

**MSK**

M.S.KENNEDY CORP.

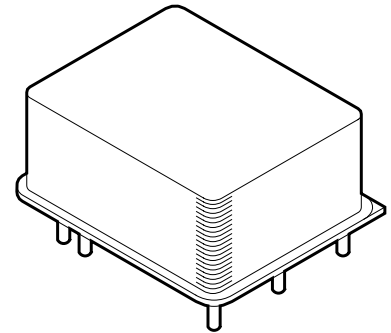
**3A  
EMI FILTER****EFJ2803**

4707 Dey Road Liverpool, N.Y. 13088

(315) 701-6751

**FEATURES:**

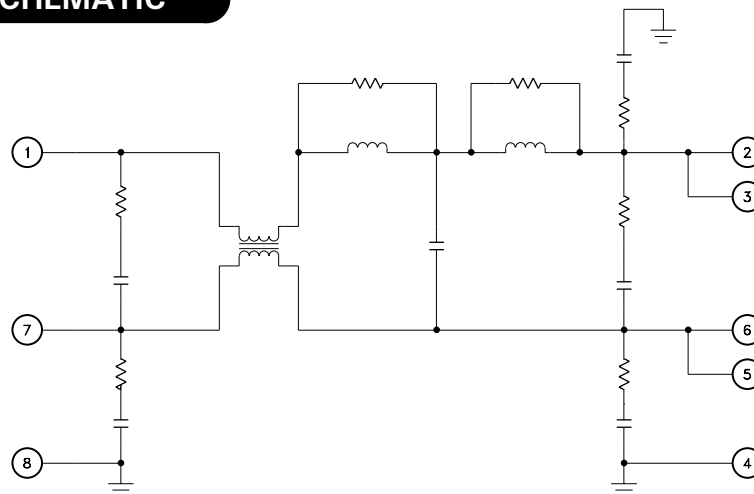
- All Ceramic Capacitors
- Surface Mount Magnetics
- -55°C to +125°C Operation
- 40dB Differential Mode Rejection at 200KHz
- 60dB Differential Mode Rejection from 500KHz to 50MHz
- 3 Amps Throughput Current
- Meets MIL-STD-461C CE03 Standards For DHC2800 Series DC to DC Converters
- MIL-STD-704 (A Through E) Power Bus Compatibility
- Available to DSCC SMD 96003

**DESCRIPTION:**

The EFJ2803 is a high reliability EMI filter for use with DAC2800/DHC2800/DHD2800 series of DC-DC converters. This filter has been designed to reduce the input line reflected ripple current to within the limit of MIL-STD-461C, CE03.

The EFJ2803 hybrid EMI filter utilizes all ceramic capacitors, surface mount magnetics and ultrasonically bonded aluminum wires to provide reliable operation at all operating temperatures while surviving very high G forces. The stand-alone filter's internal components are all passive devices and selected to operate from input voltages up to and including the peak transient voltage. The filter therefore does not require or utilize transient suppression circuitry and is compatible with the transient specification of a MIL-STD-704 type power bus. When connected to an output device, the output device must be able to operate from compatible voltages. The filter will attenuate spikes, but the duration and magnitude of the spike must be within the operating range of the filter and the device connected to it.

The 8-pin package is hermetically sealed and is DC isolated from the internal circuits. Heat sinking is recommended for full power operation at elevated ambient temperatures.

**EQUIVALENT SCHEMATIC****TYPICAL APPLICATIONS**

- Airborne Power Systems
- Aerospace Power Systems
- Vehicle Electrical Systems
- Ground Equipment and Test Equipment

**PIN-OUT INFORMATION**

- |               |                 |
|---------------|-----------------|
| 1 + VIN       | 8 Case Ground   |
| 2 + VOUT      | 7 Input Common  |
| 3 + VOUT      | 6 Output Common |
| 4 Case Ground | 5 Output Common |

## ABSOLUTE MAXIMUM RATINGS

Input Voltage Range . . . . . 0-50VDC  
 Input Voltage Transient . . . . . 80V @ 50mS  
 Storage Temperature Range . . . -65°C to +150°C  
 Lead Temperature . . . . . 300°C  
 (10 Seconds Soldering)

Case Operating Temperature Range  
 EFJ2803H/E . . . . . -55°C to +125°C  
 EFJ2803 . . . . . -40°C to +85°C

## ELECTRICAL SPECIFICATIONS

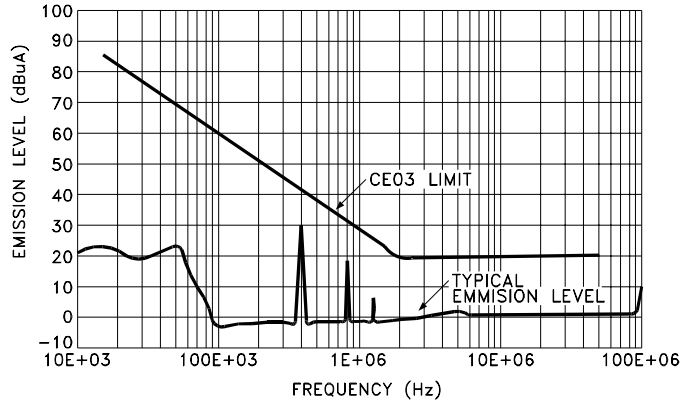
| Parameter                   | Test Conditions    | Subgroups | EFJ2803H/E |                                     |      | EFJ2803 |                                     |      | Units |
|-----------------------------|--------------------|-----------|------------|-------------------------------------|------|---------|-------------------------------------|------|-------|
|                             |                    |           | Min.       | Typ.                                | Max. | Min.    | Typ.                                | Max. |       |
| Input Voltage ①             | Steady State       | 1,2,3     | 0          | 28                                  | 50   | 0       | 28                                  | 50   | V     |
|                             | Transient 50mS MAX | 1         | -          | -                                   | 80   | -       | -                                   | 80   | V     |
| Input Current ①             | DC                 | 1         | -          | -                                   | 3    | -       | -                                   | 3    | A     |
| Output Voltage ②            | Steady State       | -         | -          | $V_{OUT} = V_{IN} - I_{in}(R_{DC})$ | -    | -       | $V_{OUT} = V_{IN} - I_{in}(R_{DC})$ | -    | Vdc   |
| Output Current ①            | Steady State       | 1         | -          | -                                   | 3    | -       | -                                   | 3    | A     |
| DC Resistance (RDC)         | Steady State       | 1         | -          | 0.50                                | 0.85 | -       | 0.50                                | 0.85 | Ω     |
| Differential Mode Rejection | f = 1KHz           | 4         | -1         | 0                                   | 1    | -1      | 0                                   | -    | dB    |
|                             |                    | 5,6       | -1         | 0                                   | 1    | -       | -                                   | -    | dB    |
|                             | f = 200KHz         | 4         | -          | 40                                  | -    | -       | 40                                  | -    | dB    |
|                             |                    | 5,6       | -          | -                                   | -    | -       | -                                   | -    | dB    |
|                             | f = 500KHz         | 4         | 55         | 64                                  | -    | 55      | 64                                  | -    | dB    |
|                             |                    | 5,6       | 50         | -                                   | -    | -       | -                                   | -    | dB    |
|                             | f = 1MHz           | 4         | 60         | 72                                  | -    | 60      | 72                                  | -    | dB    |
|                             |                    | 5,6       | 60         | -                                   | -    | -       | -                                   | -    | dB    |
|                             | f = 5MHz           | 4         | 60         | 70                                  | -    | 60      | 70                                  | -    | dB    |
|                             |                    | 5,6       | 60         | -                                   | -    | -       | -                                   | -    | dB    |
|                             | f = 50MHz          | 4         | 60         | -                                   | -    | 60      | -                                   | -    | dB    |
|                             |                    | 5,6       | 60         | -                                   | -    | -       | -                                   | -    | dB    |
| Common Mode Rejection       | f = 2MHz-50MHz     | 4         | 40         | -                                   | -    | 40      | -                                   | -    | dB    |
|                             |                    | 5,6       | 35         | -                                   | -    | -       | -                                   | -    | dB    |
| Capacitance ①               | Any Pin to Case    | 7         | -          | -                                   | 4    | -       | -                                   | 4    | nF    |
| Isolation                   | Pin to Case        | 7         | 100        | -                                   | -    | 100     | -                                   | -    | MΩ    |

### NOTES:

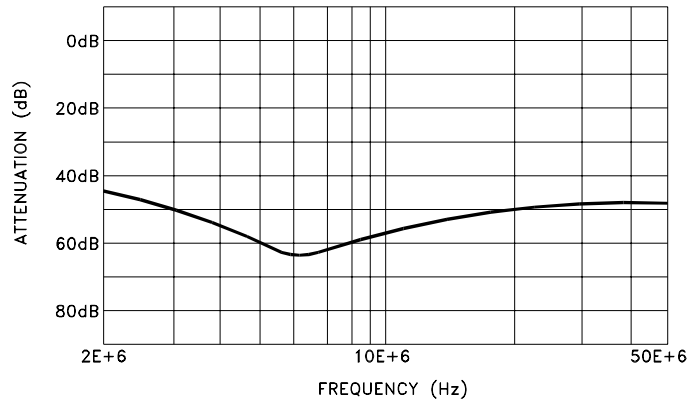
- ① This parameter is guaranteed by design but need not be tested.
- ② Typical parameters are representative of actual device performance but are for reference only.
- ③ Industrial grade and "E" suffix devices shall be tested to subgroup 1,4 and 7 unless otherwise specified.
- ④ Military grade devices ('H' suffix) shall be 100% tested to subgroups 1 through 7.
- ⑤ Subgroup 1,4,7 TA = TC = +25°C  
 Subgroup 2,5 TA = TC = +125°C  
 Subgroup 3,6 TA = TC = -55°C
- ⑥ Reference DSCC SMD for electrical test parameters and limits for devices purchased as such.

# TYPICAL PERFORMANCE CURVES

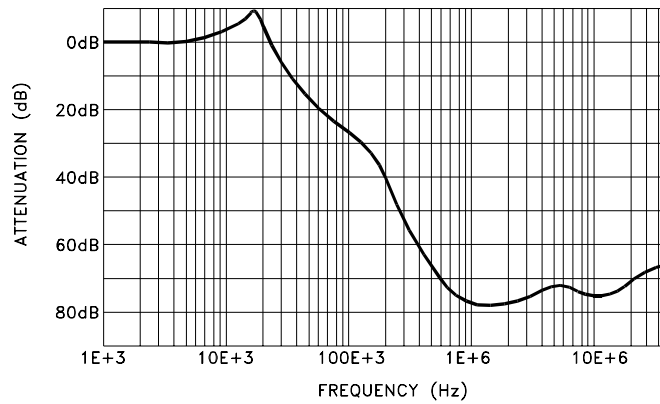
EMISSION LEVEL



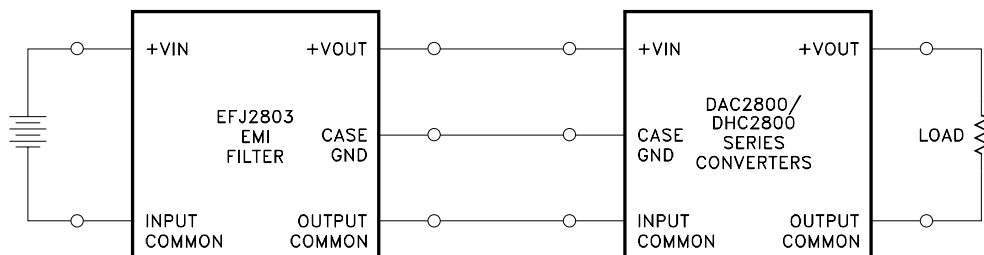
COMMON MODE REJECTION



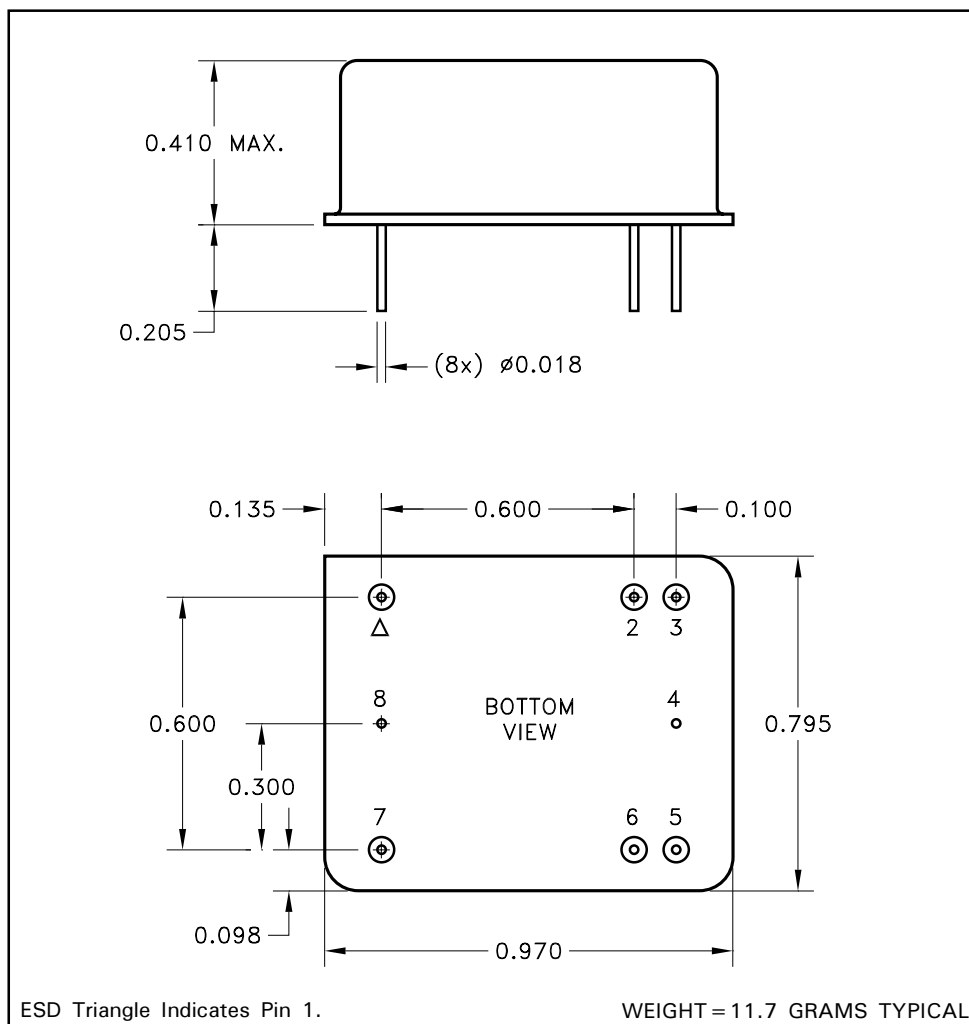
DIFFERENTIAL MODE REJECTION



# TYPICAL APPLICATION



## MECHANICAL SPECIFICATIONS



NOTE: ALL DIMENSIONS ARE  $\pm 0.010$  INCHES UNLESS OTHERWISE LABELED.

## ORDERING INFORMATION

| Part Number | Screening Level       |
|-------------|-----------------------|
| EFJ2803     | Industrial            |
| EFJ2803E    | Extended Reliability  |
| EFJ2803H    | MIL-PRF-38534 Class H |
| 96003       | DSCC-SMD for EFJ2803  |

M.S. Kennedy Corp.  
 4707 Dey Road, Liverpool, New York 13088  
 Phone (315) 701-6751  
 FAX (315) 701-6752  
[www.mskennedy.com](http://www.mskennedy.com)

The information contained herein is believed to be accurate at the time of printing. MSK reserves the right to make changes to its products or specifications without notice, however, and assumes no liability for the use of its products. Please visit our website for the most recent revision of this datasheet.