

EMC filters

General information

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General information

1 Labelling and ordering code system

1.1 Representation of ordering codes for TDK Electronics products

In data sheets, data books, product brochures, the company website as well as in order-specific documents such as delivery notes, order confirmations and product labels you will possibly find different kinds of ordering code representations, which designate a certain product. Different representations of ordering codes are process related and do not affect the technical specifications of the product concerned.

Details can be found on the Internet at www.tdk-electronics.tdk.com/orderingcodes. The standard representation is shown below.

Ordering codes for our products tend to comprise three blocks, making 15 characters in total. Only this max. 15 characters is used for a technical product specification.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Block 1						Block 2					Block 3			
Always 6-characters						Maximum 5-characters					Maximum 4-characters			
Starts with a letter, followed by 5 numbers						Starts with a letter, followed by up to 4 numbers					Starts with a letter, followed by up to 3 numbers			
Identifies the product family						Usually identifies the technical parameters of the product					Manufacturer-specific characteristics			

Example B84143B1600S024:

B84143	B1600	S024
Product family 3-line EMC filters	1600 A filter	S024 filter series

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1.2 Labelling the filters and chokes

The filter and chokes from TDK are usually labelled as follows:

- Manufacturer's name and/or logo
- Ordering code
- Rated current, rated temperature
- Rated voltage, rated frequency
- Climatic category
- Assigned test marks
- Date of manufacture (encoded)
- Labelling of connections

Furthermore, additional labels can be attached to certain products, such as

- Label with warnings
- Label for internal product identification

Encoding of date of manufacturer

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Example:

19203

CYCWD

=> 19 = CY = calendar year 2019
 20 = CW = calendar week 20 (13. – 19.05.2019)
 3 = D = 3rd day of week = Wednesday
 = 15 May 2019

SIFI series (old) as well as feedthrough filters and capacitors: CM.CY

Example:

05.19

=> 05 = calendar month = May
 19 = calendar year = 2019
 = May 2019

Upon request different labels are possible for larger quantities which would incur a fee.

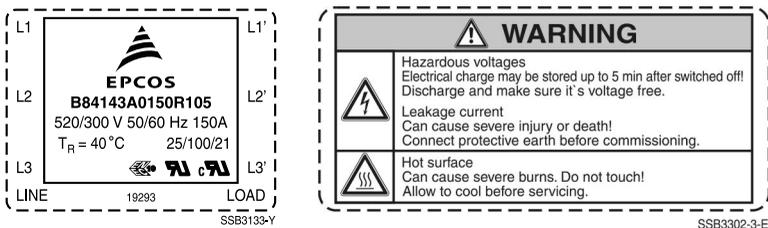


Figure 1 Example of labelling for an EMC filter

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1.3 Packaging labelling and barcode

The packaging cartons for the filters and chokes are marked with a packaging label as standard. In addition, the information is displayed in barcode 39. This enables secure, fast and error-free identification up to the customer.

In addition, the content of the barcode can be shown in plain text above the code.

Upon request different labels are possible for larger quantities which would incur a fee.

The packaging label contains the following information:

- Manufacturer or brand name
- Name of the filter or choke
- Note on RoHS compatibility
- (1P): Product ordering code
- (9K): Purchase order number
- (D): Date of manufacture YYMMDD [Y = year; M = month; D = Day]
- (T): Batch number
- [Q]: Quantity
- Country of manufacture

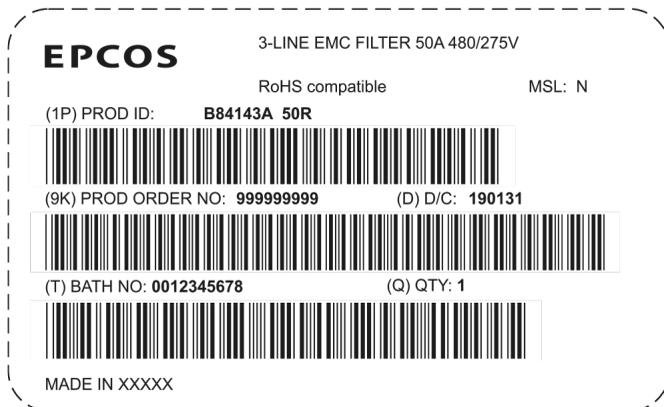


Figure 2 Example of a label on the packaging carton

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1.4 Safety test marks

International harmonisation of the relevant standards is the common aim of most countries. International standards (IEC) are often implemented in European (EN) and national standards (e.g. DIN EN for Germany). For EMC filters, IEC 60939 was implemented as EN 60939 and DIN EN 60939. This created the basis for standardising the product tests.

The safety test marks are assigned by independent and approved testing institutes. Labelling with test marks ensures that the product meets safety standards and performance test requirements. The product manufacturer must verify inspection of manufacturing. The CE mark on the other hand is merely a self declaration of the manufacturer.

The ENEC test mark confirms compliance of the product with EN standards, the EU Low Voltage Directive as well as work according to a recognised quality system, such as ISO 9001, IATF 16949.

For use on the North American market, many of our filters bear the UL or CSA test mark. A filter additionally approved by the US certification authority UL for the Canadian market bears the UL and cUL test marks or the combined cULus test mark.

The safety test marks issued for a filter are listed in the data sheets. Our filters are listed under the following file numbers by the test organisations:

Organisation	File number	Standard
VDE	40405-4730-*	EN 60939
UL	E70122	UL 1283
	E320370	UL 1446
	E499103	UL 60939-3
CSA	LR54258	CSA C22.2 No.8

Europe:



ENEC 10

North America:



UL
USA



CSA
Canada



cUL
Canada



cULus
USA/Canada

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2 Requirements on the manufacture of electrical equipment

Manufacturers of electrical equipment and systems have an obligation to develop and manufacture their products on the basis of state-of-the-art technologies as well as to the applicable standards and laws and to deliver them in a safe condition to the customer. Safety in terms of the Low Voltage Directive (2014/35/EU) applicable in Europe means that the products must be designed and constituted so that human beings and animals are protected from any risk of injury resulting from direct or indirect contact. Non-electrical hazards such as mechanical effects, temperature, arcing and radiation must also be considered.

However, the safety of many products largely depends on how the components are mounted in the end product, and on the total characteristics of the end product. For this reason, components such as inductors and filters have been deliberately excluded from the scope of the Low Voltage Directive.

The manufacturer of products must determine the requirements on the components in each specific application with due care and select them accordingly. In addition to the standard criteria such as

- voltage
- current
- frequency
- usage factor

adverse influences on other equipment must also be avoided. Key parameters which may have an effect include:

- Power factor
- Inrush or outrush current
- Unsymmetrical load
- Harmonic currents
- Transient overvoltages which are generated by equipment in the system.

Furthermore, the equipment used must be suitable for the ambient conditions, the network type, possible short circuit currents and overvoltages occurring in the system.

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3 Transport and storage conditions

The transport and storage conditions for electronic products must be observed so that the delivered goods retain the same properties they had at the time of dispatch.

Transport and storage conditions:

- Transport and storage in the original packaging at temperatures of -25 ... +40 °C.
- Relative air humidity $\leq 75\%$ as an annual average and $\leq 95\%$ on up to 30 days.
- Aggressive atmospheres or dew formation are not permissible.
- Observe the temperature gradient of ≤ 20 K/h.

The EMC filters and chokes for power electronics from TDK are components which are usually connected with the application via terminals, flat connectors or busbars.

As such, their processability is not limited to a short period, as may be the case with solderable components. The processability of EMC filters and chokes for power electronics corresponds to a minimum of three years from the date of manufacture. The storage period is therefore also three years from the date of manufacture. Even once this period has come to an end, use is possible following discussion with TDK, insofar as the goods are properly stored in their original packaging.

We ask you to bear this in mind.

This affects all products of the following product groups up to the exceptions listed below:

- B84*
- B85*
- B86*

The following series are excluded, as these are provided for printed circuit board mounting and therefore have a processability of two years from the date of manufacturer:

- B84110A*
- B84110B*