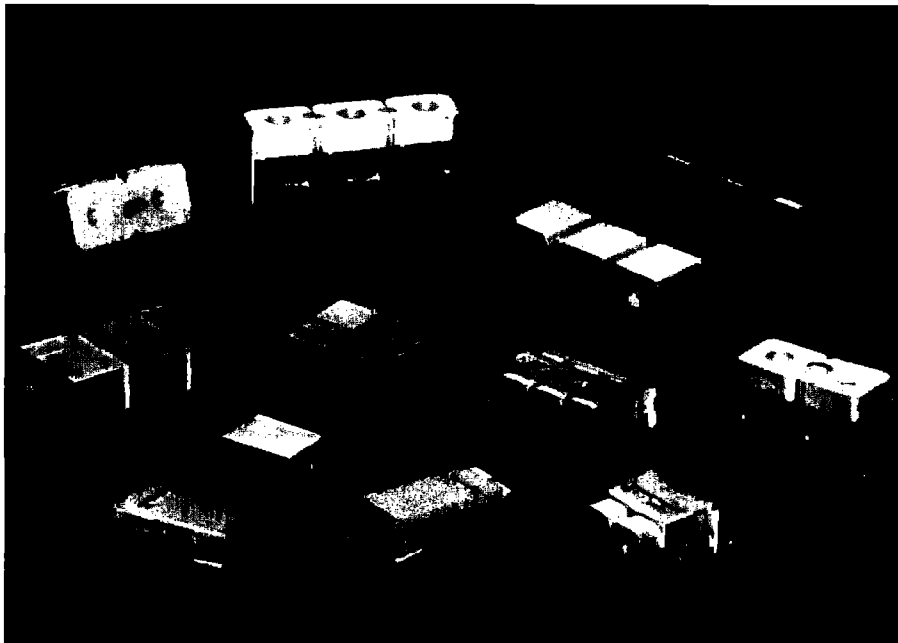


### Ceramic Bandpass Filters



#### Features

- High Q Ceramic
- Rugged
- Temperature Compensated
- Custom Designs

#### Benefits

- Low Insertion Loss
- Small Compact Design
- Frequency Stability
- Mechanical Stability

#### Introduction

Trans-Tech manufactures Ceramic Filters for a wide array of communication equipment. Offerings include filters for cellular PCS, GPS, WLAN, CATV and ISM products. Ceramic filter technology is superior in size and loss characteristics when compared to cavity, lumped element and helical designs. Ceramic filters also provide superior loss, power handling and temperature stability when compared to microstrip and SAW filters.

The filters are created by coupling ceramic resonators (poles) and are available in a variety of package configurations. Although two and three poles are standard, custom filters with higher pole count can be provided.

#### Applications

Trans-Tech offers medium to high volume production of standard and customized filters for wired and wireless communication systems. Bandpass filters are used in many applications singly, or combined to form a duplexing function. In addition to bandpass filters, Trans-Tech offers bandstop and custom filter solutions. Bandstop filters can be used alone as a highly selective "notch" filters or in combination with a bandpass filter to form a duplexer. Additional rejection of unwanted frequencies can be provided using the "finite zero" method, a technique particularly useful in duplexer designs.

**Packaging Considerations**

Package options are flat tab for surface mount, thru hole (for drop in PCB mounting) and printed circuit board. Designations for these packaging options are listed below.

**Packaging Designation**

<b>Description</b>	<b>Designation</b>
Flat Pack Surface Mount	F
Thru Hole	T
PCB Surface Mount	P



**Quality**

Environmental Performance

Vibration	MIL-STD-202,204,A
Shock	MIL-STD-202,213,A
Humidity	MIL-STD-202,103,B
Heat Shock	MIL-STD-202,107,A

All of our specifications take account of temperature derating, where typically the insertion loss increases with increasing temperature. Typical operating temperatures are -30 to +85°C.

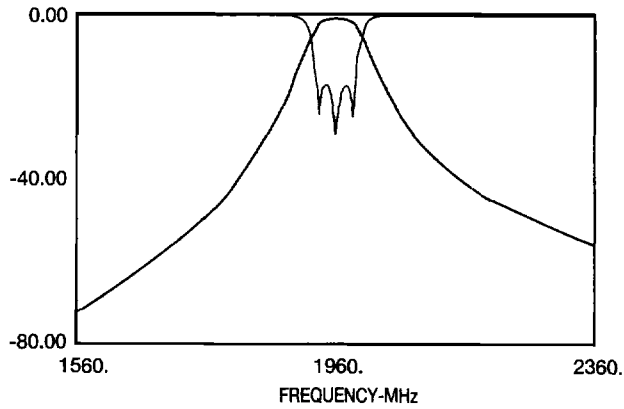
Impedance. Most of our designs are based on 50Ω. However, if required, other impedances can be provided, to match active devices in your circuit.

**Ordering Information**

Other designs and configurations may be available. Contact the factory or your local representative with your specifications for further information.

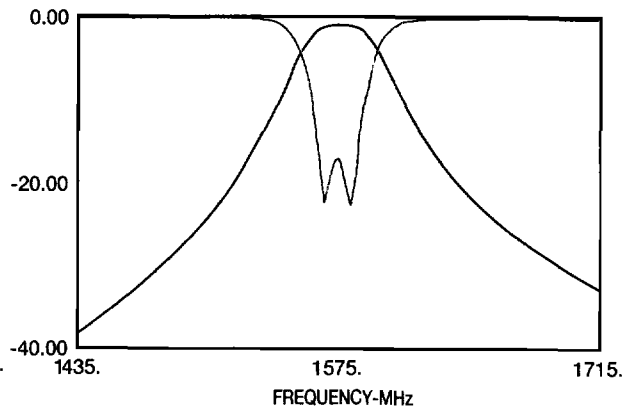
SIZE/POLES	CENTER FREQUENCY (MHz)	TOTAL BANDWIDTH (MHz)	INSERTION LOSS (dB)	CURRENTLY AVAILABLE P/N
<b>AMPS</b>				
6mm 3p	836	25	2.0	TT6P3-0836F-2520
6mm 3p	881	25	2.0	TT6P3-0881F-2520
<b>ISM</b>				
3mm 2p	915	26	1.6	TT3P2-0915P-2616
3mm 2p	915	26	2.3	TT3P2-0915P-2623
4mm 2p	915	26	2.5	TT4P2-0915F-2625
6mm 3p	903	2	4.0	TT6P3-0903F-0204
6mm 3p	927	2	4.0	TT6P3-0927F-0204
6mm 2p	915	4	3.5	TT6P2-0915F-0435
<b>GPS</b>				
3mm 2p	1575	10	2.0	TT3P2-1575P-1020
4mm 2p	1575	10	2.0	TT4P2-1575F-1020
4mm 2p	1575	20	2.0	TT4P2-1575F-2020
3mm 2p	1575	20	0.8	TT3P2-1575P-2008
3mm 2p	1575	20	2.3	TT3P2-1575P-2023
3mm 2p	1575	2	0.7	TT3P2-1575P-0207
4mm 2p	1227	10	1.2	TT4P2-1227F-1012
<b>GSM</b>				
6mm 2p	902	25	1.8	TT6P2-0902F-2518
6mm 2p	947	25	1.8	TT6P2-0947F-2518
<b>PCS</b>				
4mm 3p	1880	60	2.5	TT4P3-1880F-6025
4mm 3p	1960	60	2.5	TT4P3-1960F-6025
<b>MMDS</b>				
6mm 2p	2156	20	2.0	TT6P2-2156F-2020
3mm 2p	2156	20	1.8	TT3P2-2156P-2018
3mm 3p	2156	20	3.0	TT3P3-2156P-2030

**3 POLE 4mm PCS  
(F Type)**



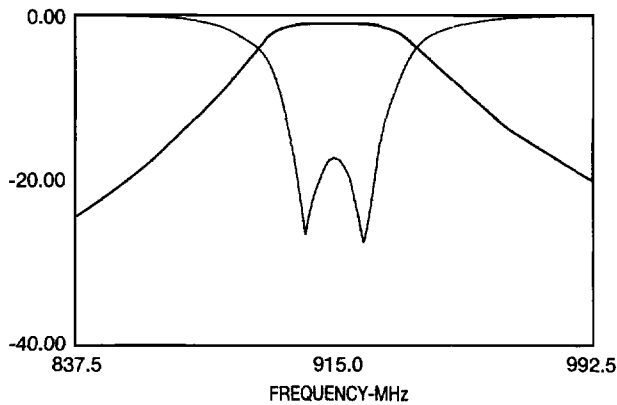
**TT4P3-1960F-6025**

**2 POLE 4mm GPS  
(F Type)**



**TT4P2-1575F-1020**

**2 POLE 4mm ISM  
(F Type)**



**TT4P2-0915F-2625**

*The response curves depicted here represent typical performance characteristics for selected models. Detailed data sheets for part numbers listed in the selection guide are available from your local sales representative.*

*Typical performance curves are shown*

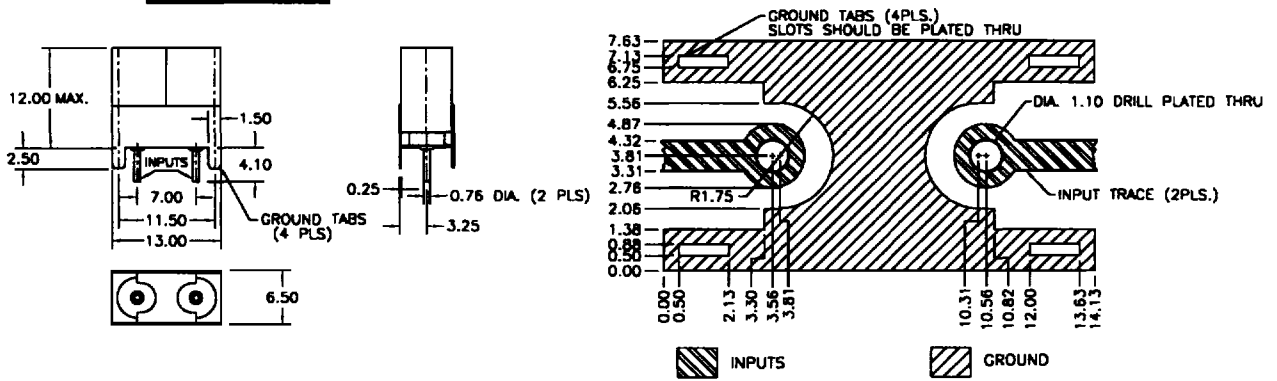


**2 & 3 POLE  
THRU-HOLE DESIGN (T)**

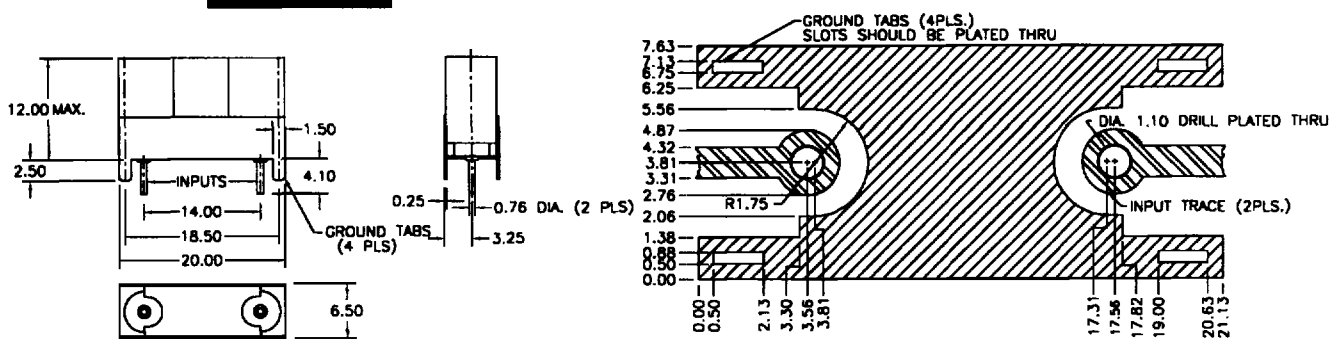
Outline Drawings

Footprint

6mm 2 Pole



6mm 3 Pole

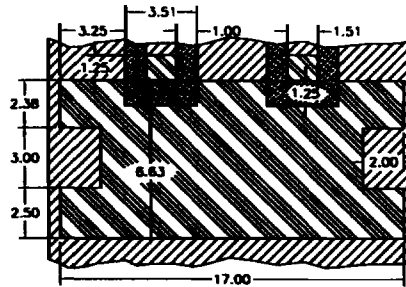
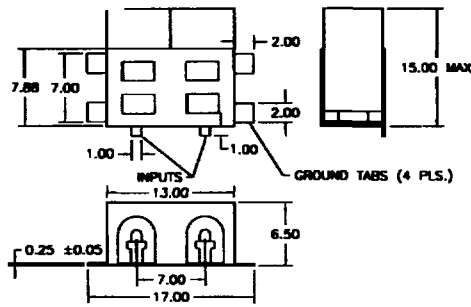


**2 POLE  
FLAT PACK DESIGN (F)**

Outline Drawings

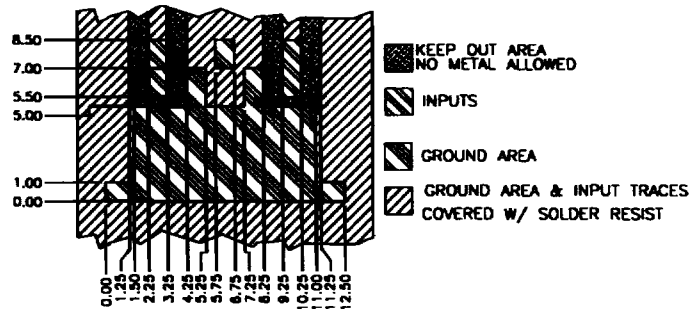
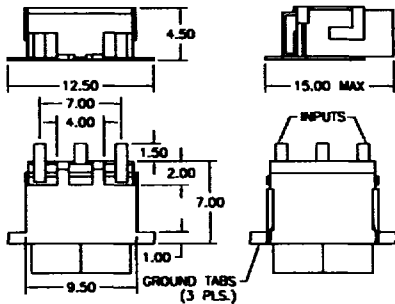
Footprint

6mm 2 Pole



- KEEP OUT AREA  
NO METAL ALLOWED
- GROUND AREA
- INPUTS
- GROUND AREA & INPUT TRACES  
COVERED W/ SOLDER RESIST

4mm 2 Pole



- KEEP OUT AREA  
NO METAL ALLOWED
- INPUTS
- GROUND AREA
- GROUND AREA & INPUT TRACES  
COVERED W/ SOLDER RESIST

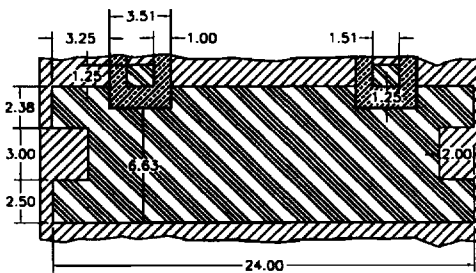
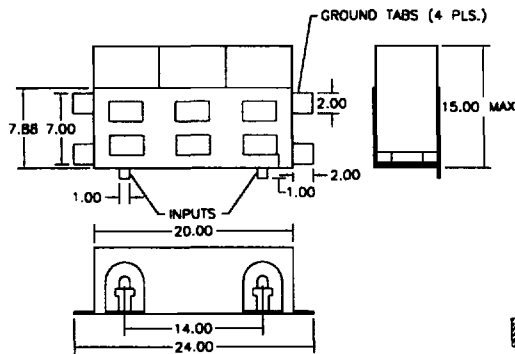
3

**3 POLE  
FLAT PACK DESIGN (F)**

Outline Drawings

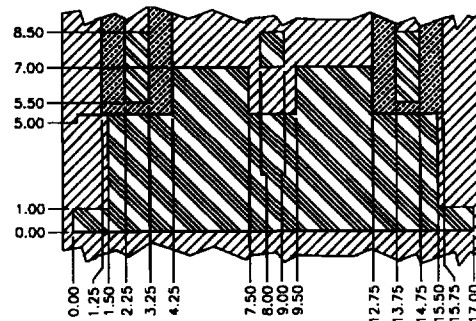
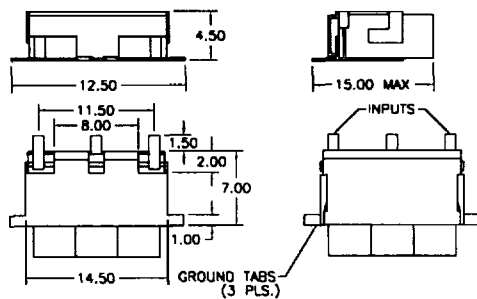
Footprint

6mm 3 Pole



- KEEP OUT AREA  
NO METAL ALLOWED
- GROUND AREA
- INPUTS
- GROUND AREA & INPUT TRACES  
COVERED W/ SOLDER RESIST

4mm 3 Pole



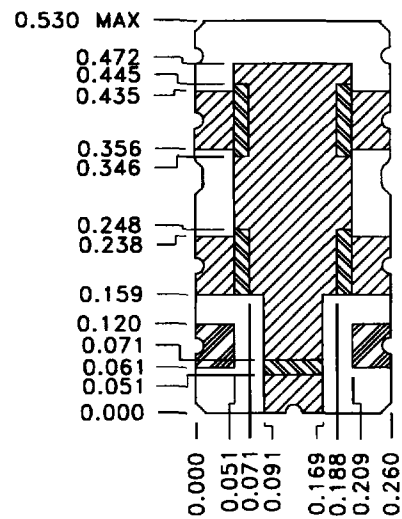
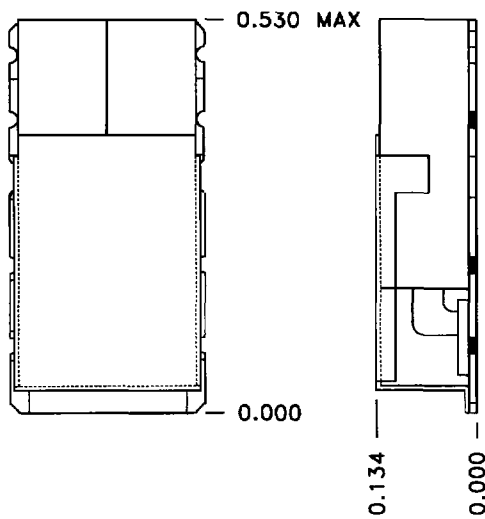
- KEEP OUT AREA  
NO METAL ALLOWED
- GROUND AREA
- INPUTS
- GROUND AREA & INPUT TRACES  
COVERED W/ SOLDER RESIST

**2 & 3 POLE  
PCB DESIGN (P)**

Outline Drawings

Footprint

3mm 2 Pole (GPS)



3