MR, Zero-Phase Current Transformers

Overview

The MR series are compact, molded-type, zero-phase current transformers. They are ideal for improving the sensitivity, compactness, and weight of electric shock prevention.

Applications

Typical applications include electric shock prevention from earth leakage breakers, short-circuit relays, and ground fault circuit interrupters.

Benefits

- High sensitivity
- Compact and lightweight
- Laminated iron core
- RoHS compliant

Ordering Information

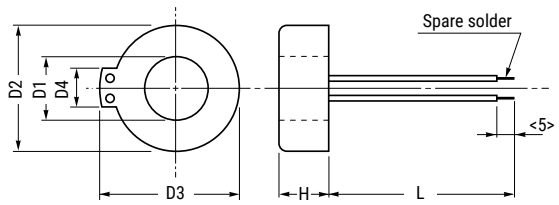
MR	/C	–01
Series	Height	Shape Classification
MR	Blank = Standard /C = Compact	–1 –2 –3 –4 –1-P5 –01 –01B

MR Type

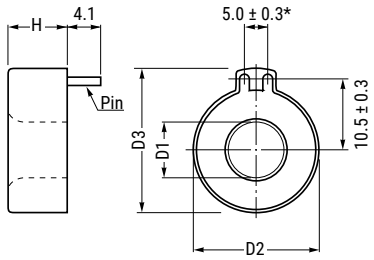
MR/C Types

Dimensions in mm

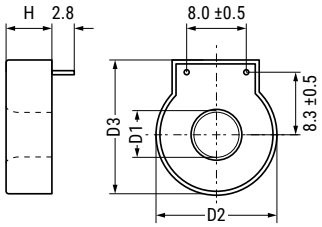
MR-1, 2, 3, 4



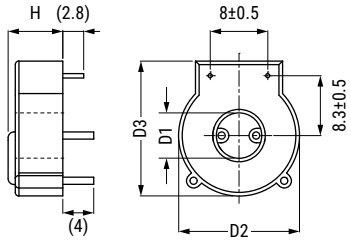
MR-1-P5



MR/C-01



MR/C-01B

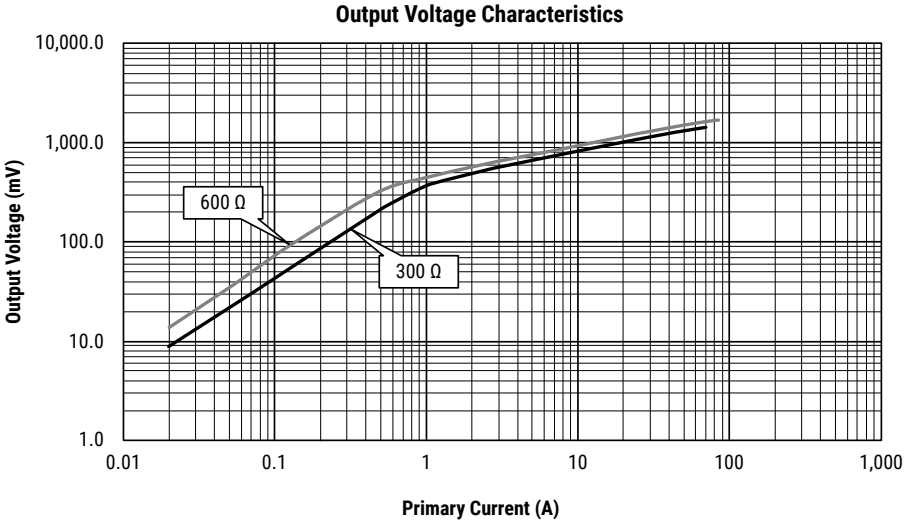


Part Number	D1 (Minimum)	D2 (Maximum)	D3 (Maximum)	D4	H (Maximum)	L (±3.0)
MR–1	7.2	19.3	22.4	(5.0)	8.3	45.0
MR–2	8.9	21.8	24.7	(5.0)	8.3	80.0
MR–3	11.0	28.0	30.5	(6.0)	10.5	67.0
MR–4	16.5	32.0	34.5	(7.0)	10.8	67.0
MR–1–P5	7.4	19.3	21.8	(8.0)	8.5	–
MR/C-01	6.0	17.5	19.0	–	6.7	–
MR/C-01B	6.0	17.5	19.0	–	7.9	–

Pin: φ0.8 mm pin connectors.
** Pin root diameter.*

AC Output Characteristics

Output Voltage Example MR-1



Environmental Compliance

All MR sensors are RoHS compliant.

Specifications

Item	Performance Characteristics
Rated Current	15 – 125 A
Output Voltage	8.0 – 12.5 V Minimum
DC Resistance	25 – 30 Ω
Operating Temperature Range	–20°C to +80°C
Temperature Characteristics	±10%
Storage Temperature Range	–5°C to +40°C

Table 1 – Ratings & Part Number Reference

Part Number	Electrical				Measurement Conditions from Output Voltage			Weight (g)
	Rated Current (A)	Output Voltage (mV) Minimum	Overinput Characteristics (After DC5A Input) Maximum	DC Resistance (Ω)	Frequency (Hz)	Load Resistance (Ω)	Detection Current (mA)	
MR-1	30	8.0	±10%	(30)	60	300	22.5	4.1
MR-2	30	8.0	±10%	(30)	60	300	22.5	5.9
MR-3	60	8.0	±10%	(30)	60	300	22.5	11.9
MR-4	125	8.0	±10%	(30)	60	300	22.5	16.5
MR-1-P5	30	8.0	±10%	(25)	60	300	22.5	4.3
MR/C-01	15	12.5	±10%	(30)	60	1,000	15.0	2.3
MR/C-01B	15	12.5	±10%	(30)	60	1,000	15.0	2.7

Soldering Process

MR-1, MR-2, MR-3, & MR-4

Iron Soldering	Temperature of tip	350°C or lower
	Worktime	within 3 seconds

MR/C-01 & MR/C-01B

Flow Soldering	Preheating temperature	90 – 150°C
	Preheating time	within 90 seconds
	Heating temperature	260°C
	Heating time	within 5 seconds
Iron Soldering	Temperature of tip	350°C or lower
	Worktime	within 3 seconds

Packaging

Part Number	Packaging Type	Pieces Per Box
MR-1	Tray	560
MR-2		480
MR-3		300
MR-4		
MR-1-P5		1,050
MR/C-01		1,200
MR/C-01B		960

Handling Precautions

Precautions for Product Storage

Current sensors should be stored in normal working environments. While the sensors are quite robust in other environments, exposure to high temperatures, high humidity, corrosive atmospheres, and long-term storage degrade solderability.

KEMET recommends that maximum storage temperature not exceed 40°C and maximum storage humidity not exceed 70% relative humidity. Atmospheres should be free of chlorine and sulfur-bearing compounds. Temperature fluctuations should be minimized to avoid condensation on the parts. Avoid storage near strong magnetic fields, as they can magnetize the product and cause its characteristics to change.

For optimized solderability, the stock of current sensors should be used within 12 months of receipt.

Before Using Zero-Phase Current Transformers

- Do NOT drop or apply any other mechanical stress, as such stresses may change performance characteristics.
- Do NOT use current transformers opened between secondary output terminals. Heat build-up in the magnetic core may occur, resulting in damage to the parts by coil melting.
- If the MR series is used as a current transformer, contact KEMET for more information.

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