

# Crystal Filter



## 2 Pole MCF

(Surface-mount Type)

### ■ Features

This is a crystal filter that supports surface mounting. Adoption of a ceramic container has enabled the dimensions of the filter to be 7 x 5 x 1.35 mm. Supports a wide frequency range.

- Supports IR reflow and VSP.  
(Contact us for information on the temperature profile.)
- Supports surface mounting. (Packed with embossed tape)
- Excellent heat- and shock-resistance.
- Good guaranteed attenuation.
- Frequency range Fundamental: 20 to 90 MHz, Overtone: 60 to 150 MHz
- Also supports 3-pole MCF.



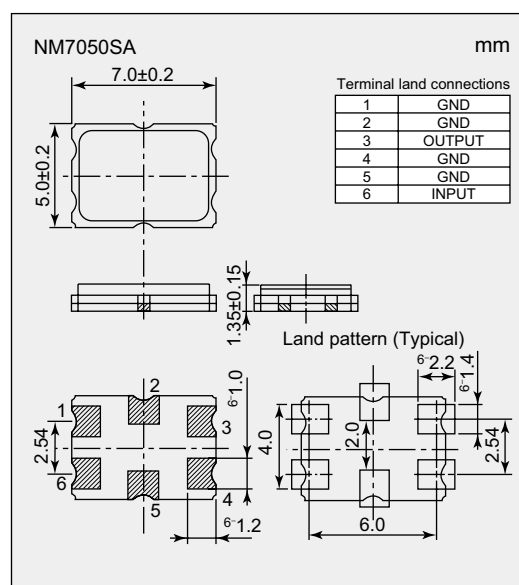
Pb Free      RoHS Compliant  
Directive 2011/65/EU

### ■ Specifications

Model	21E7.5AD	21E15AB	21E30AD	21E7.5A	21E15AA	21E30AF
Number of poles	2					
Nominal frequency	21.4 MHz			21.7 MHz		
3 dB Passband width	Min. ±3.75 kHz	Min. ±7.5 kHz	Min. ±15 kHz	Min. ±3.75 kHz	Min. ±7.5 kHz	Min. ±15 kHz
Stop bandwidth	Max. ±12.5 kHz at 15 dB	Max. ±25 kHz at 15 dB	Max. ±50 kHz at 15 dB	Max. ±12.5 kHz at 15 dB	Max. ±25 kHz at 15 dB	Max. ±50 kHz at 15 dB
Ripple	Max. 1 dB	Max. 1 dB	Max. 1.5 dB	Max. 1 dB	Max. 1 dB	Max. 1.5 dB
Insertion loss (insertion attenuation)	Max. 2 dB	Max. 1.5 dB	Max. 1.5 dB	Max. 2 dB	Max. 1.5 dB	Max. 1.5 dB
Guaranteed attenuation	Min. 60 dB at -910 kHz	Min. 60 dB at -910 kHz	Min. 50 dB at -910 kHz	Min. 60 dB at -910 kHz	Min. 60 dB at -910 kHz	Min. 50 dB at -910 kHz
Spurious characteristics	Min. 15 dB Within ±1 MHz	Min. 15 dB Within ±1 MHz	Min. 15 dB Within ±1 MHz	Min. 15 dB Within ±1 MHz	Min. 15 dB Within ±1 MHz	Min. 15 dB Within ±1 MHz
Terminating impedance	1.5 kΩ // 5 pF	1.5 kΩ // 1 pF	2.5 kΩ // 1.2 pF	850 Ω // 6 pF	1.5 kΩ // 1 pF	2 kΩ // 1.2 pF
Operating temperature range	-20 to +70 °C	-20 to +70 °C	-20 to +70 °C	-20 to +70 °C	-20 to +70 °C	-20 to +70 °C
Package type	NM7050SA					
Ordering code	21E7.5AD-21.4M-MN15-358	21E15AB-21.4M-MN15-211	21E30AD-21.4M-MN15-359	21E7.5A-21.7M-MN15-366	21E15AA-21.7M-MN15-209	21E30AF-21.7M-MN15-365

Model	45E7.5AB	45E15A	45E30AN	90E9A
Number of poles	2			
Nominal frequency	45 MHz			90 MHz
3 dB Passband width	Min. ±3.75 kHz	Min. ±7.5 kHz	Min. ±15 kHz	Min. ±4 kHz
Stop bandwidth	Max. ±25 kHz at 20 dB	Max. ±25 kHz at 13 dB	Max. ±60 kHz at 20 dB	Max. ±50 kHz at 25 dB
Ripple	Max. 1 dB	Max. 1 dB	Max. 1 dB	Max. 0.5 dB
Insertion loss (insertion attenuation)	Max. 2 dB	Max. 3 dB	Max. 2 dB	Max. 5 dB
Guaranteed attenuation	Min. 60 dB at -910 kHz	Min. 70 dB at -910 kHz	Min. 60 dB at -910 kHz	Min. 70 dB at -910 kHz
Spurious characteristics	Min. 10 dB Within ±1 MHz	Min. 10 dB Within ±1 MHz	Min. 5 dB Within ±1 MHz	Min. 20 dB Within ±1 MHz
Terminating impedance	200 Ω // 4 pF	1000 Ω // 4 pF	650 Ω // 1.5 pF	200 Ω // 8 pF
Operating temperature range	-20 to +70 °C	-30 to +70 °C	-20 to +70 °C	-20 to +70 °C
Package type	NM7050SA			
Ordering code	45E7.5AB-45M-MN15-367	45E15A-45M-MN15-297	45E30AN-45M-MN15-369	90E9A-90M-MN15-226

### ■ Dimensions



# Crystal Filter



## ■ Characteristics

