

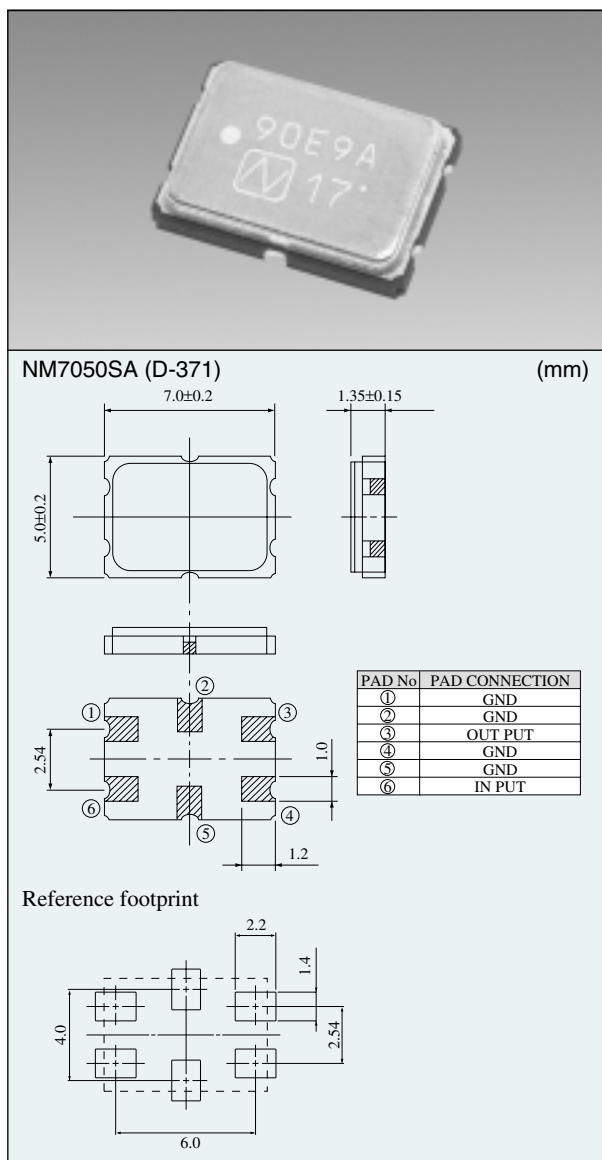
# CRYSTAL FILTERS

## MCF FOR MOBILE COMMUNICATION / PAGING SYSTEM (SURFACE MOUNT TYPE)

Ultra-compact, thin and lightweight crystal filter for surface mounting.

The compact size (7.0×5.0×1.35mm) is made possible with a lead free type ceramic container.

- Features
  - Ultra-small, thin (height 1.35mm)
  - IR reflow, VPS are applicable.
  - For surface mount (Emboss carries tapping applicable)
  - Excellent shock resistance
  - Excellent heat resistance
  - Good Guaranteed attenuation



### Fundamental

Model	21E15AA	45E15AF	90E9A
Pole	2	2	2
Nominal Frequency	21.7MHz	45.15MHz	90MHz
3dB Pass Bandwidth	±7.5kHz min	±7.5kHz min	±4.5 kHz min
Attenuation Bandwidth	15dB ±25kHz max	13dB ±25kHz max	3dB ±12.5kHz max
Ripple	1.0dB max	1.0dB max	0.5dB max
Insertion Loss	1.5dB max (minimum loss)	3.0dB max (minimum loss)	5dB max (minimum loss)
Guaranteed Attenuation	F <sub>0</sub> -910kHz 60dB min	F <sub>0</sub> -910kHz 70dB min	F <sub>0</sub> -910kHz 70dB min
Spurious	15dB min	10dB min	20dB min
Terminating Impedance	1.5kΩ//1.0pF	1kΩ//4pF	200Ω//8pF
Operating Temp. Range	-20~+70°C	-30~+70°C	-20~+70°C
Type	NM7050SA (D-371)		

\* [Type name] In ( ) is previous name.

### Overtone

Model	73E16.5A	90E9AA
Pole	2	2
Nominal Frequency	73.35MHz	90MHz
3dB Pass Bandwidth	±8.25kHz min	±4.5kHz min
Attenuation Bandwidth	13dB ±25kHz max	8.5dB ±12.5kHz max
Ripple	1.0dB max	0.5dB max
Insertion Loss	2.0dB max (minimum loss)	4.0dB max (minimum loss)
Guaranteed Attenuation	F <sub>0</sub> -910kHz 40dB min	F <sub>0</sub> -910kHz 65dB min
Spurious	10dB min	3dB min
Terminating Impedance	2.5kΩ//−1.2pF	0.4kΩ//−0.6pF
Operating Temp. Range	-30~+70°C	-20~+70°C
Type	NM7050SA (D-371)	

\* [Type name] In ( ) is previous name.

