

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)

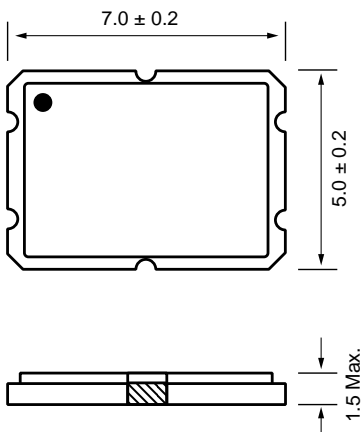


Figure 1) ECS-96SMF - Top and Side views

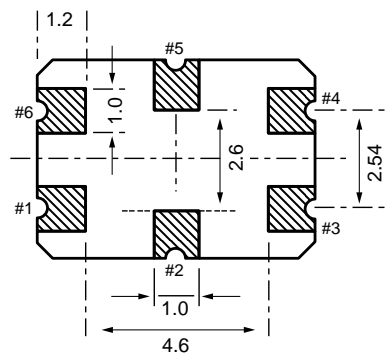


Figure 2) ECS-96SMF Pad Layout - Bottom view

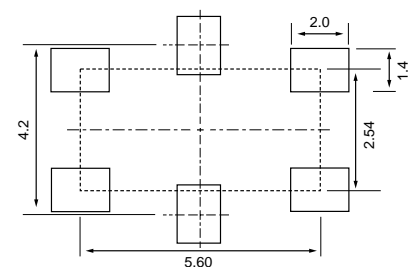


Figure 3) ECS-96SMF Land Pattern

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