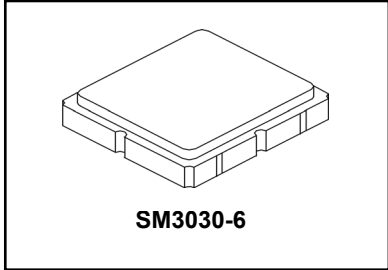


SF2442E-1

1565.5 MHz SAW Filter



• **Surface Mount 3.0 x 3.0 mm Package**

Absolute Maximum Ratings

| Rating | Value | Units |
|--------------------------------------------|-------------|-------|
| Input Power Level | 15 | dBm |
| DC Voltage on any Non-ground Terminal | 3 | V |
| Operable Temperature Range | -45 to +125 | °C |
| Specification Temperature Range | -40 to +105 | °C |
| Storage Temperature Range in Tape and Reel | -40 to +85 | °C |

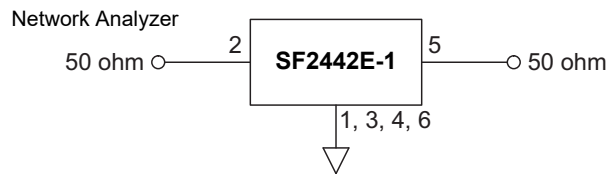
Electrical Characteristics

| Characteristic | Sym | Notes | Min | Typ | Max | Units |
|------------------------------------------------------------------|-----------------------------------------|-------|-----|--------|------|----------|
| Center Frequency | f_c | | | 1565.5 | | MHz |
| 3 dB Bandwidth | | | | 150 | | MHz |
| Insertion Loss, (1525 to 1606 MHz) | IL | | | 3.1 | 3.7 | dB |
| Return Loss, (1525 to 1606 MHz) | | | | 10 | | dB |
| Passband Ripple (1525 to 1606 MHz) | | | | 0.6 | 2.0 | |
| Group Delay Variation (1525 to 1606 MHz) | | | | 2.0 | 15.0 | ns |
| (1525 to 1606 MHz on 2 MHz sliding window) | | | | 1.2 | 15.0 | |
| (ref - 1573.374 to 1577.466 MHz) | | | | 0.5 | 5.0 | |
| (ref - 1597.55 to 1605.886 MHz) | | | | 1.0 | 5.0 | |
| Attenuation, Referenced from 0 dB: | | | | | | dB |
| 100 to 1320 MHz | | | | 29 | | |
| 1320 to 1420 MHz | | | 30 | 40 | | |
| 1740 to 2000 MHz | | | 30 | 40 | | |
| 2000 to 4000 MHz | | | | 21 | | |
| 4000 to 6000 MHz | | | | 16 | | |
| Temperature coefficient of frequency | | | | -80 | | Ppm/°C |
| Source Impedance | | | | 50 | | Ω |
| Load Impedance | | | | 50 | | |
| Case Style | SM3030-6 3.0 x 3.0 mm Nominal Footprint | | | | | |
| Lid Symbolization (Y=year, WW=week, S=shift) dot=pin 1 indicator | 9F, <u>YWW</u> S | | | | | |

Electrical Connections

| Connection | Terminals |
|-------------|------------|
| Input | 2 |
| Output | 5 |
| Case Ground | All others |

Measurement Circuit



CAUTION: Electrostatic Sensitive Device. Observe precautions for handling.

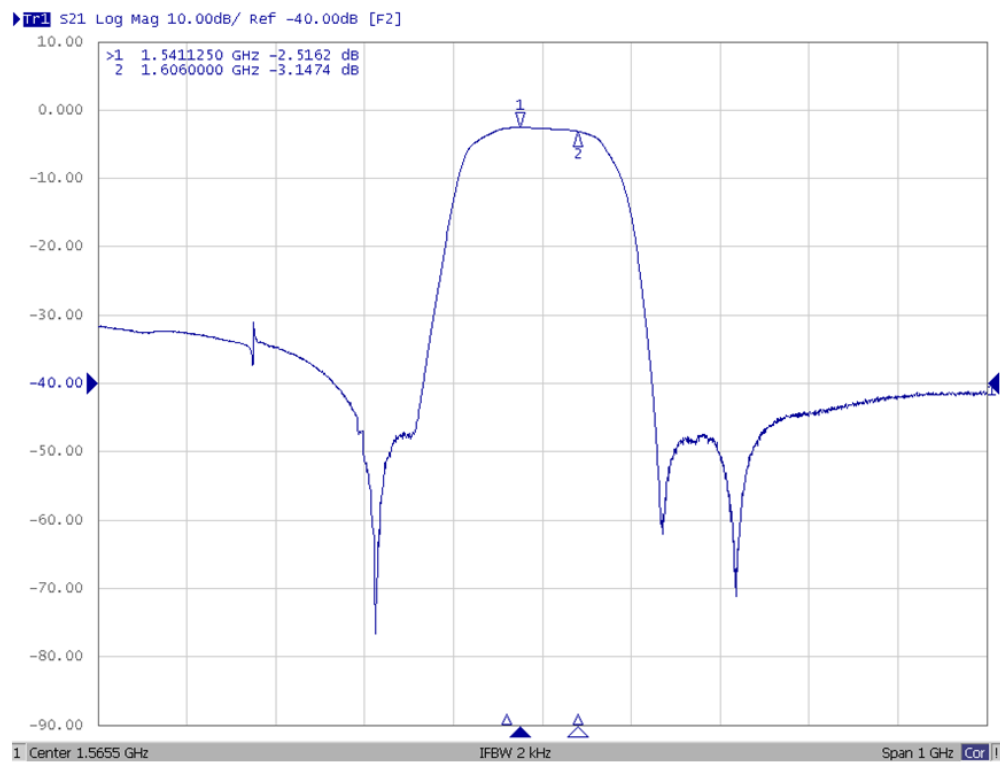


NOTES:

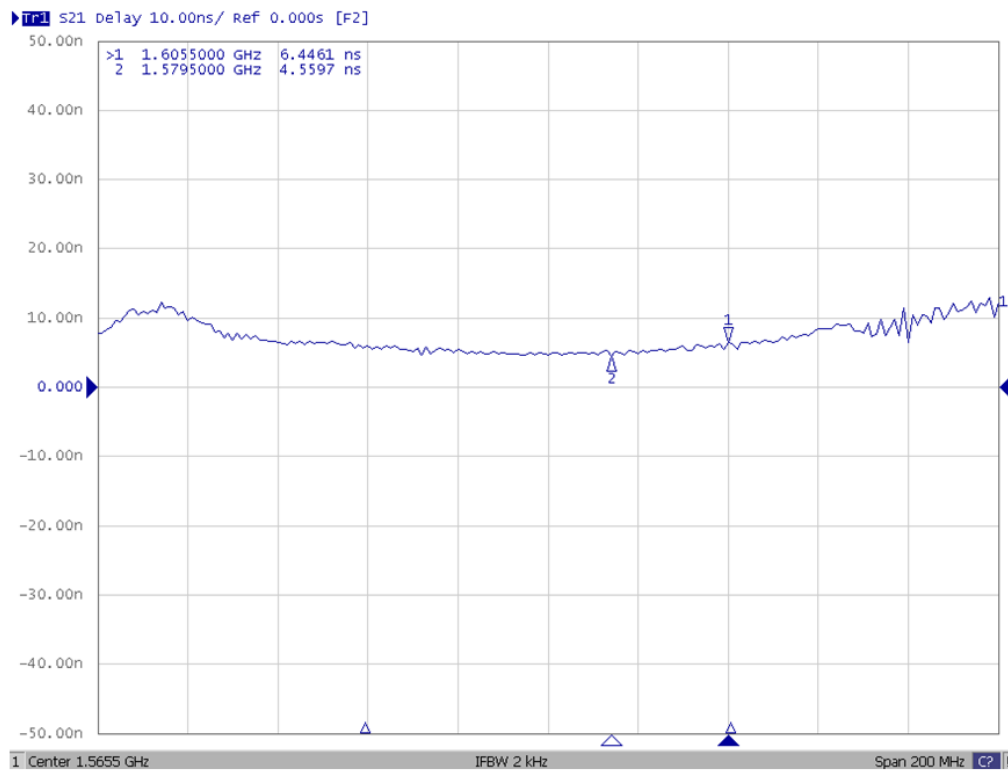
- Unless noted otherwise, all specifications apply over the operating temperature range with filter soldered to the specified demonstration board with impedance matching to 50 Ω and measured with 50 Ω network analyzer.
- Unless noted otherwise, all frequency specifications are referenced to the nominal center frequency, f_c .
- 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.
- "LRIP" or "L" after the part number indicates "low rate initial production" and "ENG" or "E" indicates "engineering prototypes."
- The design, manufacturing process, and specifications of this filter are subject to change.
- 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.
- US and international patents may apply.
- Murata, stylized Murata logo, and Murata N.A., Inc. are registered trademarks of Murata Manufacturing Co., Ltd.

Frequency Characteristics

Narrow Band Response

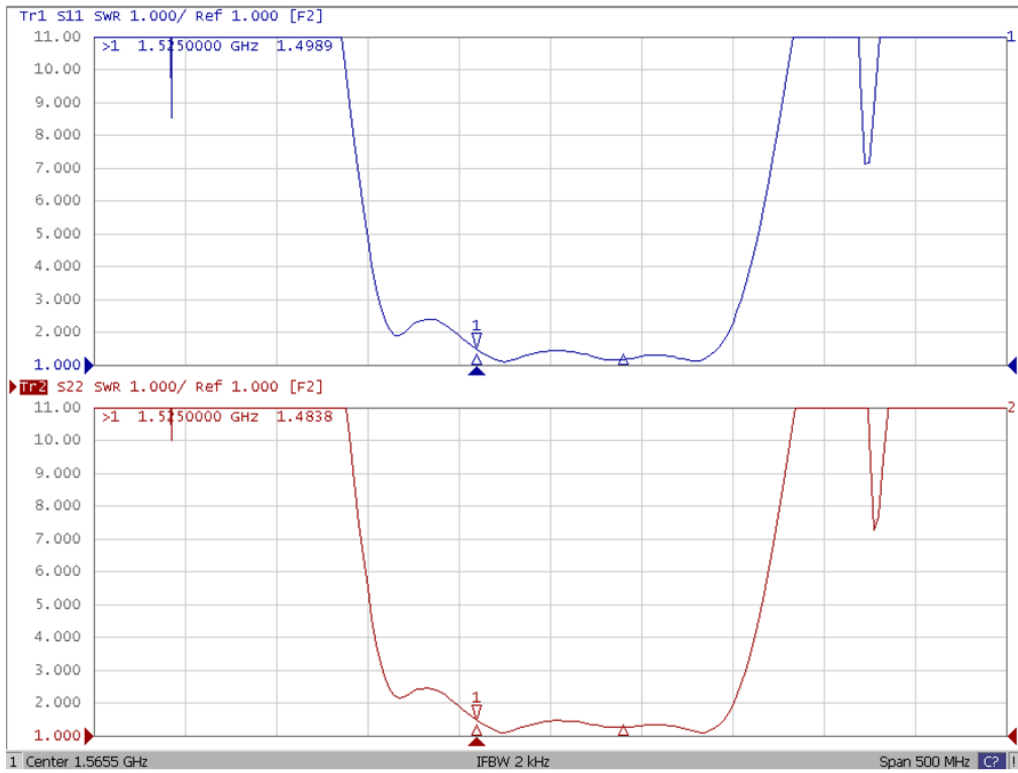


Group Time Delay Response

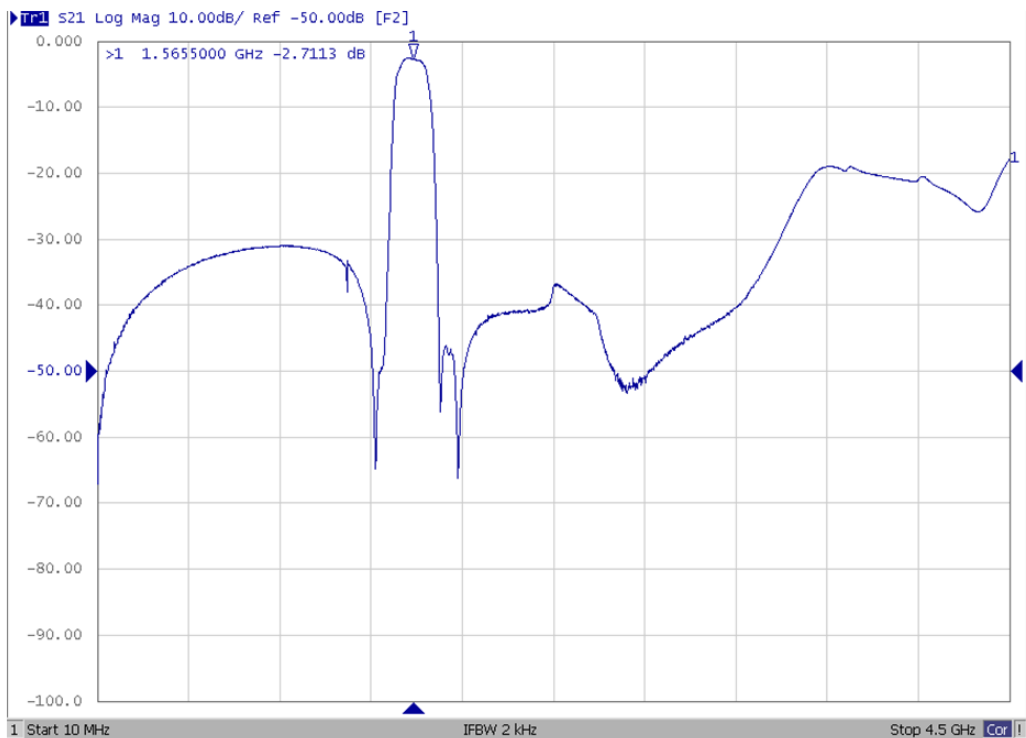


Frequency Characteristics

VSWR

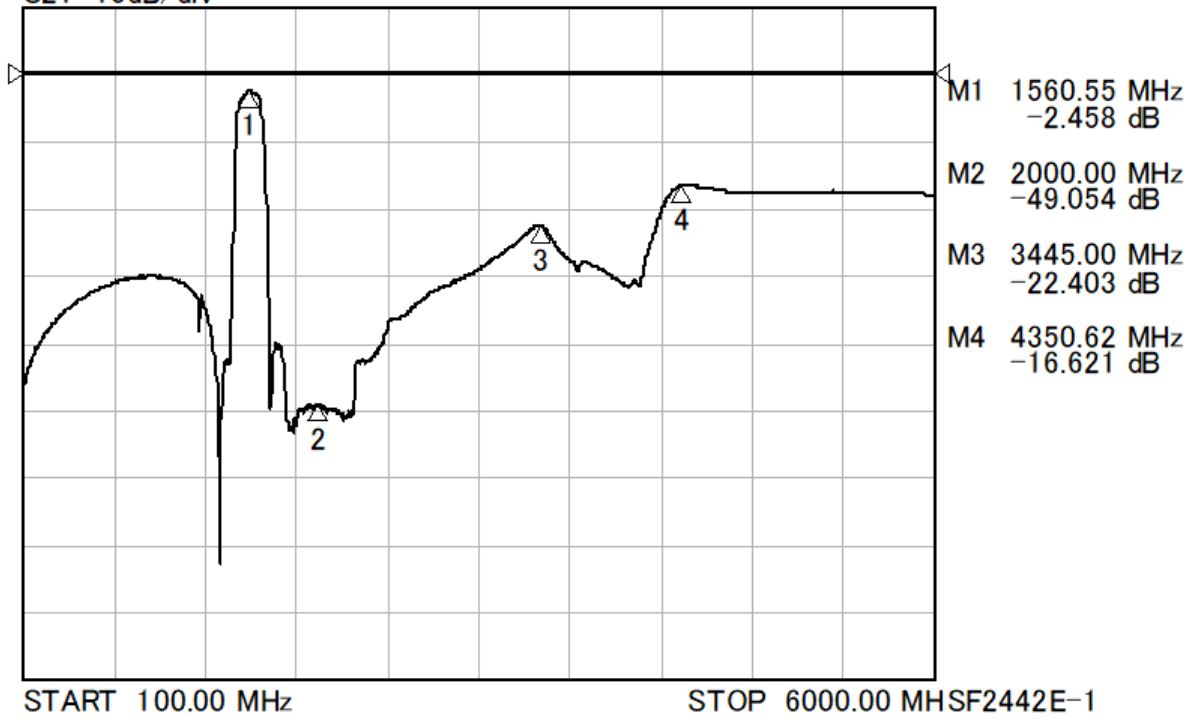


Wide Band Response



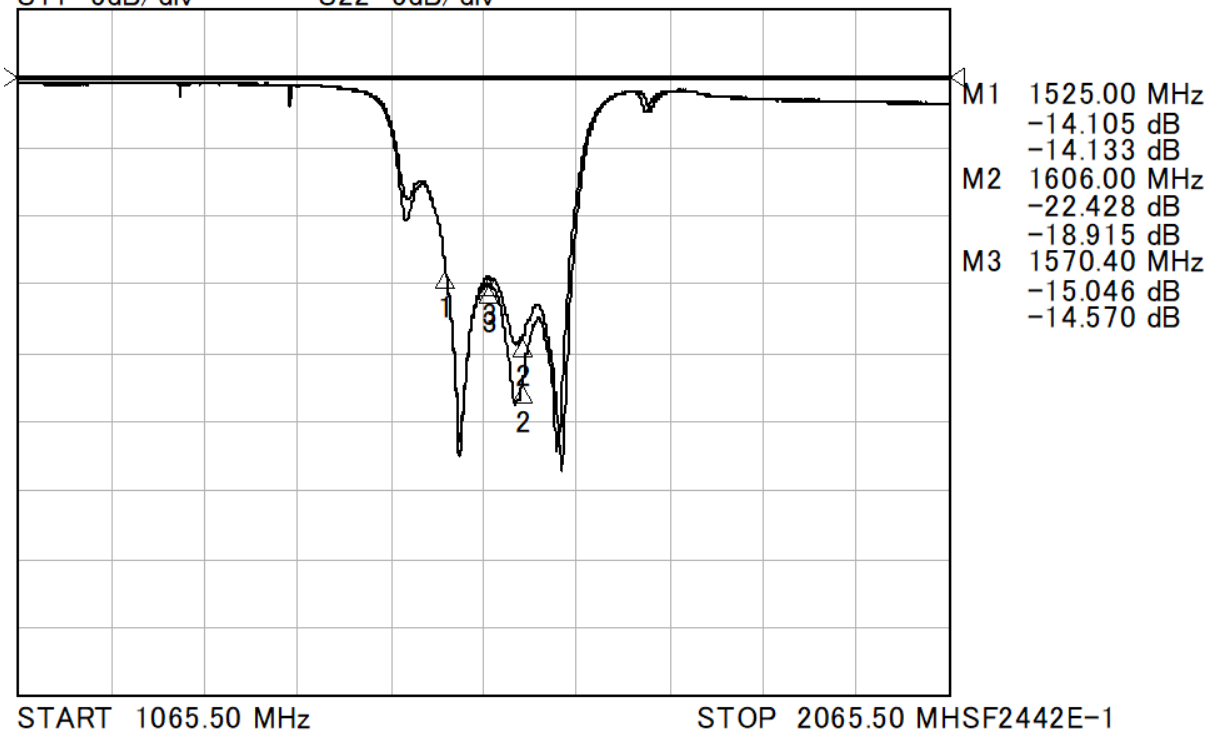
Format: LogMag REF: 0dB

S21 10dB/div



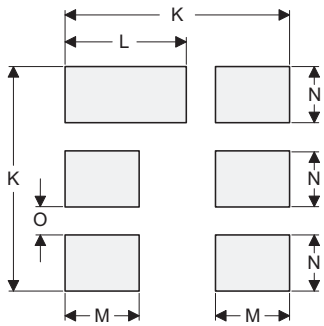
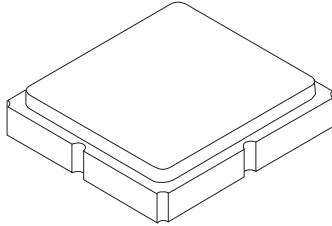
S11 5dB/div

S22 5dB/div



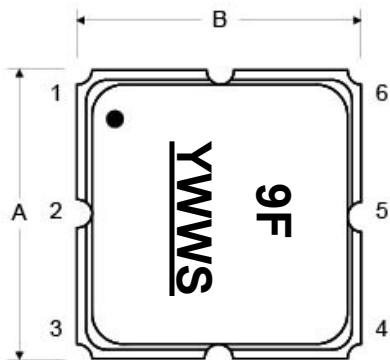
SM3030-6 Case

6-Terminal Ceramic Surface-Mount Case 3.0 X 3.0 mm Nominal Footprint



PCB Footprint Top View

TOP VIEW



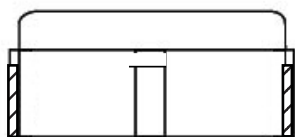
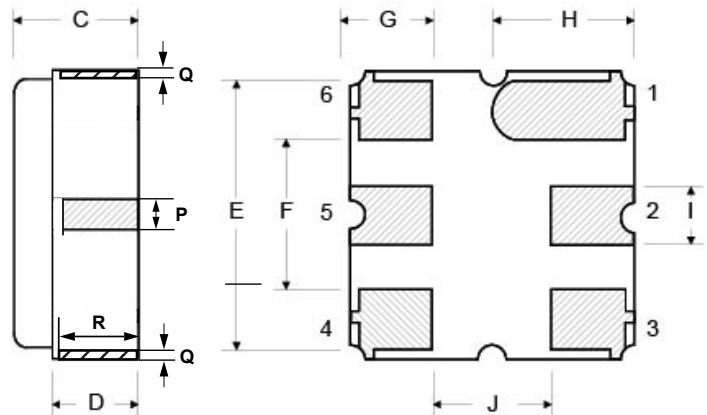
Case and PCB Footprint Dimensions

| Dimension | mm | | | Inches | | |
|-----------|------|------|------|--------|-------|-------|
| | Min | Nom | Max | Min | Nom | Max |
| A | 2.87 | 3.00 | 3.13 | 0.113 | 0.118 | 0.123 |
| B | 2.87 | 3.00 | 3.13 | 0.113 | 0.118 | 0.123 |
| C | 1.12 | 1.25 | 1.38 | 0.044 | 0.049 | 0.054 |
| D | 0.77 | 0.90 | 1.03 | 0.030 | 0.035 | 0.040 |
| E | 2.67 | 2.80 | 2.93 | 0.105 | 0.110 | 0.115 |
| F | 1.47 | 1.60 | 1.73 | 0.058 | 0.063 | 0.068 |
| G | 0.72 | 0.85 | 0.98 | 0.028 | 0.033 | 0.038 |
| H | 1.37 | 1.50 | 1.63 | 0.054 | 0.059 | 0.064 |
| I | 0.47 | 0.60 | 0.73 | 0.019 | 0.024 | 0.029 |
| J | 1.17 | 1.30 | 1.43 | 0.046 | 0.051 | 0.056 |
| K | | 3.20 | | | 0.126 | |
| L | | 1.70 | | | 0.067 | |
| M | | 1.05 | | | 0.041 | |
| N | | 0.81 | | | 0.032 | |
| O | | 0.38 | | | 0.015 | |
| P | 0.15 | 0.30 | 0.45 | 0.005 | 0.011 | 0.017 |
| Q | 0.07 | 0.20 | 0.36 | 0.002 | 0.007 | 0.014 |
| R | 0.62 | 0.7 | 0.78 | 0.024 | 0.027 | 0.030 |

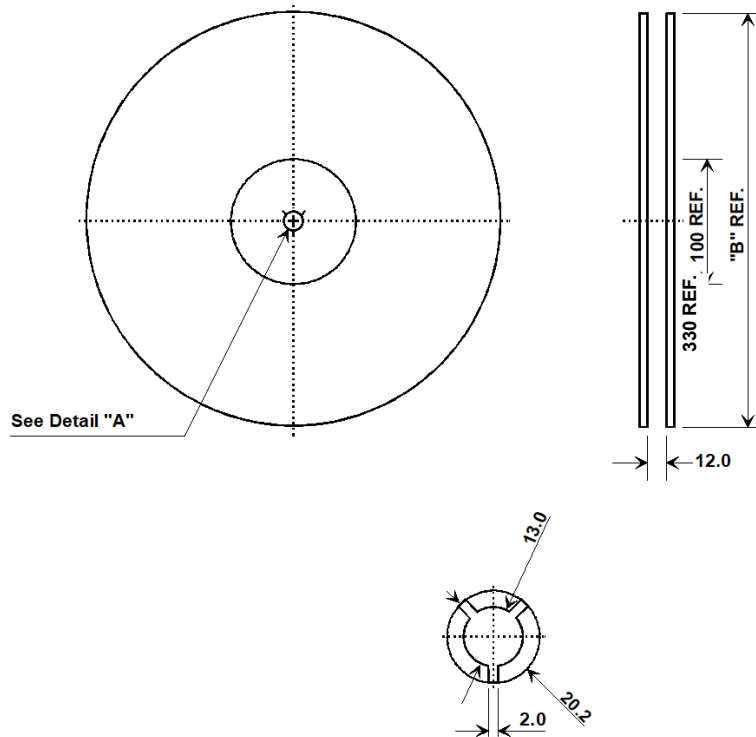
Case Materials

| Materials | |
|--------------------|----------------------------------------------------------------------|
| Solder Pad Plating | 0.3 to 1.0 μm Gold over 1.27 to 8.89 μm Nickel |
| Lid Plating | 2.0 to 3.0 μm Nickel |
| Body | Al_2O_3 Ceramic |
| | Pb Free |

BOTTOM VIEW

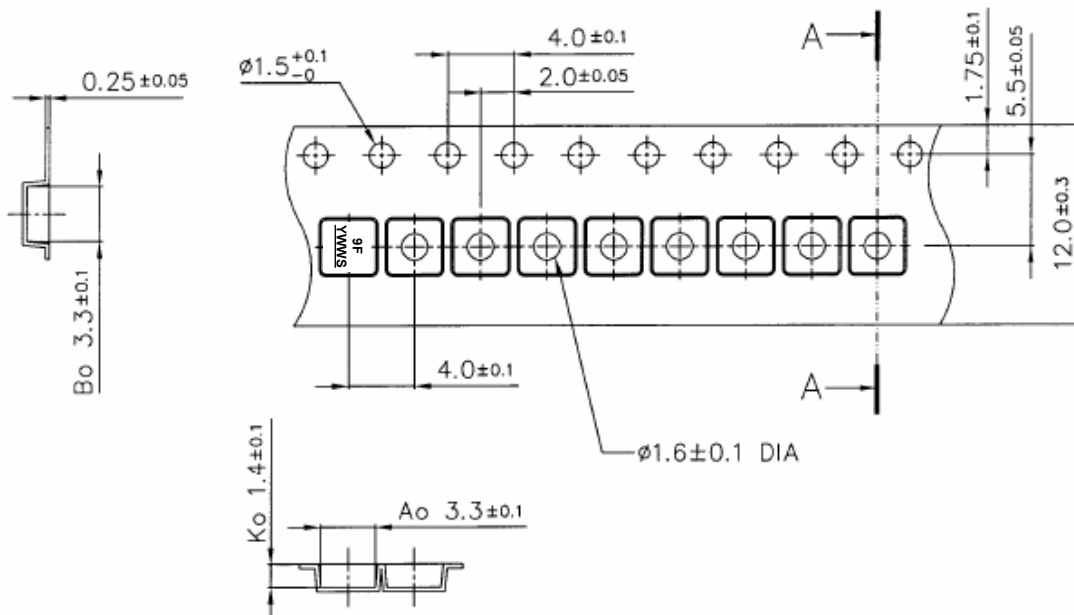


Tape and Reel Specifications



COMPONENT ORIENTATION and DIMENSIONS

| Carrier Tape Dimensions | |
|-------------------------|---------|
| Ao | 3.3 mm |
| Bo | 3.3 mm |
| Ko | 1.4 mm |
| Pitch | 4.0 mm |
| W | 12.0 mm |



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