

## Overview

The KEMET MA compact plastic PCB mount filters cover single-phase requirements with a wide variety of characteristics. These filters are optimized for both common and normal mode noise.

## Applications

- Industrial equipment
- Electronic equipment

## Benefits

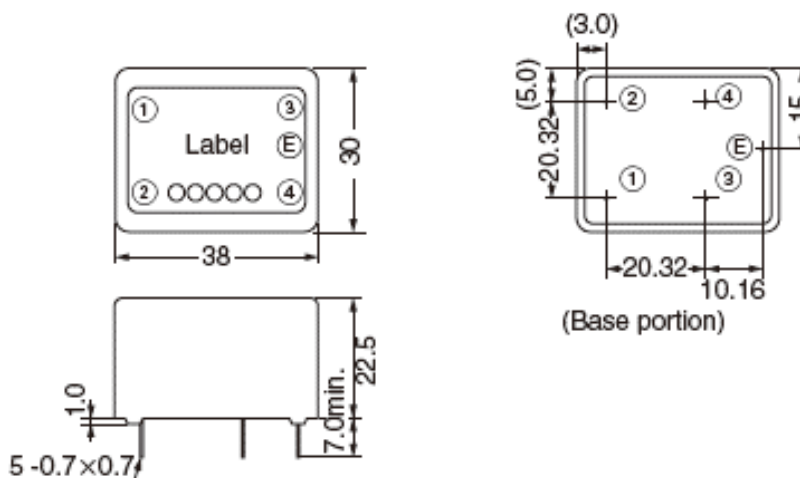
- Single-phase
- Operating temperature range from -25°C to +55°C
- UL, CSA and TÜV approved
- RoHS compliant



## Part Number System

| MA-    | 2                | 01                | 3             |
|--------|------------------|-------------------|---------------|
| Series | Phase            | Rated Current (A) | Specification |
| MA     | 2 = Single-phase | 0x = 0x A         | 3 = Standard  |

## Dimensions – Millimeters



## Environmental Compliance

All KEMET EMI-RFI Filters are RoHS compliant.



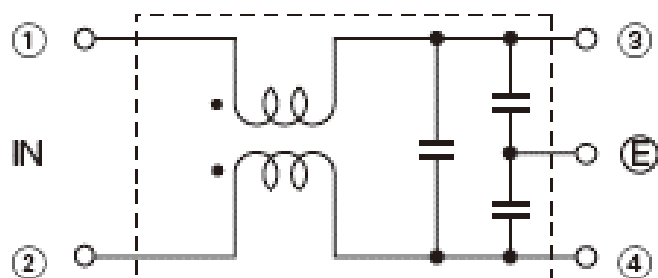
## Performance Characteristics

| Item                        | Performance Characteristics                          |
|-----------------------------|------------------------------------------------------|
| Rated Voltage               | 250 V                                                |
| Rated Current Range         | 1 – 5 A                                              |
| Withstanding Voltage        | 1,500 VAC (1 minute, line to ground)                 |
| Insulation Resistance       | 300 MΩ minimum at 500 VDC (1 minute, line to ground) |
| Leakage Current             | 0.75 mA at 250 V/60 Hz maximum                       |
| Input/Output Terminal Type  | PCB mount                                            |
| Operating Temperature Range | -25°C to +55°C (not including self temperature rise) |

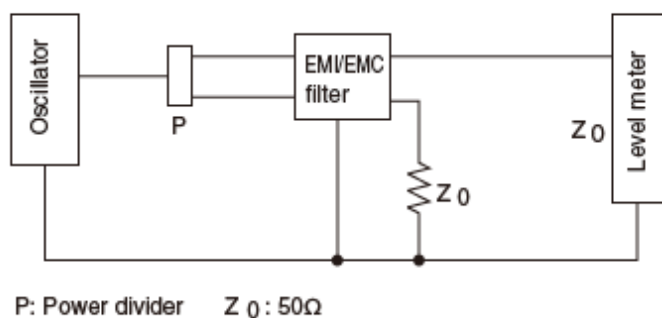
**Table 1 – Ratings & Part Number Reference**

| Part Number | Phase        | Rated Voltage AC/DC (V) | Rated Current AC/DC (A) | Leakage Current at 250 V/60 Hz (mA) Maximum | Temperature Rise (K) Maximum | Operating Temperature Range | Terminal Type | Approval         | Weight (g) |
|-------------|--------------|-------------------------|-------------------------|---------------------------------------------|------------------------------|-----------------------------|---------------|------------------|------------|
| MA-2013     | Single-phase | 250                     | 1                       | 0.75                                        | 30                           | -25°C to +55°C              | PCB mount     | UL, CSA, and TÜV | 30         |
| MA-2023     | Single-phase | 250                     | 2                       | 0.75                                        | 30                           | -25°C to +55°C              | PCB mount     | UL, CSA, and TÜV | 30         |
| MA-2033     | Single-phase | 250                     | 3                       | 0.75                                        | 30                           | -25°C to +55°C              | PCB mount     | UL, CSA, and TÜV | 30         |
| MA-2043     | Single-phase | 250                     | 4                       | 0.75                                        | 30                           | -25°C to +55°C              | PCB mount     | UL, CSA, and TÜV | 30         |
| MA-2053     | Single-phase | 250                     | 5                       | 0.75                                        | 30                           | -25°C to +55°C              | PCB mount     | UL, CSA, and TÜV | 30         |

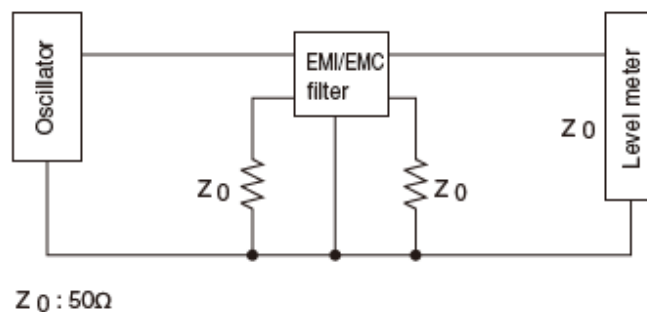
## Circuit Diagram



### Measuring Circuit - Common Mode

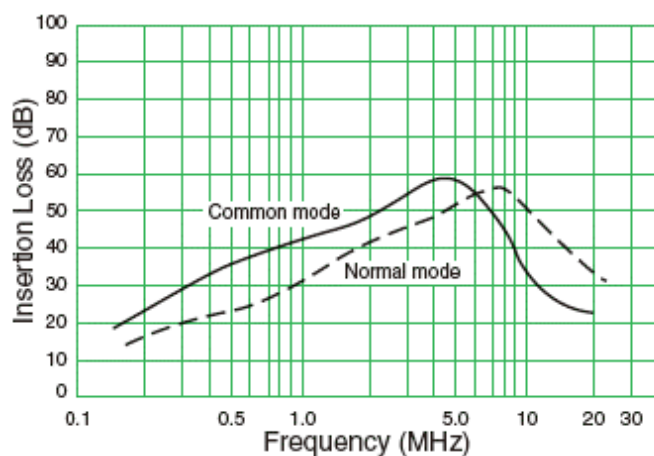


### Measuring Circuit - Normal Mode



## Attenuation (Static Characteristics)

### MA-2043



## TÜV Rheinland Japan Ltd. Certification Numbers

| Part Number | File Number  |
|-------------|--------------|
| MA-2013     | N° R50015843 |
| MA-2023     | N° R50015843 |
| MA-2033     | N° R50015843 |
| MA-2043     | N° R50015843 |
| MA-2053     | N° R50015843 |

## Packaging

| Part Type | Packaging Type | Pieces per Box |
|-----------|----------------|----------------|
| MA-2013   | Tray           | 100            |
| MA-2023   |                |                |
| MA-2033   |                | 50             |
| MA-2043   |                |                |
| MA-2053   |                |                |

## Handling Precautions

### Precautions for product storage

EMI-RFI Filters should be stored in normal working environments. While the filters themselves are quite robust in other environments, solderability will be degraded by exposure to high temperatures, high humidity, corrosive atmospheres, and long term storage.

KEMET recommends that maximum storage temperature not exceed 40°C and maximum storage humidity not exceed 70% relative humidity and atmospheres should be free of chlorine and sulfur bearing compounds. Temperature fluctuations should be minimized to avoid condensation on the parts. Also, avoid storage near strong magnetic fields as this might magnetize the product.

For optimized solderability, EMI-RFI Filters' stock should be used promptly, preferably within 6 months of receipt.

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## Export Control

### For customers in Japan

For products which are controlled items subject to the "Foreign Exchange and Foreign Trade Law" of Japan, the export license specified by the law is required for export.

### For customers outside Japan

EMI-RFI Filters should not be used or sold for use in the development, production, stockpiling, or utilization of any conventional weapons or mass-destructive weapons (nuclear weapons, chemical or biological weapons, or missiles), or any other weapons.

## KEMET Electronics Corporation Sales Offices

For a complete list of our global sales offices, please visit [www.kemet.com/sales](http://www.kemet.com/sales).

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Although KEMET designs and manufactures its products to the most stringent quality and safety standards, given the current state of the art, isolated component failures may still occur. Accordingly, customer applications which require a high degree of reliability or safety should employ suitable designs or other safeguards (such as installation of protective circuitry or redundancies) in order to ensure that the failure of an electrical component does not result in a risk of personal injury or property damage.

Although all product-related warnings, cautions and notes must be observed, the customer should not assume that all safety measures are indicated or that other measures may not be required.

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