

## Overview

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

## Applications

- Industrial equipment
- Electronic equipment

## Benefits

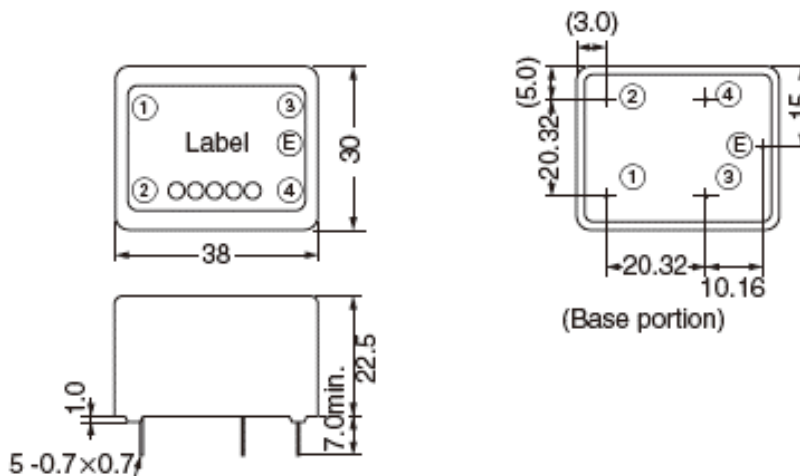
- Single-phase 250 VAC
- Current range from 1 to 5 A
- Operating temperature range from -25°C to +55°C
- UL, CSA, and TÜV approved
- RoHS compliant



## 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 MA EMI-RFI Filters are RoHS compliant.



## Approvals

| Certification Body       | File Number | Part Number                                    |
|--------------------------|-------------|--|
| UL                       | E59551      | MA-2013, MA-2023, MA-2033, MA-2043 and MA-2053 |
| CSA                      | LR50413     | MA-2013, MA-2023, MA-2033, MA-2043 and MA-2053 |
| TÜV Rheinland Japan Ltd. | R50015843   | MA-2013, MA-2023, MA-2033, MA-2043 and MA-2053 |

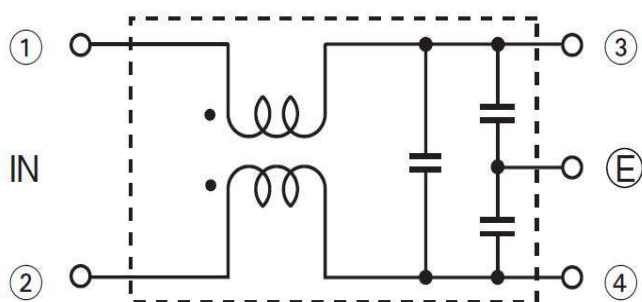
## Performance Characteristics

| 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 maximum at 250 V/60 Hz                       |
| Input/Output Terminal Type  | PCB mount  |
| Operating Temperature Range | -25°C to +55°C (not including self temperature rise) |

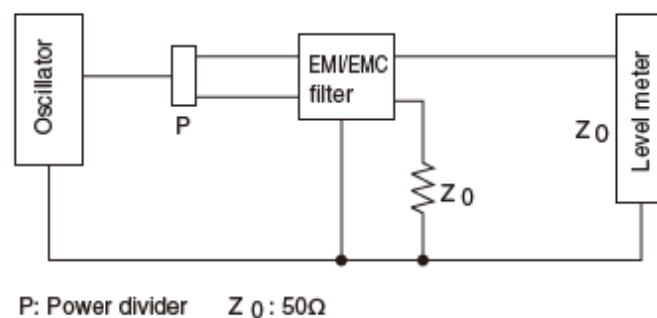
**Table 1 – Ratings & Part Number Reference**

| 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

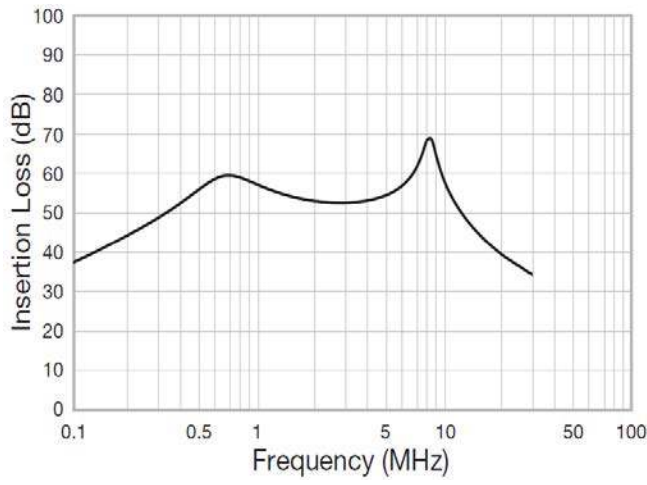


## Measuring Circuit - Common Mode

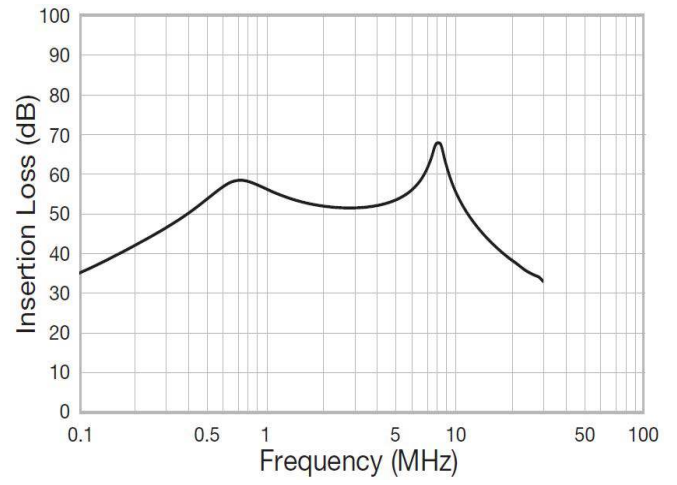


## Attenuation (Static Characteristics)

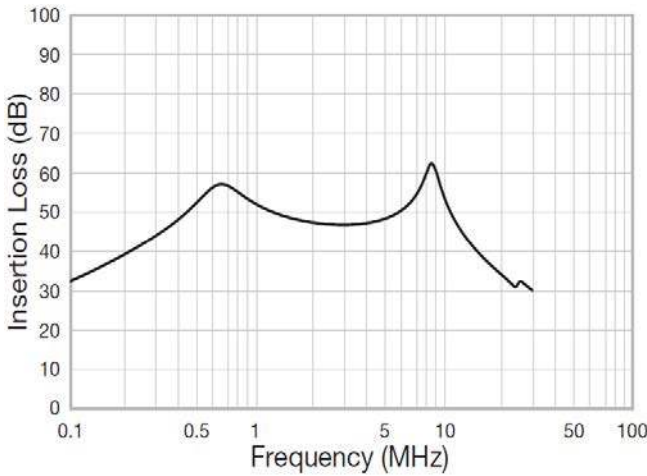
**MA-2013**



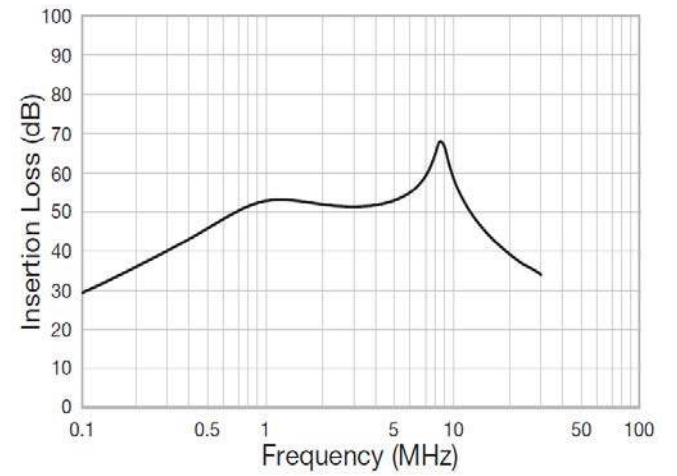
**MA-2023**



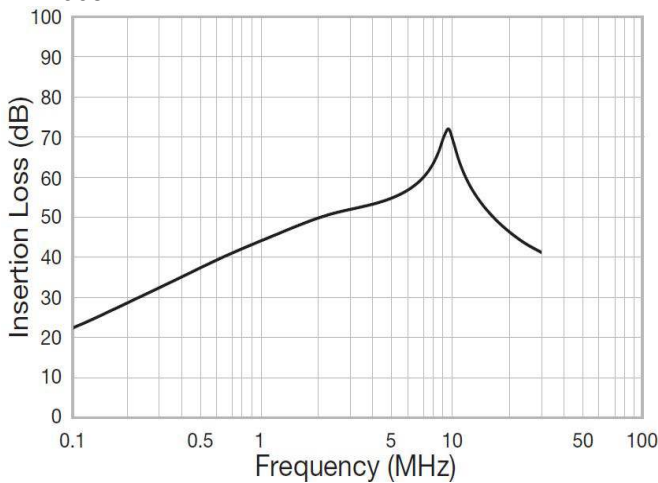
**MA-2033**



**MA-2043**



**MA-2053**



## Packaging

| Part Type | Packaging Type | Pieces per Box |
|-----------|----------------|----------------|
| MA-20*3   | Tray           | 50             |

## 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.

## KEMET Electronics Corporation Sales Offices

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