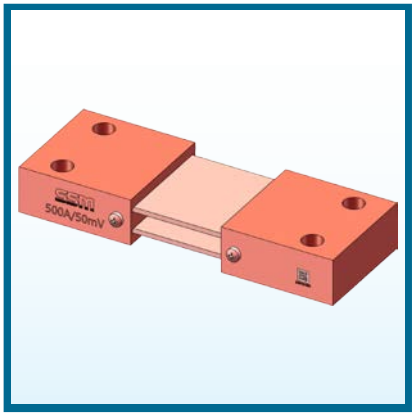


AHigh-Precision High-Current Alloy Shunt

■MBRRC 0500

AEC-Q200 Compliant

Lead free | Halogen free | RoHS Compliance

Features

- The MBRRC 0500 series of products can reach an accuracy of 0.1% at a rated current of 10% to 100%.
- The MBRRC 0500 series of products can achieve a minimum TCR of ±20ppm/°C within the range of -20°C to +120°C.
- The MBRRC 0500 series of products features low thermal EMF versus copper and current coefficient.
- The MBRRC 0500 series of products will undergo 100% power-on testing before delivery, and the data of individual products are traceable.
- Core materials and processes are self-controlled, ensuring stable quality and timely delivery.
- Providing standard specifications and custom solutions to meet various industry needs.

Applications

- Automotive Electronics
- Precision Power Supply
- Instrumentation
- Medical Equipment
- Test End Measurement Equipment
- Medical Equipment

◆Electrical Specification

Series	Resistance Value	Rated current	Output voltage	Max.Operating Current	Operating Tempertature	TCR ppm/°C+20°C Ref)	Weight	Tolerance
MBRRC	100μΩ	500A	50mV	600 A	-55℃~170℃	±20(+20℃~+120℃)	844g±80g	±0.1%
0500	150μΩ	500A	75mV	600 A	-55℃~170℃	±20(+20℃~+120℃)	874g±80g	±0.1%

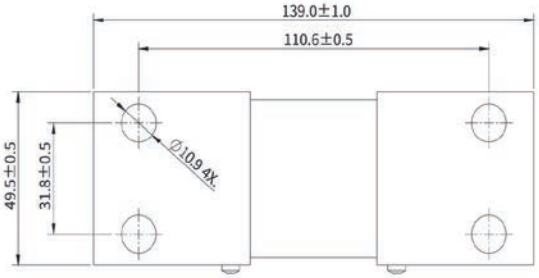
◆Part Number information

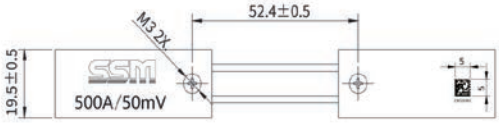
M	B	R	R	C	0	5	0	0	B	0	5	0	Z	0	0

Series (5 characters)	Rated current (4 characters)	Tolerance (1 character)	Output voltage (3 characters)	Code (3 characters)
MBRAS	0500=500A	B = ± 0.1%	050=50mV 075=75mV	Z00=Standard

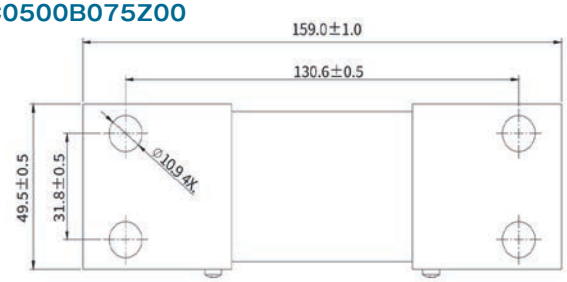
◆Dimensions

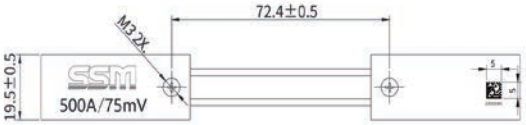
MBRRC0500B050Z00





MBRRC0500B075Z00

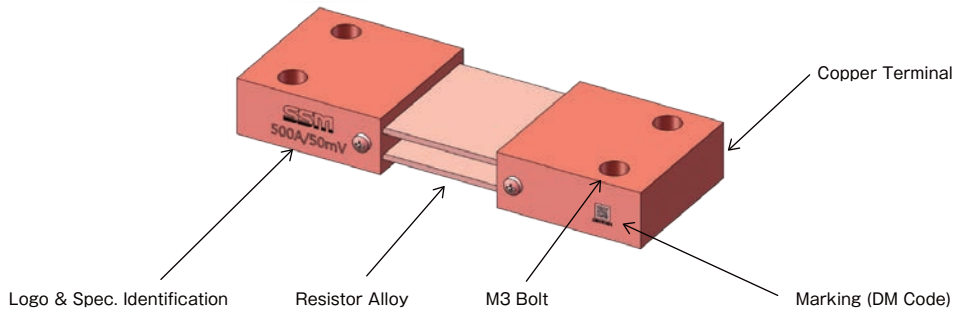




◆Performance

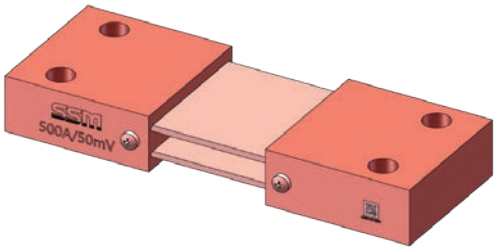
Test	Test Method	Standards	Max.
Basic Tolerance	Load 5%, 10%, 20%, 60%, 80%, 120% rated current for 1 minute.	Q/GDW11850-2018	ΔR≤±0.1%
Tolerance Consistency	Load 100% rated current. Measure the consistency of the basic tolerance of three parts in the same lot after thermal balance is reached.	Q/GDW11850-2018	ΔR≤±0.05%
Tolerance Stability	Load 100% rated current. Measure the resistance after thermal balance is reached. After the shunt cools to room temperature, power on again at 100% rated current to reach thermal balance. Measure the resistance and calculate the rate of change of the two resistance values.	Q/GDW11850-2018	ΔR≤±0.05%
Measurement Repeatability	Load 100% rated current. Measure the resistance every 5s after thermal balance is reached. Record 21 times, and calculate repeatability.	Q/GDW11850-2018	ΔR≤±0.02%
Thermal Balance Time	Load 100% rated current, every 60s, calculate the change rate of tolerance.	Q/GDW11850-2018	≤5min
Overload Test	2.25 times rated current for 1.5s.	Q/GDW11850-2018	ΔR≤±0.1%
Temperature Alternating	Each cycle lasts 24 hours with humidity set at 95%RH. The temperature profile follows: 1.Ramp to 60℃ in 3 hours and hold for 9 hours. 2.Cool to 25℃ in 3 hours and hold for 9 hours 6 cycles.	Q/GDW11850-2018 GB/T2423.4	ΔR≤±0.1%
High Temperature High Current	+70 ℃ for 30 minutes, and load 100% rated current to reach thermal balance.	Q/GDW11850-2018	ΔR≤±0.1%
Low Temperature Low Current	-40 ℃ for 30 minutes, and load 10% rated current for 1 minute.	Q/GDW11850-2018	ΔR≤±0.1%

◆Construction



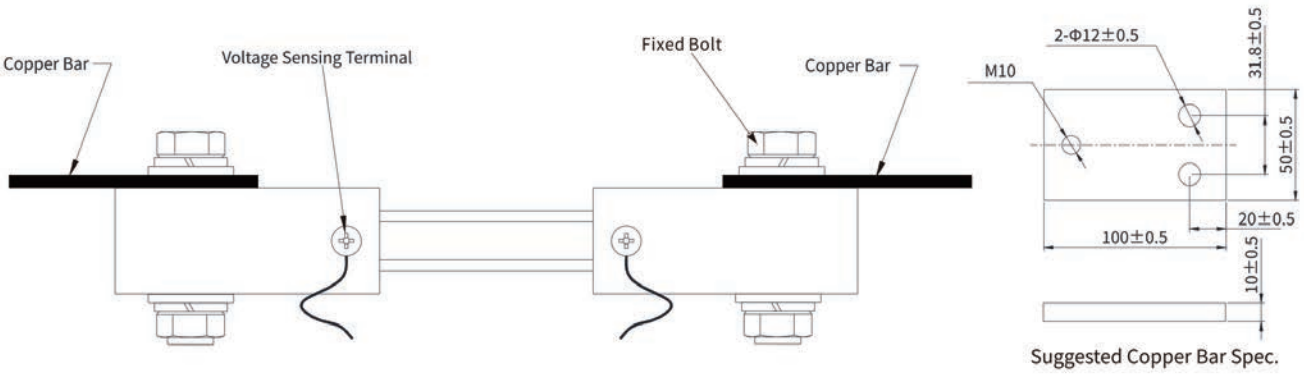
◆Marking

Marking of product: Logo + product specifications + DM code.

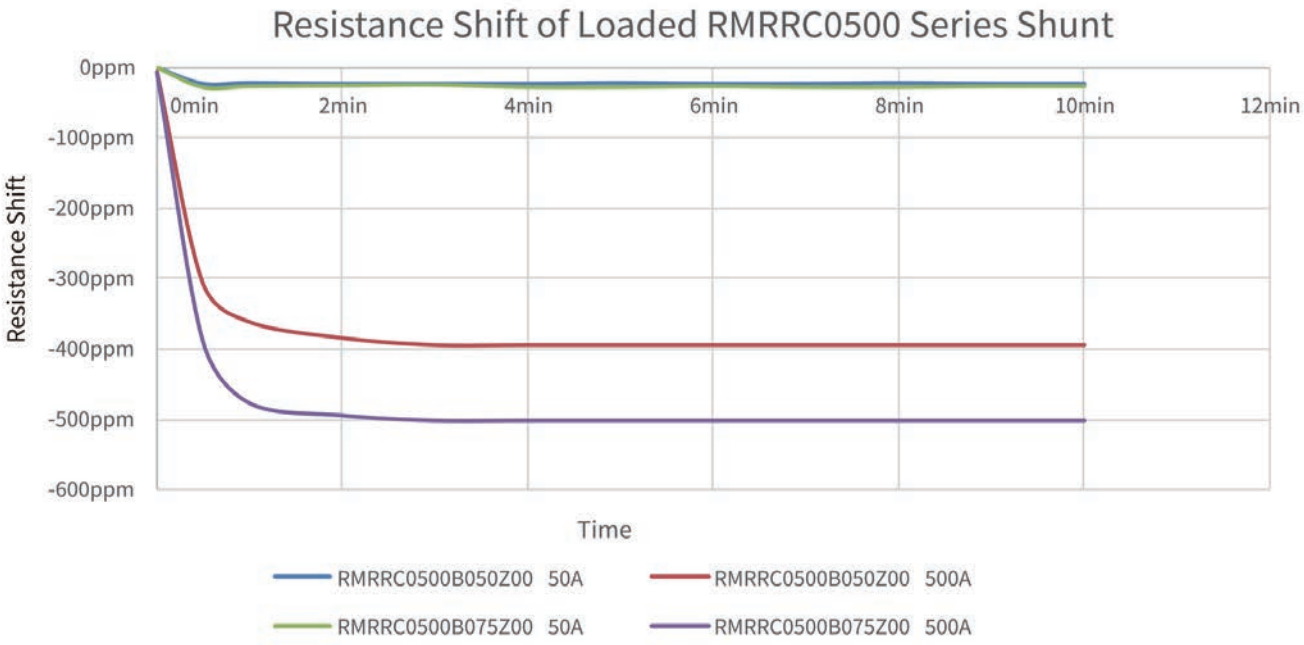


SSM:LOGO
500A/50mV:Rated current / Output voltage
DM Code:Traceability(9 characters)
230101001
Traceability Number

◆Installation Legend



◆Curve of the Resistance of Loaded Shunt



*Under different heat dissipation conditions and different applied copper bar sizes, there will be some differences in the change of shunt on resistance. The above operating conditions are under normal temperature with 100mm² copper wire; For customized test, please contact us to provide detailed operating conditions.

◆Popular Part Numbers

Part Number	Rated Current	Tolerance	Output Voltage	TCR (+20°C Ref)	Resistance	Max. Operating Current
MBRRC0500B050Z00	500A	±0.1%	50mV	±20ppm/℃	50μΩ	600A
MBRRC0500B075Z00	500A	±0.1%	75mV	±20ppm/℃	50μΩ	600A