GTX Metal Box Three-Phase + Neutral Filters

Overview

The KEMET GTX metal case filters cover three-phase four-wire EMC requirements with a wide variety of characteristics. By using nanocrystalline core material, these filters achieve excellent attenuation characteristics in a compact size. In addition, 3 different combinations of Y capacitors can be selected to support various equipment topologies. These filters are compact and lightweight due to its high mechanical density.

Applications

- Electronic equipment
- Industrial equipment
- General purpose inverter
- Process automation
- Machine tools
- EV charging station

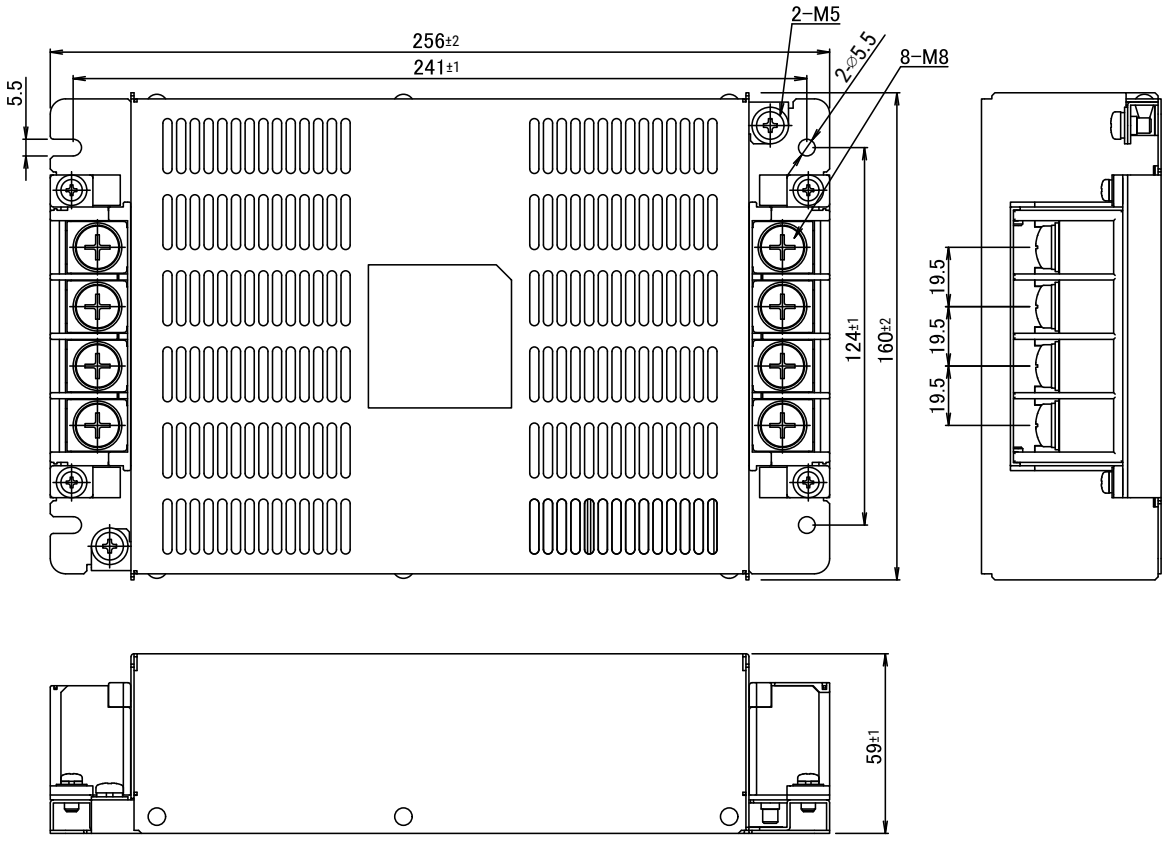
Benefits

- Three-phase + Neutral 500 VAC
- Current range from 50 to 100 A
- Nanocrystalline core material
- Selection of Y capacitors combinations
- Compact and lightweight
- Operating temperature range from −25°C to +105°C
- UL, c-UL, and TÜV approved
- RoHS compliant

Part Number System

GTX-	4	500-	Y473
Series	Phase	Rated Current (A)	Class Y Capacitors
GTX	4 = Three-Phase + Neutral	xx0 = xx A xxx0 = xxx A	Y473 = Cy1: None, Cy2: 47,000 pF Y474 = Cy1: None, Cy2: 0.47 µF Y685 = Cy1: 6.8 µF, Cy2: 6.8 µF

Dimensions – Millimeters



Environmental Compliance

KEMET GTX EMI-RFI Filters comply with EU RoHS Directive 2011/65/EU and (EU) 2015/863. Products that fall under the exemptions listed in below table are also included.

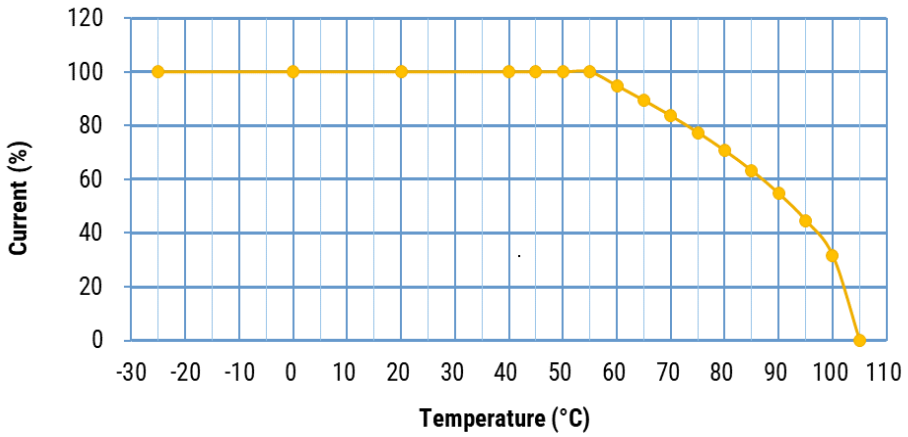
Series	RoHS Compliant	RoHS Exemption Code
GTX	Yes	7(c)-I

Code	Exemption
7(c)-I	Electrical and electronic components containing lead in a glass or ceramic other than dielectric ceramic in capacitors, e.g. piezoelectronic devices, or in a glass or ceramic matrix compound

Approvals

Certification Body	File Number	Part Number
UL/cUL	E506378	All GTX Three-Phase + Neutral EMI-RFI Filters
TÜV Rheinland Japan Ltd.	R50623362	All GTX Three-Phase + Neutral EMI-RFI Filters

Derating Curve



Performance Characteristics

Item	Performance Characteristics
Rated Voltage	500 VAC (50/60 Hz)[1]
Rated Current Range	50 – 100 A
Withstanding Voltage	2,800 VDC (1 minute, line to ground)
Insulation Resistance	6000 MΩ minimum at 500 VDC (1 minute, line to ground)
Leakage Current Range	0.15 – 10.7 mA typical at 500 V/50 Hz[2] 0.21 – 15.4 mA maximum at 500 V/60 Hz[2]
Input/Output Terminal Type	Screw
Operating Temperature Range	–25°C to +105°C (Refer to derating curve) (Not including self temperature rise)

[1] Rated voltage AC250 for c-UL approval standards.

[2] Standardized calculated leakage current acc. IEC60939 under normal operating conditions.

Table 1 – Ratings & Part Number Reference

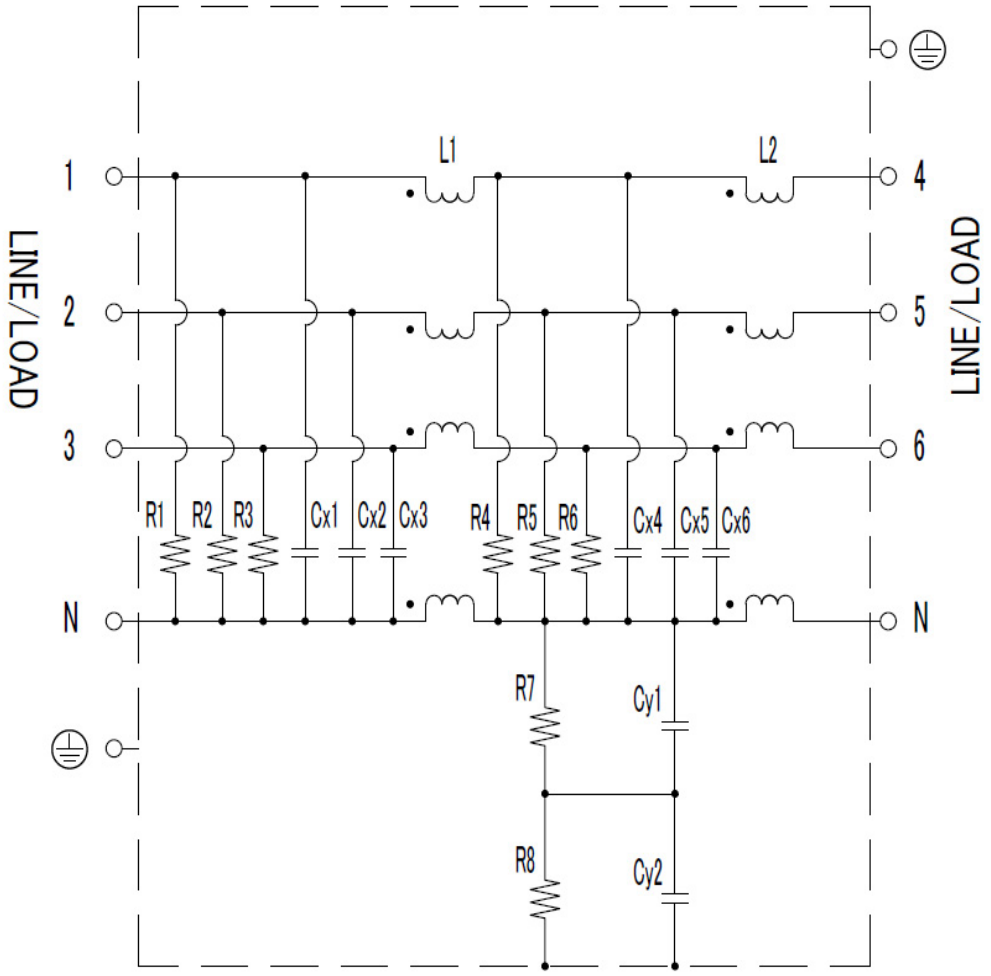
Part Number	Phase	Rated Voltage AC[1] (V)	Rated Current AC (A)	Leakage Current at 500 V/ 50 Hz (mA) Typical[2]	Leakage Current at 500 V/ 60 Hz (mA) Maximum[2]	Temperature Rise (K) Maximum	Operating Temperature Range	Terminal Type	Approval	Weight (Kg)
GTX-4500-Y473	Three-Phase + Neutral	AC500	50	0.15	0.21	60	–25°C to +105°C	Screw	UL, c-UL, and TÜV	2.4
GTX-4500-Y474	Three-Phase + Neutral	AC500	50	1.5	2.1	60	–25°C to +105°C	Screw	UL, c-UL, and TÜV	2.4
GTX-4500-Y685	Three-Phase + Neutral	AC500	50	10.7	15.4	60	–25°C to +105°C	Screw	UL, c-UL, and TÜV	2.4
GTX-4650-Y473	Three-Phase + Neutral	AC500	65	0.15	0.21	60	–25°C to +105°C	Screw	UL, c-UL, and TÜV	2.4
GTX-4650-Y474	Three-Phase + Neutral	AC500	65	1.5	2.1	60	–25°C to +105°C	Screw	UL, c-UL, and TÜV	2.4
GTX-4650-Y685	Three-Phase + Neutral	AC500	65	10.7	15.4	60	–25°C to +105°C	Screw	UL, c-UL, and TÜV	2.4
GTX-4800-Y473	Three-Phase + Neutral	AC500	80	0.15	0.21	60	–25°C to +105°C	Screw	UL, c-UL, and TÜV	2.4
GTX-4800-Y474	Three-Phase + Neutral	AC500	80	1.5	2.1	60	–25°C to +105°C	Screw	UL, c-UL, and TÜV	2.4
GTX-4800-Y685	Three-Phase + Neutral	AC500	80	10.7	15.4	60	–25°C to +105°C	Screw	UL, c-UL, and TÜV	2.4
GTX-41000-Y473	Three-Phase + Neutral	AC500	100	0.15	0.21	60	–25°C to +105°C	Screw	UL, c-UL, and TÜV	2.4
GTX-41000-Y474	Three-Phase + Neutral	AC500	100	1.5	2.1	60	–25°C to +105°C	Screw	UL, c-UL, and TÜV	2.4
GTX-41000-Y685	Three-Phase + Neutral	AC500	100	10.7	15.4	60	–25°C to +105°C	Screw	UL, c-UL, and TÜV	2.4
Part Number	**Phase**	**Rated Voltage**	**Rated Current**	**Leakage Current at 500 V/50 Hz (mA) Typical[2]**	**Leakage Current at 500 V/60 Hz (mA) Maximum[2]**	**Temperature Rise**	**Operating Temperature Range**	**Terminal Type**	**Approval**	**Weight**

[1] Rated voltage AC250 for c-UL approval standards.

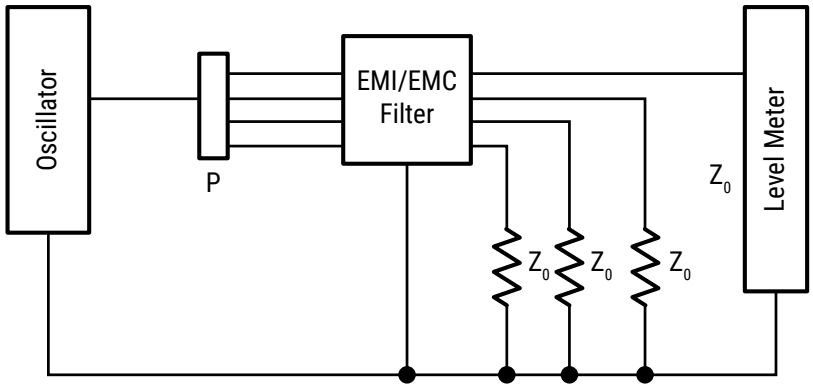
[2] Standardized calculated leakage current acc. IEC60939 under normal operating conditions.

Circuit Diagram

Circuit Diagram



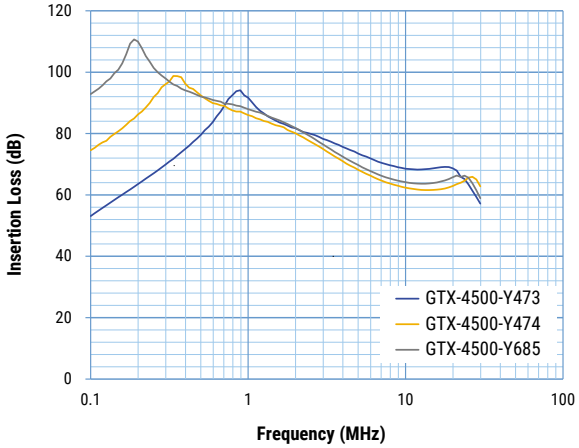
Measuring Circuit - Common Mode



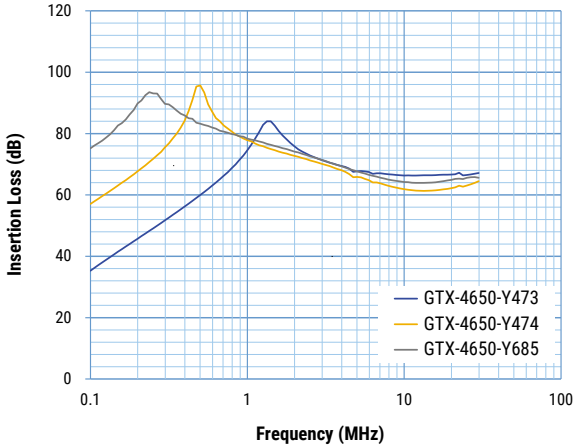
P: Power Divider Z_0: 50 Ω

Attenuation (Static Characteristics)

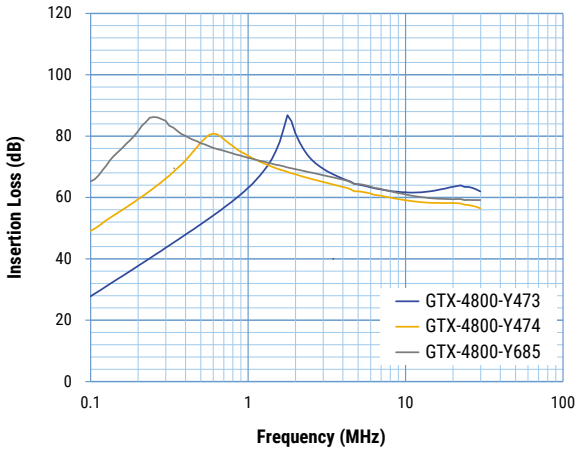
GTX-4500-Y*** Common Mode



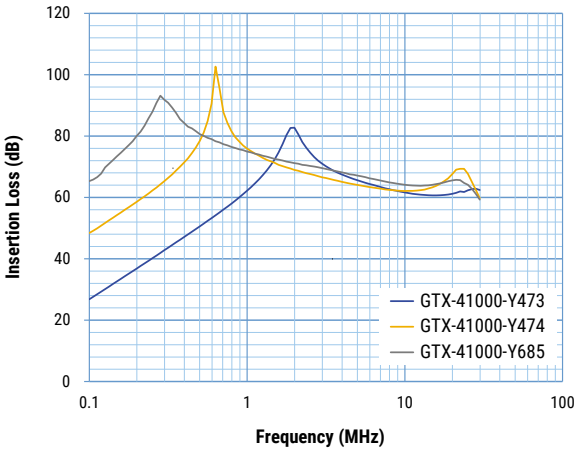
GTX-4650-Y*** Common Mode



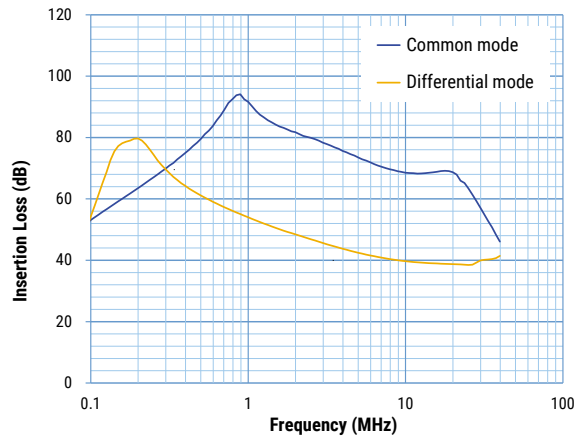
GTX-4800-Y*** Common Mode



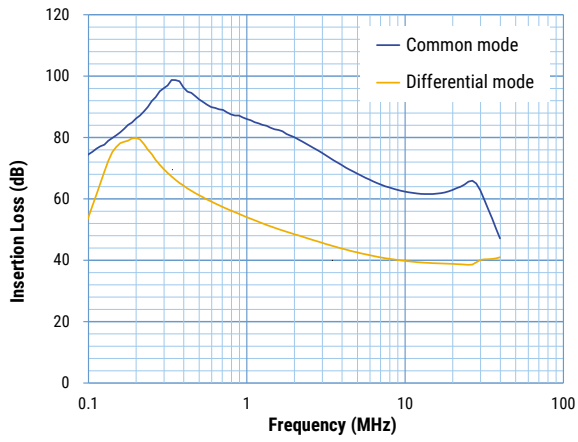
GTX-41000-Y*** Common Mode



GTX-4500-Y473

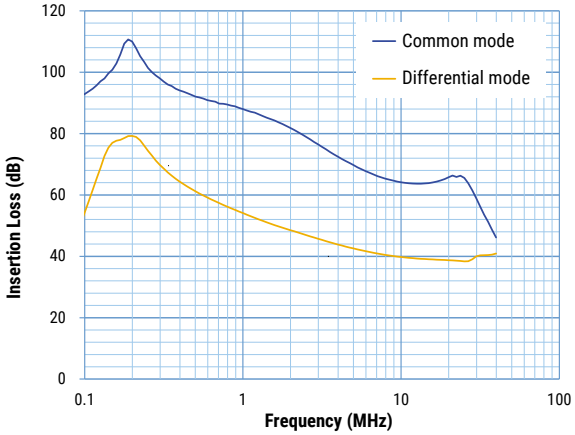


GTX-4500-Y474

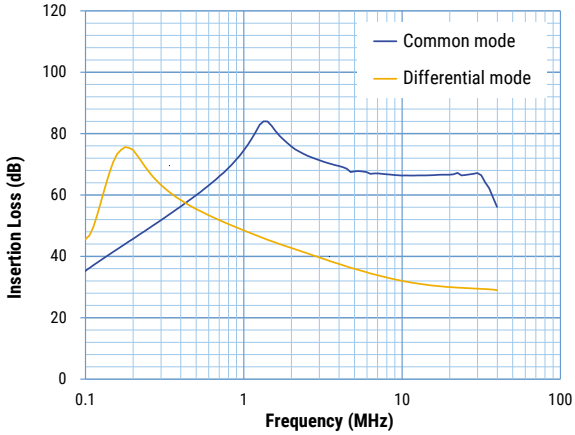


Attenuation (Static Characteristics) cont.

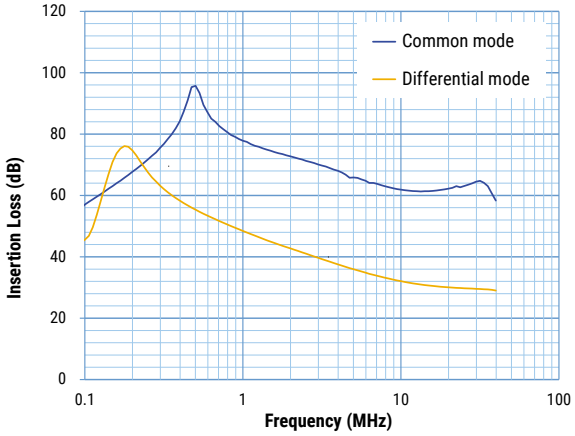
GTX-4500-Y685



GTX-4650-Y473



GTX-4650-Y474



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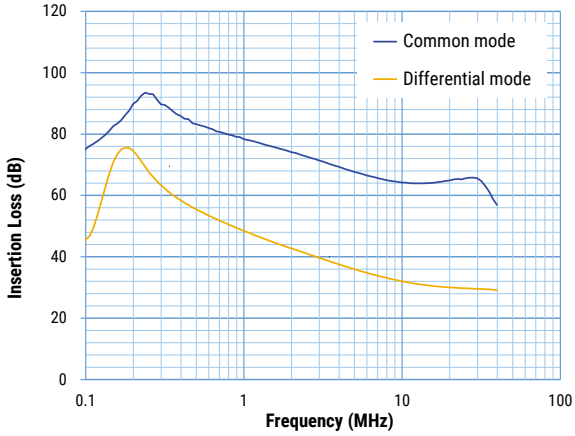

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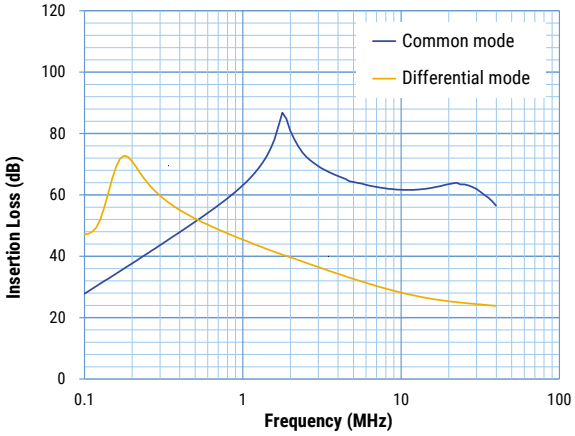
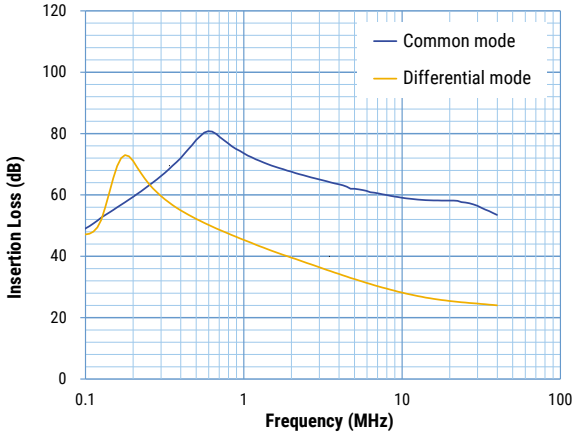
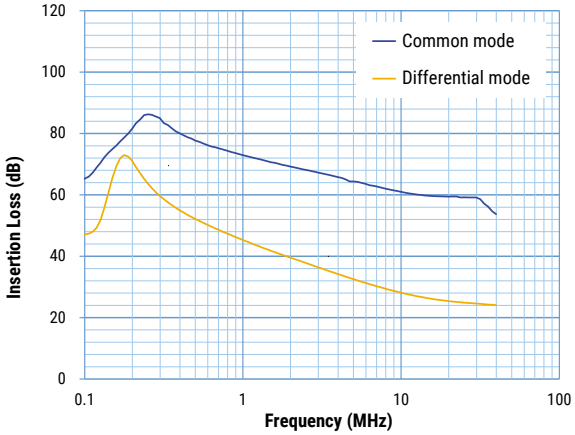


GTX-4800-Y474

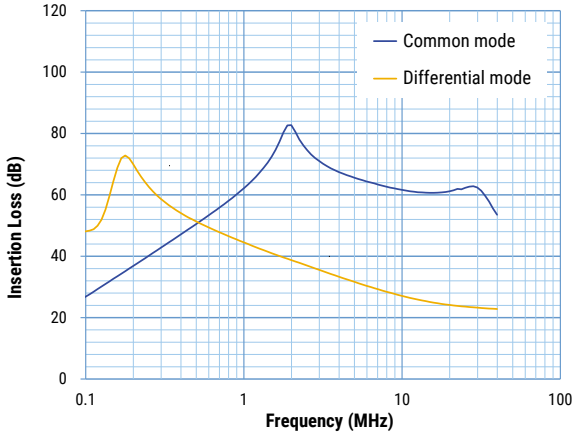


Attenuation (Static Characteristics) cont.

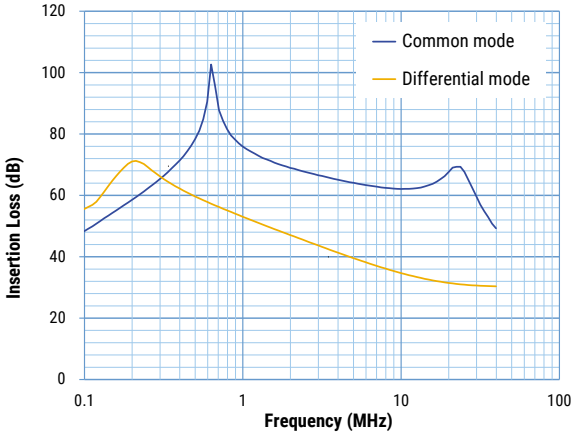
GTX-4800-Y685



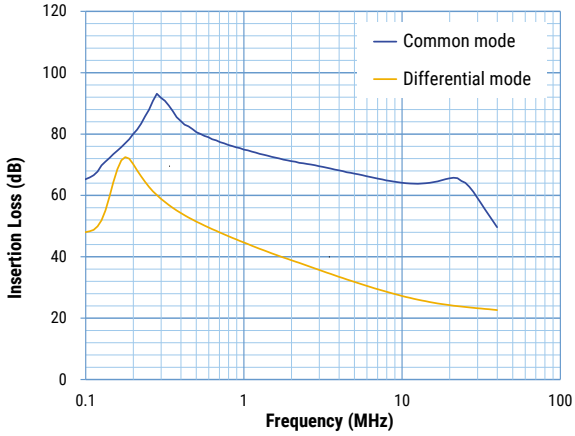
GTX-41000-Y473



GTX-41000-Y474



GTX-41000-Y685



Packaging

Part Type	Packaging Type	Pieces per Box
GTX-4**0-Y***	Box	3

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.

EMI-RFI Filters' stock should be used promptly, preferably within 12 months of receipt.

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