AEC-Q200

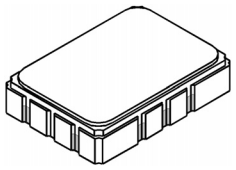
RoHS Compliance
This component is compliant with RoHS directive.
This component was always RoHS compliant from the first date of manufacture.

Discontinued

# SF2037B-2

# 76.500 MHz SAW Filter

- ***Designed for SDARS IF Receiver***
- ***Low Insertion Loss***
- ***5.0 X 7.0 mm Surface-Mount Case***
- ***Differential or Single Ended Input and Output***



**SMP-03**

### Absolute Maximum Ratings

| Rating | Value | Units |
|---|---|---|
| Maximum Incident Power in Passband | +10 | dBm |
| Max. DC voltage between any 2 terminals | 30 | VDC |
| Storage Temperature Range (with tape & reel) | -40 to +85 | °C |
| Storage Temperature Range (without tape & reel) | -50 to +125 | °C |
| Max Soldering Profile | 265°C for 10 s | |

### Electrical Characteristics

| Characteristic | Sym | Notes | Min | Typ | Max | Units |
|---|---|---|---|---|---|---|
| Nominal Center Frequency | $f_C$ | 1 | | 76.500 | | MHz |
| Passband Insertion Loss | IL | | | 10.0 | 12.5 | dB |
| 1dB Passband | $BW_1$ | 1 | 3.8 | 4.1 | | MHz |
| 15dB Bandwidth | $BW_{15}$ | | | 6.7 | 6.8 | MHz |
| 30dB Bandwidth | $BW_{30}$ | | | 7.7 | 7.8 | MHz |
| Amplitude Ripple over fc ±1.9 MHz | | | | 0.5 | 1.10 | $dB_{P-P}$ |
| Group Delay Variation over fc ±1.9 MHz | GDV | | | 65 | 150 | $ns_{P-P}$ |
| Rejection 50 to 70.44 MHz | | 1, 3 | 37 | 43 | | dB |
| 70.44 to 72.04 MHz | | | 34 | 43 | | |
| 81.26 to 82.56 MHz | | | 38 | 49 | | |
| 82.56 to 86.50 MHz | | | 39 | 48 | | |
| 86.5 to 91.50 MHz | | | 41 | 48 | | |
| 91.50 to 100.000 MHz | | | 45 | 58 | | |
| Operating Temperature Range | $T_A$ | 1 | -40 | | +105 | °C |
| Frequency Temperature Coefficient | FTC | | | -18 | | ppm/°C |
| Differential Input | 175 ohms | | | | | |
| Differential Output | 1000 ohms | | | | | |
| Case Style | | 6 | SMP-03 7 x 5 mm Nominal Footprint | | | |
| Lid Symbolization (YY=year, WW=week, S=shift) See note 4 | | | RFM SF2037B-2 YYWWS | | | |

### Electrical Connections

| Connection | Terminals |
|---|---|
| Port 1 Hot | 10 |
| Port 1 Ground Return | 1 |
| Port 2 Hot | 5 |
| Port 2 Ground Return | 6 |
| Case Ground | All Others |

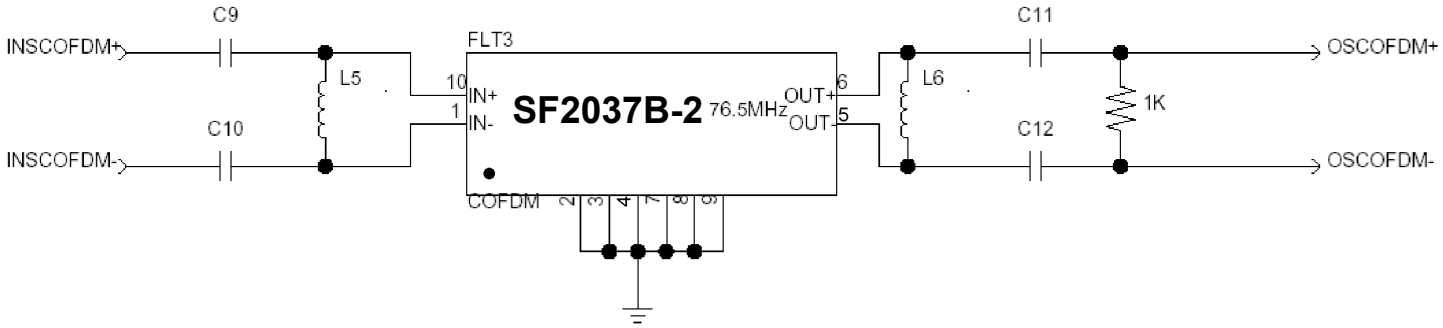
**CAUTION: Electrostatic Sensitive Device. Observe precautions for handling.**

**NOTES:**

1. Unless noted otherwise, all specifications apply over the operating temperature range with filter soldered to the specified demonstration board with impedance matching to 50 Ω and measured with 50 Ω network analyzer.
2. Unless noted otherwise, all frequency specifications are referenced to the nominal center frequency, fc.
3. Rejection is measured as attenuation below the minimum IL point in the passband. Rejection in final user application is dependent on PCB layout and external impedance matching design. See Application Note No. 42 for details.
4. "LRIP" or "L" after the part number indicates "low rate initial production" and "ENG" or "E" indicates "engineering prototypes."
5. The design, manufacturing process, and specifications of this filter are subject to change.
6. Tape and Reel Standard ANSI / EIA 481.
7. Either Port 1 or Port 2 may be used for either input or output in the design. However, impedances and impedance matching may vary between Port 1 and Port 2, so that the filter must always be installed in one direction per the circuit design.
8. US and international patents may apply.
9. Murata, stylized Murata logo, and Murata N.A., Inc. are registered trademarks of Murata Manufacturing Co., Ltd.

**Matching Circuit and Matching Component Values Used in G3 Sirius Radios**

(Refer to Sirius Radio G3 Chipset Application Note, Doc. #RX000104-B, Sec. 4.2.4)

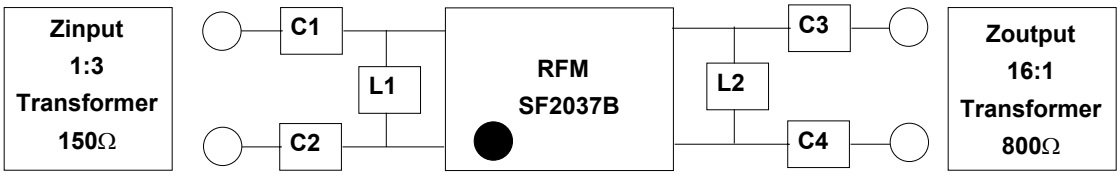



**COFDM Narrowband SAW Matching Circuit**

**COFDM Narrowband SAW Matching Values**

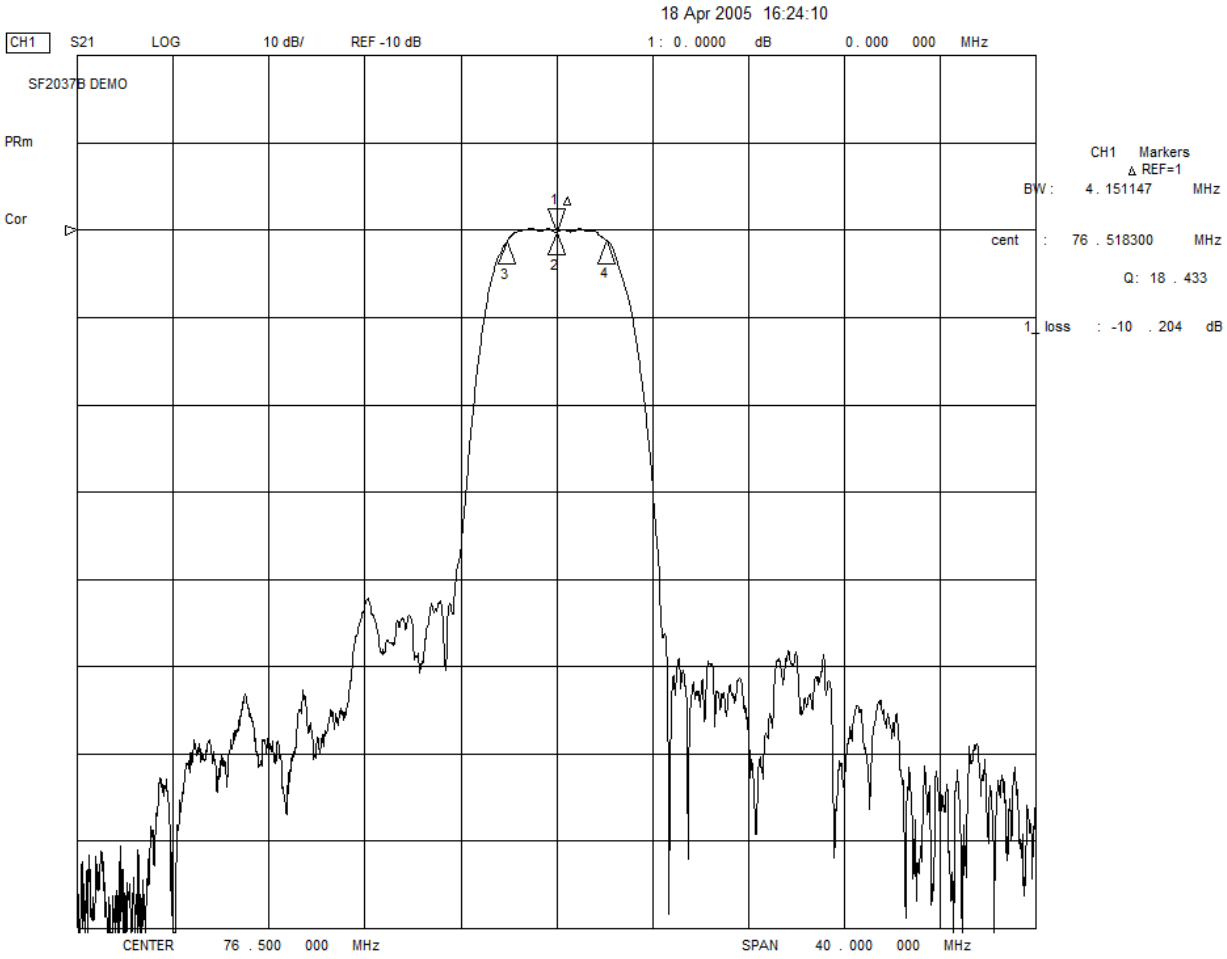
| Reference Designator | Value |
|---|---|
| C9 | 10 pF |
| C10 | 10 pF |
| L5 | 270 nH |
| L6 | 390 nH |
| C11 | 100 pF |
| C12 | 100 pF |

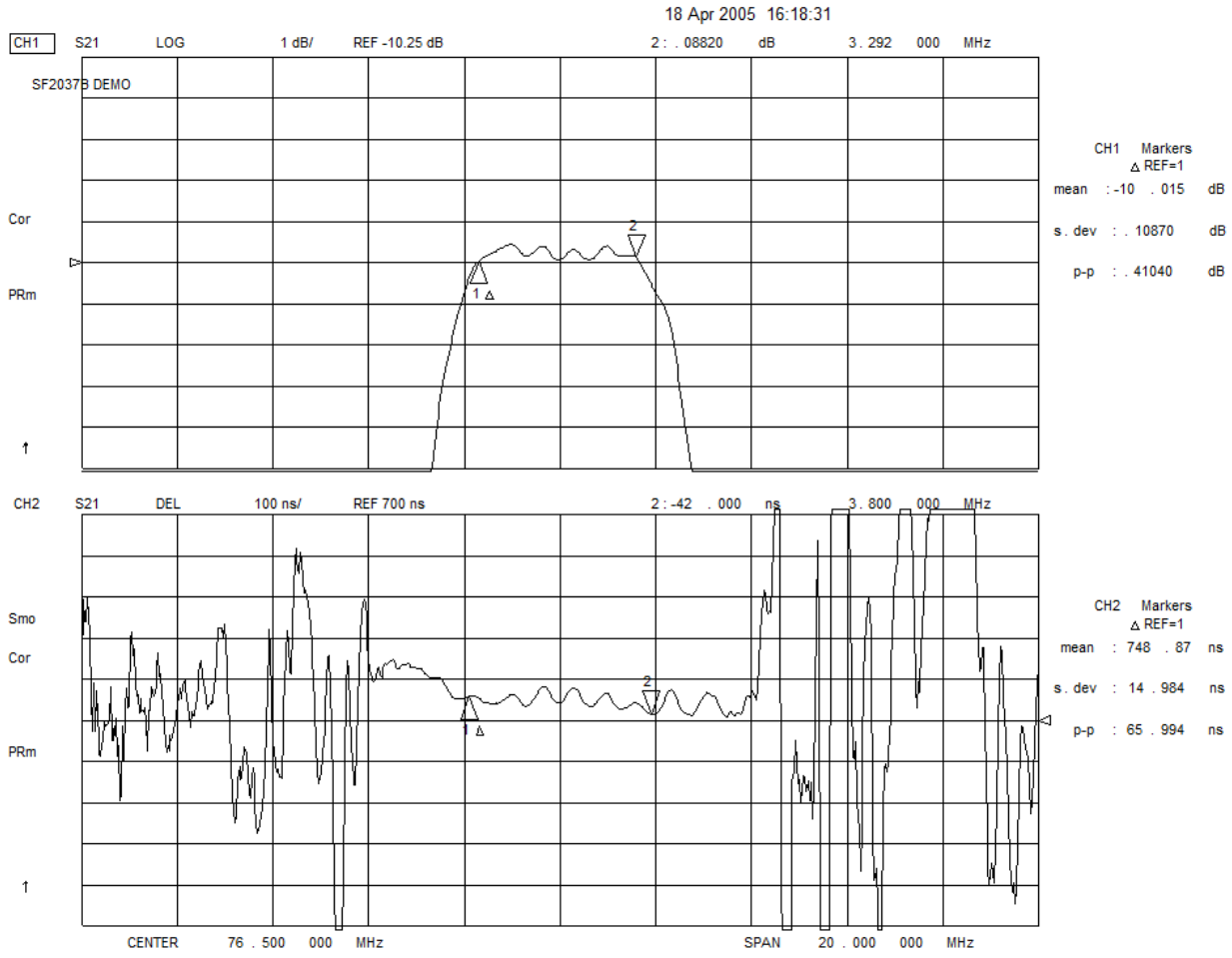
**Matching Circuit and Matching Component Values Used on Filter Demo Board**

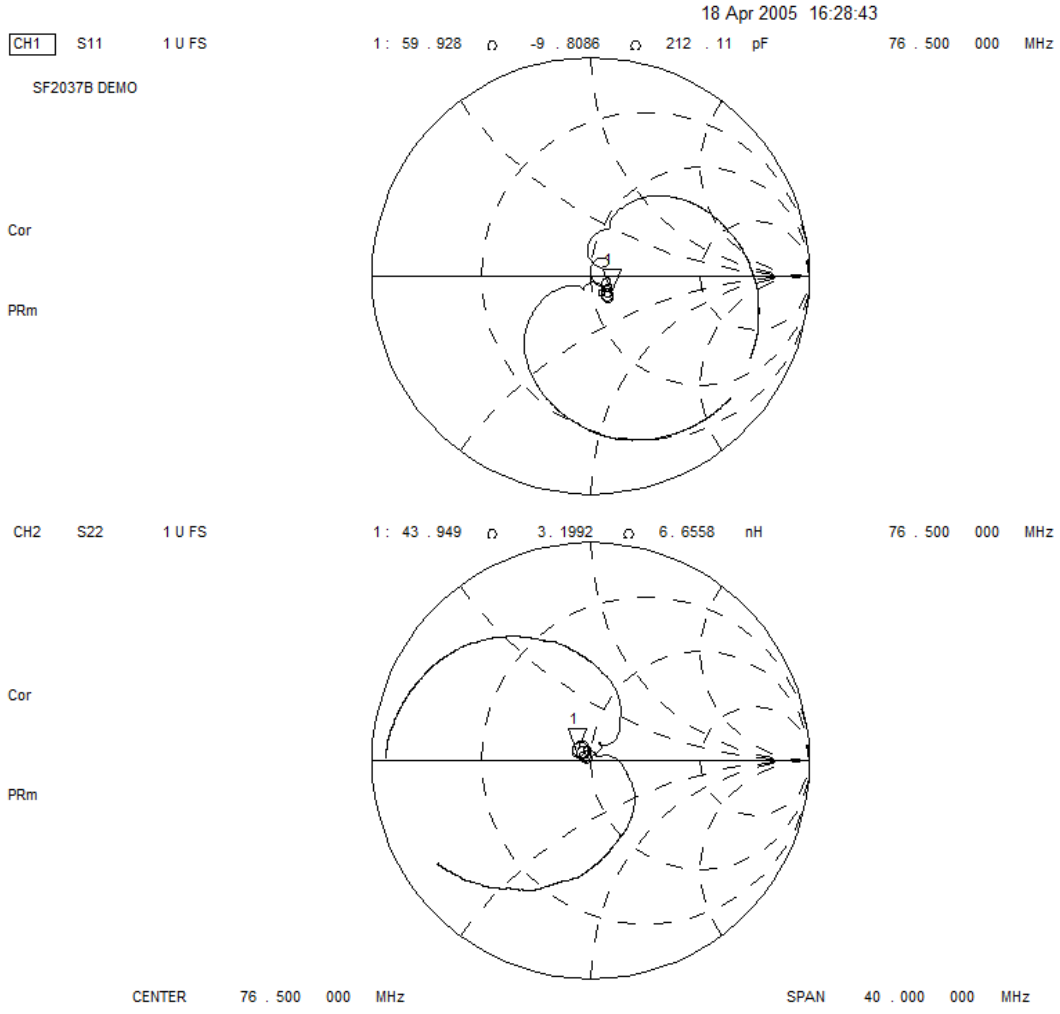



**SF2037B**
**76.500 MHz**

**C1 = 9pF**
**C2 = 9pF**
**L1 = 270nH**
**L2 = 330nH**
**C3 = 18pF**
**C4 = 18pF**

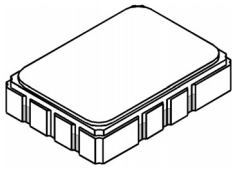




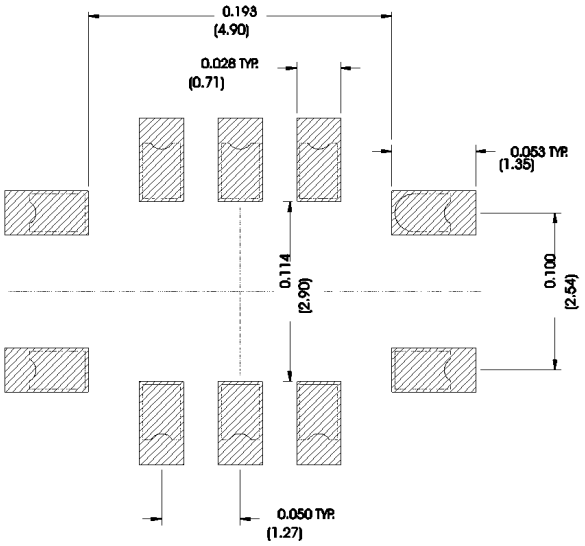


# SMP-03 Case

## 10-Terminal Ceramic Surface-Mount Case
## 7 x 5 mm Nominal Footprint



**Recommended PCB Footprint**



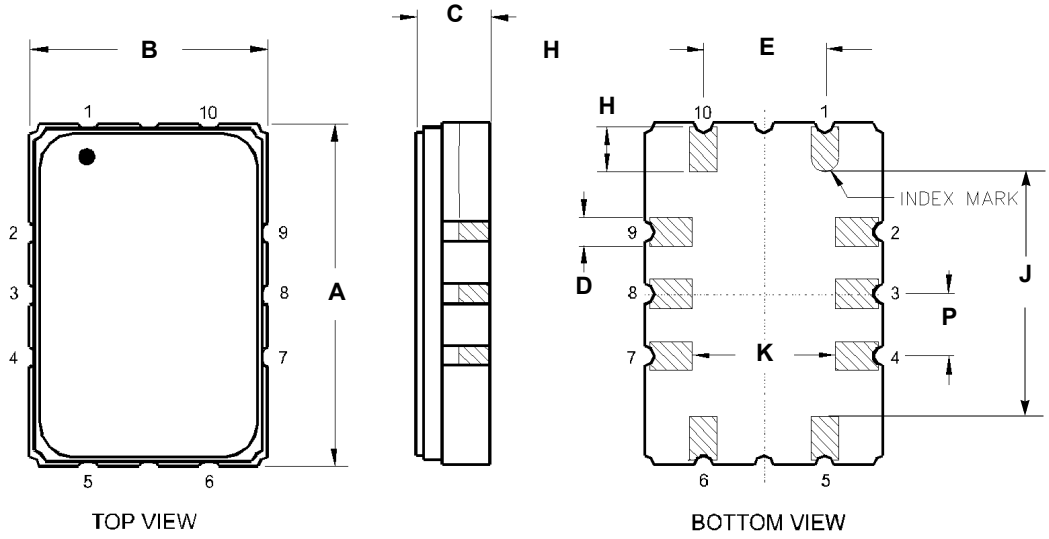

**Case Dimensions**

| Dimension | mm | | | Inches | | |
|---|---|---|---|---|---|---|
| | Min | Nom | Max | Min | Nom | Max |
| A | 6.80 | 7.00 | 7.20 | 0.268 | 0.276 | 0.283 |
| B | 4.80 | 5.00 | 5.20 | 0.189 | 0.197 | 0.205 |
| C | | 1.65 | 2.00 | | 0.065 | 0.079 |
| D | .47 | 0.60 | .73 | 0.019 | 0.024 | 0.029 |
| E | 2.41 | 2.54 | 2.67 | 0.095 | 0.100 | 0.105 |
| H | 0.87 | 1.0 | 1.13 | 0.034 | 0.039 | 0.044 |
| J | 4.87 | 5.00 | 5.13 | 0.192 | 0.197 | 0.202 |
| K | 2.87 | 3.00 | 3.13 | 0.113 | 0.118 | 0.123 |
| P | 1.14 | 1.27 | 1.40 | 0.045 | 0.050 | 0.055 |

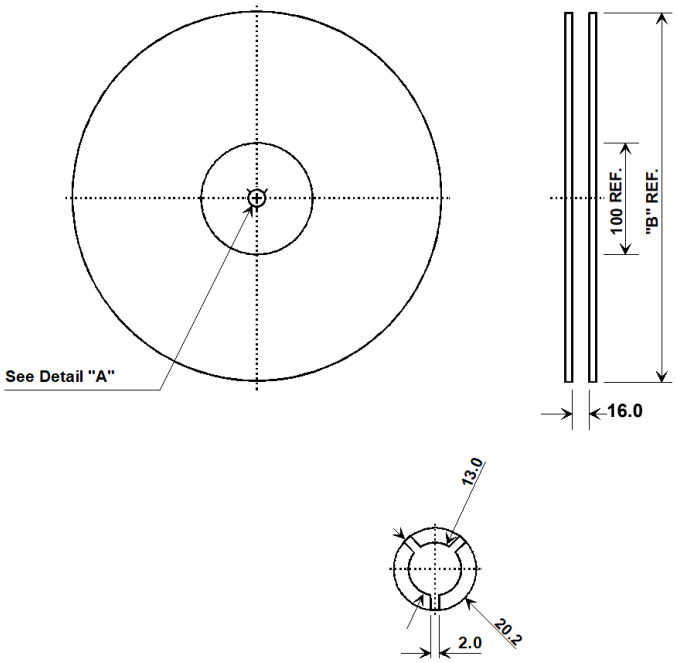
| Materials | |
|---|---|
| Solder Pad Termination | Au plating 30 - 60 uInches (76.2-152 uM) over 80-200 uInches (203-508 uM) Ni. |
| Lid | Fe-Ni-Co Alloy Electroless Nickel Plate (8-11% Phosphorus) 100-200 uInches Thick |
| Body | $Al_2O_3$ Ceramic |
| Pb Free | |

**Electrical Connections**

| Connection | | Terminals |
|---|---|---|
| Port 1 | Input or Return | 10 |
| | Return or Input | 1 |
| Port 2 | Output or Return | 5 |
| | Return or Output | 6 |
| Ground | | All others |
| **Single Ended Operation** | | **Return is ground** |
| **Differential Operation** | | **Return is hot** |



## Tape and Reel Specifications

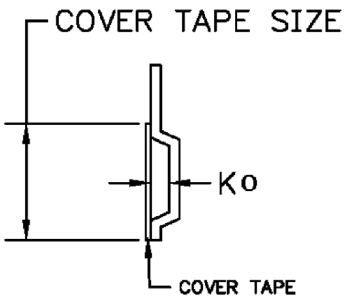



| "B " Nominal Size | | Quantity Per Reel |
|---|---|---|
| Inches | millimeters | |
| 7 | 178 | 500 |
| 13 | 330 | 2000 |

## Product Reflow/ESD/MSL

| | | |
|---|---|---|
| Reflow Peak Temperature | 265 | °C |
| Reflow Peak Time | 10 | Seconds |
| Liquidus 217 Temperature/Time | 110 | Seconds |
| Over Liquidus 230 Temperature/Time | 70 | Seconds |
| Reflow Condition | SMT | |
| Class Level HBM | 2 | |
| HBM(V) | 2000 | HBM(V) |
| MM(V) | N/A | MM(V) |
| CDM(V) | 2000 | CDM(V) |
| MSL | 1 | |

## COMPONENT ORIENTATION and DIMENSIONS




| Carrier Tape Dimensions | |
|---|---|
| **Ao** | 5.5 mm |
| **Bo** | 7.5 mm |
| **Ko** | 2.0 mm |
| **Pitch** | 8.0 mm |
| **W** | 16.0 mm |