

Power line EMC filters

Active Technology 20A 40Vdc MIL-COTS EMC Filters Provide MIL-STD Voltage Surge and Spike Protection

October 2019

TDK Corporation (TSE 6762) announces the introduction of the TDK-Lambda FQB series of EMC filters, with a rating of 40Vdc at 20A. Voltage surge and spike protection for DC-DC converters is accomplished through the use of active technology. The FQB has a rugged encapsulated quarter-brick package with a choice of flanged or non-flanged baseplates. These modules are suitable for use in a wide variety of harsh and demanding environments, including MIL-COTS vehicle and airborne applications.

The FQB series is designed with a high differential and common mode noise attenuation, simplifying system level compliance to the MIL-STD-461(F, G) standard. The modules also provide input spike and surge protection per MIL-STD-1275(D, E) and RTCA/DO-160G (Sec 16-18). Qualifying testing is consistent with MIL-STD-883F and MIL-STD-202G.

The operating input voltage is 8.5 (start-up) to 40Vdc and the filters can withstand transients of up to -50 to +210V. Reverse polarity and over current protection is also provided. The filter modules have a remote on-off function and an open collector DC Good / Fault signal. No load input current is typically 3mA but reduces to 1.5mA when the remote on/off function is initiated.

The PCB mount FQB can be cooled using either an industry standard ¼ brick heatsink, or conduction cooled via a cold plate. The non-flanged package size measures 60.6 x 39 x 12.7mm (L x W x H) and the flanged version 60.6 x 55.9 x 12.7mm. The total DC resistance of the filter is typically 30mΩ, minimizing power losses.

The filters are available with standard production screening (-S suffix) and a baseplate temperature rating of -40°C to +115°C, or with enhanced screening (-M suffix) and an extended temperature rating of -55°C to +115°C. Enhanced screening includes functional testing at high and low temperatures and a 96 hour burn-in period with temperature cycling.

All models have been safety certified to UL 60950-1, CAN/CSA C22.2 No. 60950-1-07 and IEC 60950-1, IEC/UL/CSA 62368-1 (pending) and carry the CE mark.

More information can be obtained on the TDK-Lambda Americas website <https://www.us.tdk-lambda.com/lp/products/fq-series.htm>, or by calling 800-LAMBDA-4. Product availability for all the FQB filters can be found via the link to TDK-Lambda's distributor network (see "Check Distributor Stock to Buy") at <https://www.us.tdk-lambda.com/lp/>.

Major applications

Harsh and demanding environments, including MIL-COTS vehicle and airborne applications

Main features and benefits

- Filtering for compliance to MIL-STD-461(F, G)
- Surge and spike suppression per MIL-STD-1275(D, E), MIL-STD-704(A-F) and RTCA/DO-160G
- High differential and common mode noise attenuation
- -55 to 115°C temperature range (M-Grade)
- Standard (S-Grade) or enhanced screening (M-Grade) options
- Quarter brick size

Major specifications

| Model | | FQB020ADC |
|-----------------------------------|-----|--|
| Input voltage range (operating) | Vdc | 8.5 to 40Vdc |
| Rated current | A | 20A |
| Protection, signals and functions | | Over current, over voltage and reverse polarity protection. DC good signal and remote on/off |
| Operating Baseplate Temperature | °C | Standard screening (-S): -40°C to +115°C Enhanced screening (-M): -55°C to +115°C |
| Size | mm | Flanged: 60.6 x 55.9 x 12.7mm Non-flanged: 60.6 x 39 x 12.7mm |
| Qualification Methods | - | Consistent with MIL-STD-883F and MIL-STD-202G |

About TDK Corporation

TDK Corporation is a leading electronics company based in Tokyo, Japan. It was established in 1935 to commercialize ferrite, a key material in electronic and magnetic products. TDK's portfolio features passive components such as ceramic, aluminium electrolytic and film capacitors, and magnetics, high-frequency, and piezo and protection devices. The product spectrum also includes sensors and sensor systems such as temperature and pressure, magnetic, and MEMS sensors. In addition, TDK provides power supplies and energy devices, magnetic heads and more. These products are marketed under the product brands TDK, EPCOS, InvenSense, Micronas, Tronics and TDK-Lambda. TDK focuses on demanding markets in the areas of information and communication technology and automotive, industrial and consumer electronics. The company has a network of design and manufacturing locations and sales offices in Asia, Europe, and in North and South America. In fiscal 2019, TDK posted total sales of USD 12.5 billion and employed about 105,000 people worldwide.

About TDK-Lambda Corporation

TDK-Lambda Corporation, a group company of TDK Corporation, is a leading global power supply company providing highly reliable power supplies for industrial equipment worldwide. TDK-Lambda Corporation meets the various needs of customers with our entire range of activities, from research and development through to manufacturing, sales, and service with bases in five key areas, covering Japan, Europe, America, China, and Asia.

For more details, please pay a visit to <http://www.tdk-lambda.com/>

Contacts for regional media

| Region | Contact | Phone | Mail |
|----------|------------------------------------|----------------|--|
| Americas | Tom Tillman TDK-Lambda Americas | (619) 575 4400 | tom.tillman@us.tdk-lambda.com |