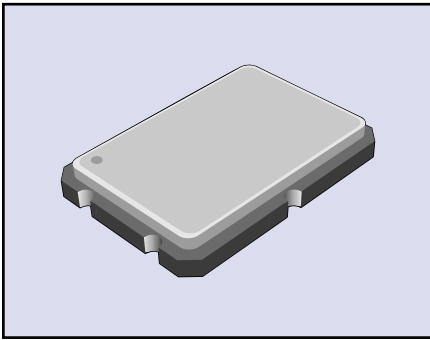


ECS-96SMF SERIES SMD MONOLITHIC CRYSTAL FILTER



ECS delivers pure filtering versatility with the ECS-96SMF Series monolithic crystal filter. This low profile SMD filter addresses a broad range of applications including wide/narrow band filters for mobile, UHF and cordless telephone applications.

FEATURES

- Low profile of 1.5 mm maximum height
- Industry standard footprint
- Sharp cut-off characteristics
- Long term stability
- Tape & Reel (1,000 pcs)

PART NUMBERING GUIDE

| PART NUMBER | FREQUENCY |
|-----------------|---------------|
| ECS-96SMF21A15 | 21.40000 MHz |
| ECS-96SMF29A20 | 29.25000 MHz |
| ECS-96SMF45A30 | 45.00000 MHz |
| ECS-96SMF109A24 | 109.65000 MHz |

OPERATING CONDITIONS/ELECTRICAL CHARACTERISTICS

| PARAMETERS | ECS-96SMF21A15 | ECS-96SMF29A20 | ECS-96SMF45A30 | ECS-96SMF109A24 | UNITS |
|-------------------------------|------------------|------------------|------------------|------------------|--------|
| NOMINAL FREQUENCY | 21.40000 | 29.25000 | 45.00000 | 109.65000 | MHz |
| OSCILLATION MODE | Fundamental | Fundamental | Fundamental | 3rd Overtone | |
| 3 db PASSBAND WIDTH | ±7.5KHz min. | ±10KHz min. | ±15KHz min. | ±12KHz min. | KHz |
| STOPBAND WIDTH | ±25KHz max./10db | ±25KHz max./10db | ±60KHz max./15db | ±60KHz max./18db | KHz/db |
| RIPPLE | 1.0db max. | 1.0db max. | 1.0db max. | 1.0db max. | db |
| INSERTION LOSS | 2.5db max. | 1.5db max. | 3.0db max. | 3.0db max. | db |
| ATTENUATION GUAR. (fo-910KHz) | 65db min. | 70db min. | 70db min. | 65db min. | db |
| TERMINATING IMPEDANCE | 1500Ω//2.5pF | 1800Ω//1.5pF | 1200Ω//1.8pF | 1500Ω//1.2pF | Ω//pF |
| OPERATING TEMP. RANGE | -30 ~ +85 | -30 ~ +85 | -30 ~ +85 | -30 ~ +85 | °C |
| NUMBER OF POLES | 2 | 2 | 2 | 2 | |

PACKAGE DIMENSIONS (mm)

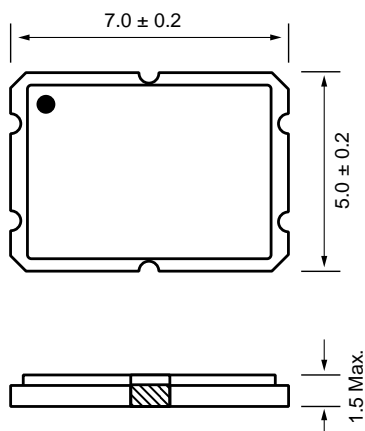


Figure 1) ECS-96SMF - Top and Side views

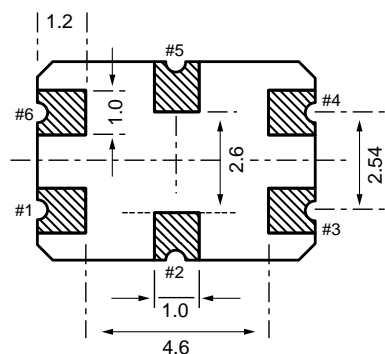


Figure 2) ECS-96SMF Pad Layout - Bottom view

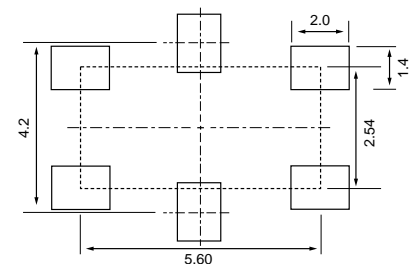


Figure 3) ECS-96SMF Land Pattern

| PIN CONNECTIONS | |
|-----------------|--------|
| #1 | IN/OUT |
| #2 | GND |
| #3 | GND |
| #4 | OUT/IN |
| #5 | GND |
| #6 | GND |