

Surface Mount EMI Filters PSM & SSM Series

PSM Series filters are the first surface mount components to effectively filter EMI/RFI on printed circuit boards operating at currents up to 20 Amps. SSM Series filters lend themselves for mounting on densely populated circuit boards where currents of 10 Amps or less are desired. By eliminating the need to use conventional thru-hole filters at these higher currents, it will be possible to create an “RF fence” without expensive RFI bulkheads. SSM & PSM filters can be installed with pick and place equipment, providing time and cost savings compared to installing thru-hole filters.



Features

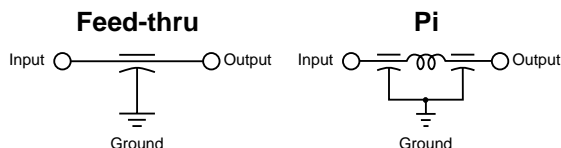
- High current up to 10 Amps (SSM) and 20 Amps (PSM)
- High temperature construction
- Excellent high frequency noise suppression
- Capacitance values up to 2,000pF (SSM) and 10,000pF (PSM)
- Superior performance in GHz applications
- Square mechanical geometry enhances SMT soldering

Applications

- Power amplifiers
- High current bus lines
- Switching power supplies
- Signal and data lines in electronic equipment

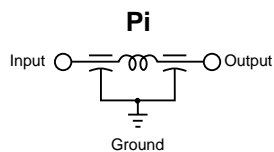
Surface Mount EMI Filters PSM & SSM Series

PSM



- Voltage Rating DC 200 VDC @ -55°C to +125°C
- Voltage Rating AC 125 VAC @ 60Hz
- DWV 700 VDC
- Current Rating 20 Amps (Feed-thru)
10 Amps (Pi)
- Surge Current Capabilities 100 A for 1 second (Feed-thru)
50 A for 1 second (Pi)
- Insulation Resistance 1.0 GOhms @ 25°C
- Dissipation Factor 4.0% maximum
- D.C.R. Max. .0005Ω, typ. .0002Ω

SSM



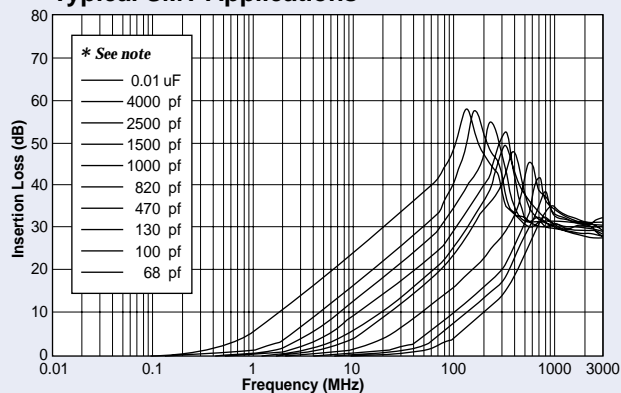
- Working Voltage 100 Vdc
- Test Voltage 250 Vdc
- Current Max. 10 amps
- Insulation Resistance Min. 10⁴ MOhm
- Terminations Silver Ni-Tin plated
- Soldering Conditions Max. 250°C -5 sec.
- Marking None
- Packaging Bulk or tape and reel

Note: Insertion loss for SSM product not shown.
For reference purposes use chart as follows:

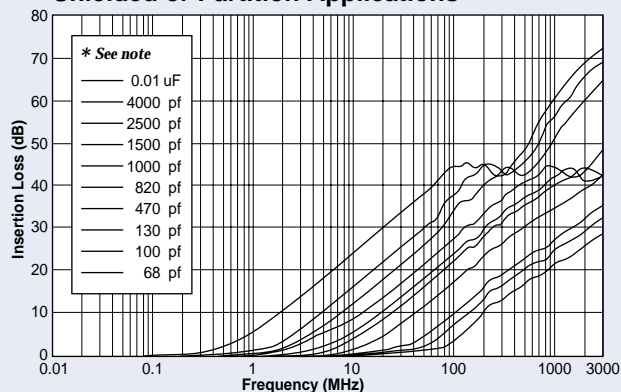
| SSM Value | PSM Value |
|-----------|-----------|
| 101Z | 100pF |
| 501P | 470pF |
| 202P | 1500pF |

Feed-thru Insertion Loss

Typical SMT Applications



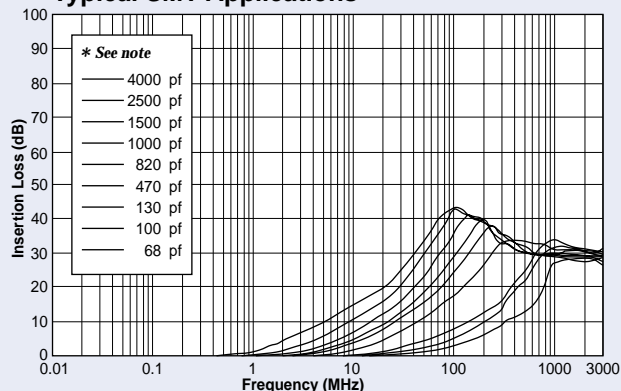
Shielded or Partition Applications



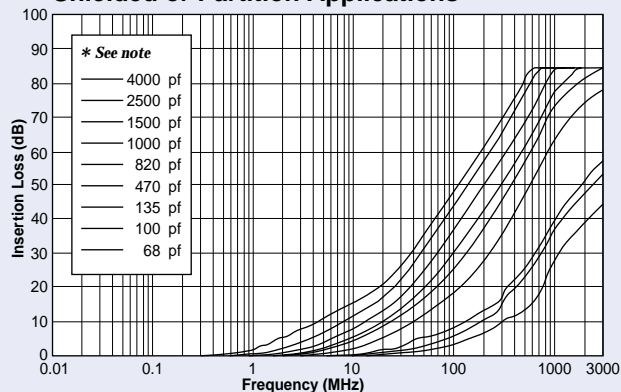
* Capacitance values for insertion loss curves are displayed left to right in the order shown.

Pi Insertion Loss

Typical SMT Applications



Shielded or Partition Applications

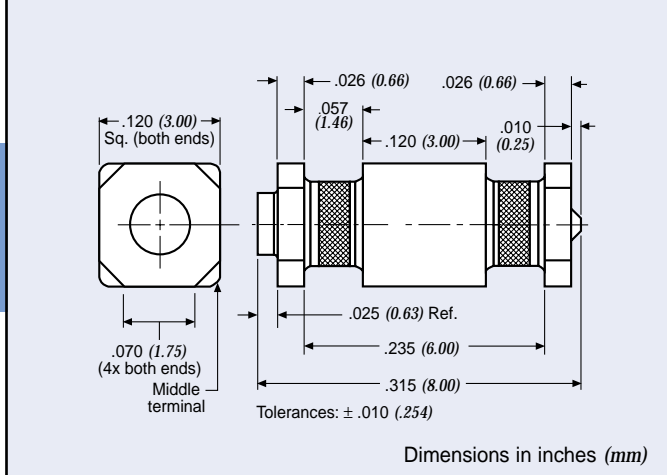


Surface Mount EMI Filters PSM & SSM Series

PSM Ordering Information

Example: **PSM4-402P-20T**

The part number shown represents a power surface mount feed-thru filter with a capacitance value of 4000 pF and capacitance tolerance of +80/-20%. The current rating of the part is 20 Amps and the packaging is tape and reel.



Surface Mount Filters & Inductors

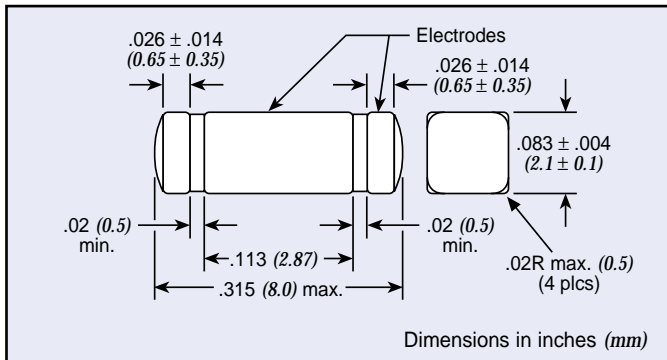
| PSM | 4 | - | 402Z | - | 20 | T | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---------------------------|--------------------------|-----------|--|------|---|--|---|-------|------|------|--------|------|------|--------|----------|------|--------|----------|------|--------|------|------|---------|------|------|---------|------|------|---------|----------|------|---------|----------|--------|--------|----------|--|--|--|--|
| Power Surface Mount | Circuit Configuration | | Capacitance | | Current Rating | Packaging | Tape and Reel | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 1 - Pi 4 - Feed-thru | | | | 10 - 10 Amps (Pi) 20 - 20 Amps (Feed-thru) | T - Tape and reel packaging B - Bulk packaging | 0 - 500 pieces 2 - 2,000 pieces <i>Note: Tape and reel packaging - 500 pieces (7") and 2,000 pieces (13")</i> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | <table border="1"> <thead> <tr> <th>Code</th> <th>Value*</th> <th>Tolerance</th> </tr> </thead> <tbody> <tr><td>680M</td><td>68 pF</td><td>±20%</td></tr> <tr><td>101M</td><td>100 pF</td><td>±20%</td></tr> <tr><td>131P</td><td>130 pF</td><td>+100/-0%</td></tr> <tr><td>471P</td><td>470 pF</td><td>+100/-0%</td></tr> <tr><td>821M</td><td>820 pF</td><td>±20%</td></tr> <tr><td>102M</td><td>1000 pF</td><td>±20%</td></tr> <tr><td>152M</td><td>1500 pF</td><td>±20%</td></tr> <tr><td>252P</td><td>2500 pF</td><td>+100/-0%</td></tr> <tr><td>402P</td><td>4000 pF</td><td>+100/-0%</td></tr> <tr><td>103Z**</td><td>.01 μF</td><td>+80/-20%</td></tr> </tbody> </table> | Code | Value* | Tolerance | 680M | 68 pF | ±20% | 101M | 100 pF | ±20% | 131P | 130 pF | +100/-0% | 471P | 470 pF | +100/-0% | 821M | 820 pF | ±20% | 102M | 1000 pF | ±20% | 152M | 1500 pF | ±20% | 252P | 2500 pF | +100/-0% | 402P | 4000 pF | +100/-0% | 103Z** | .01 μF | +80/-20% | | | | |
| Code | Value* | Tolerance | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 680M | 68 pF | ±20% | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 101M | 100 pF | ±20% | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 131P | 130 pF | +100/-0% | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 471P | 470 pF | +100/-0% | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 821M | 820 pF | ±20% | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 102M | 1000 pF | ±20% | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 152M | 1500 pF | ±20% | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 252P | 2500 pF | +100/-0% | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 402P | 4000 pF | +100/-0% | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 103Z** | .01 μF | +80/-20% | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

† Also available through Spectrum Control's authorized distributors.
 € Also available through Spectrum Control's authorized European distributors/agents.
 † PSM1-402Z-10T0 €
 † PSM4-103Z-20T0 €
 † PSM4-152M-20T0 €
 † PSM4-402Z-20T0 €

* Other capacitance values available as special order.
 ** Available in Feed-thru circuit only.

SSM Ordering Information

Example: **SSM1-101Z-05T**



| SSM | 1 | - | 101Z | - | 05 | T | 1 | | | | | | | | | | | | | | | | | | |
|------------|--------------------------|-----------|--|------|-----------------------------|--|---|--------|-----------|------|--------|-----|------|---------|-----------|------|---------|-----|------|---------|------|--|--|--|--|
| Style | Circuit Configuration | | Capacitance | | Current Rating | Packaging | Tape and Reel | | | | | | | | | | | | | | | | | | |
| | 1 - Pi | | | | 05 - 5 Amps 10 - 10 Amps | T - Tape and reel packaging B - Bulk packaging | 1 - 1,000 pieces 6 - 6,000 pieces <i>Note: Tape and reel packaging - 1,000 pieces (7") and 6,000 pieces (13")</i> | | | | | | | | | | | | | | | | | | |
| | | | <table border="1"> <thead> <tr> <th>Code</th> <th>Value</th> <th>Tolerance</th> </tr> </thead> <tbody> <tr><td>101Z</td><td>100 pF</td><td>+80%/-20%</td></tr> <tr><td>501P</td><td>500 pF</td><td>GMV</td></tr> <tr><td>152P</td><td>1500 pF</td><td>+100%/-0%</td></tr> <tr><td>202P</td><td>2000 pF</td><td>GMV</td></tr> <tr><td>402E</td><td>4000 pF</td><td>±25%</td></tr> </tbody> </table> | Code | Value | Tolerance | 101Z | 100 pF | +80%/-20% | 501P | 500 pF | GMV | 152P | 1500 pF | +100%/-0% | 202P | 2000 pF | GMV | 402E | 4000 pF | ±25% | | | | |
| Code | Value | Tolerance | | | | | | | | | | | | | | | | | | | | | | | |
| 101Z | 100 pF | +80%/-20% | | | | | | | | | | | | | | | | | | | | | | | |
| 501P | 500 pF | GMV | | | | | | | | | | | | | | | | | | | | | | | |
| 152P | 1500 pF | +100%/-0% | | | | | | | | | | | | | | | | | | | | | | | |
| 202P | 2000 pF | GMV | | | | | | | | | | | | | | | | | | | | | | | |
| 402E | 4000 pF | ±25% | | | | | | | | | | | | | | | | | | | | | | | |

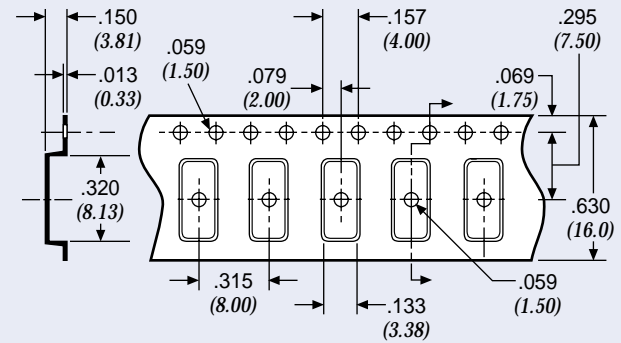
† Also available through Spectrum Control's authorized distributors.
 € Also available through Spectrum Control's authorized European distributors/agents.
 † SSM1-152P-05-T1 €

Surface Mount EMI Filters PSM & SSM Series

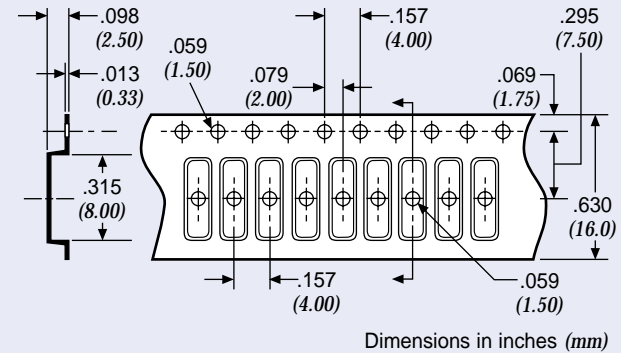
Technical Notes

- Soldering recommendations supplied upon request
- Reflow temperature limit is 250°C
- Unit weight is approximately 0.4 grams
- Tape and reel packaging available for automated assembly



PSM Tape and Reel Packaging



SSM Tape and Reel Packaging

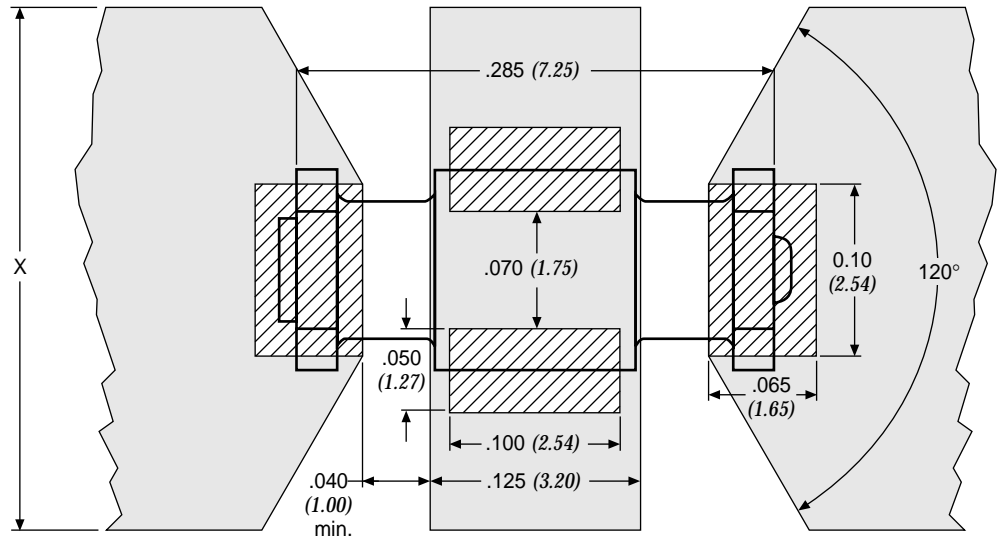


PSM

-  Solder paste pattern
-  Recommended pad, must be able to support continuous signal current

X = 0.350" minimum for 1 oz. copper (0.036 mm thickness)
 X = 0.200" minimum for 2 oz. copper (0.071 mm thickness)
 For low current (10 Amp or less)
 X = 0.130" minimum for 1 oz. copper (0.036 mm thickness for 10 Amp and 0.5 oz. copper - 0.018 mm thickness for 5 Amp or less)

Dimensions in inches (mm)



SSM

