

## Common Mode for Signal Line, SMD Type, SPF Series

### Overview

The KEMET SPF coils are common mode chokes with a wide variety of characteristics. These SMD toroidal coils are designed with our proprietary ferrite cores and are suitable for noise countermeasure in DC signal line circuits.

### Applications

- Base station

### Benefits

- Proprietary S15H ferrite material
- High L due to ferrite material
- High current due to our unique design
- Withstanding voltage: 600 VDC  
(one minute, between lines)
- Insulation resistance: more than 10 MΩ  
(250 VDC, between lines)
- SMD
- Operating temperature range from -40°C to +120°C
- UL94 V-0 flame retardant rated cap
- RoHS Compliant



### Part Number System

SPF-	100-	1R1A	010
Series	Rated Current (A)	Wire Diameter (mm)	Inductance Code (mH)
SPF-	100 = 10 A	R = Decimal point  Example: 1R1A = 1.1 mm	010 = 1.0 mH

## Dimensions – Millimeters

Part Number	Dimensions - Millimeters	Top View - Millimeters	Bottom View - Millimeters
SPF-100-1R1A010	<i>* Dimension is for reference only. Values not guaranteed.</i>		<i>The bottom view shows terminal dimension.</i>

## Environmental Compliance

All KEMET DC line filters are RoHS Compliant.

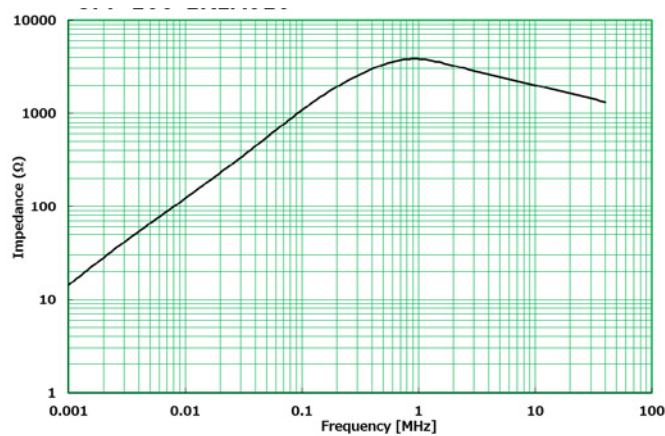
## Performance Characteristics

Item	Performance Characteristics
Rated Voltage	150 VDC
Withstanding Voltage	600 VDC (1 minute, between lines)
Insulation Resistance	> 10 MΩ at 250 VDC (between lines)
Rated Current	10 A
Rated Inductance	1 mH minimum
Inductance Measurement Condition	10 kHz
Rated DC Resistance	12 mΩ maximum
Operating Temperature	-40°C to +120°C (not including self-temperature rise)

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

Part Number	Rated Voltage DC (V)	Rated Current DC (A)	Inductance (mH) Minimum	DC Resistance/Line (mΩ) Maximum	Weight (g)
SPF-100-1R1A010	150	10	1	10	26

## Frequency Characteristics

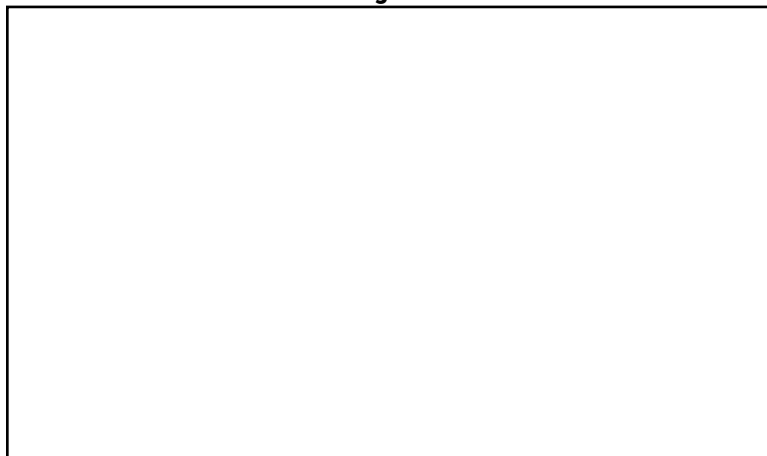


## Packaging

Part Type	Packaging Type	Pieces per Package	Pieces per Box
SPF-100-1R1A010	Tray	35	210

## Soldering Process

### Recommended Reflow Soldering Profile:



### Reference ICP/JEDEC J-STD-020E

Profile Feature	Pb-Free Assembly
Preheat/Soak	
Temperature Minimum ( $T_{smin}$ )	150°C
Temperature Maximum ( $T_{smax}$ )	180°C
Time ( $t_s$ ) from $T_{smin}$ to $T_{smax}$	80 – 120 seconds
Ramp-up Rate ( $T_L$ to $T_p$ )	3°C/second maximum
Liquidous Temperature ( $T_L$ )	230°C
Time Above Liquidous ( $t_L$ )	30 – 40 seconds
Peak Temperature ( $T_p$ )	250°C
Time within 5°C of Maximum Peak Temperature ( $t_p$ )	5 seconds maximum
Ramp-down Rate ( $T_p$ to $T_L$ )	6°C/second maximum
Time 25°C to Peak Temperature	8 minutes maximum

## Handling Precautions

### Precautions for product storage

DC Line Filters should be stored in normal working environments. While the chokes 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. Atmospheres should be free of chlorine and sulfur bearing compounds. Temperature fluctuations should be minimized to avoid condensation on the parts. Do not store near strong magnetic fields, as this might magnetize the product.

For optimized solderability, DC line filter stock should be used promptly, preferably within six months of receipt.

### Product temperature rise values

The values listed for temperature rise are the result of self-heating in wires when the rated current (commercial frequency) is applied. When using, check and evaluate the value of the core temperature rise under actual operating conditions.

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