% of I_{PN}	T_{RA}		1.2		uS	@Fre=500Hz
Reaction time@90% of I_{PN}	T_A		2		uS	@Fre=500Hz

Dimensions in MS series

Mechanical Characteristics (Unit :mm, Tolerance in +-0.2)



Update: 2015.6.30 [3]