KR 2388 Root Raised Cosine Filter

General Description

KR Electronics designs and manufactures filters that approximate the raised cosine response. These filters are available as both the cosine response and the root cosine response. Symbol rates to 75 MHz have been designed. They are also available with and without sin(x)/x compensation. Various roll off factors alpha (α) are also available. Typical values for α fall in the 0.3 to 0.5 range.

Features
- **Root raised cosine response**
- **Closely matches the ideal response**
- **Sin(x)/x available**
- **Equalized for linear phase**
- **Supplied in phase matched pairs**

KR's filters closely match the mathematical ideal response to the –12 dB frequency and are most often designed for linear phase to the –3 dB response. Phase matching in pairs is also commonly specified. KR 2388 is a root raised cosine filter without sin(x)/x compensation, Fs=2 MHz and α=0.35. The typical response of KR 2388 root raised cosine is shown in the plots below.

Typical Performance

Figure 1 shows the ideal response, while Figures 2-6 show actual measured data from a typical filter.

Ideal Response
(5 dB/div) 0.1 to 1.5 MHz

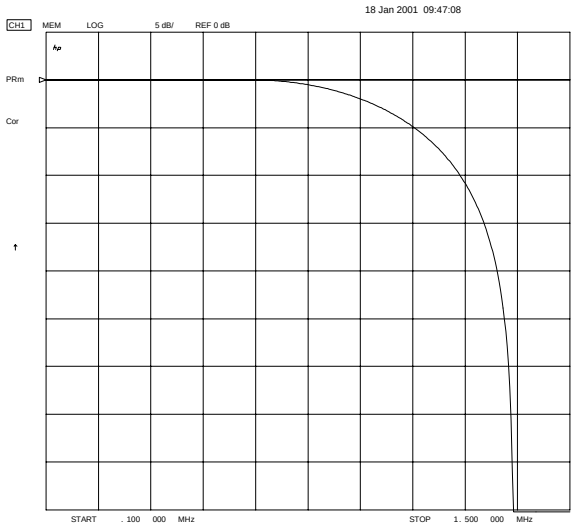


Figure 1

Actual Filter Response
(5 dB/div) 0.1 to 1.5 MHz

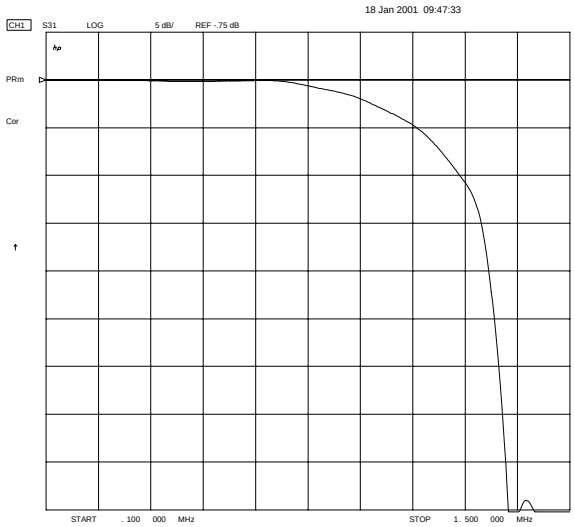


Figure 2

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Typical Performance *(cont.)*

Deviation From Ideal Response
(1 dB/div) .1 to 1.5 MHz

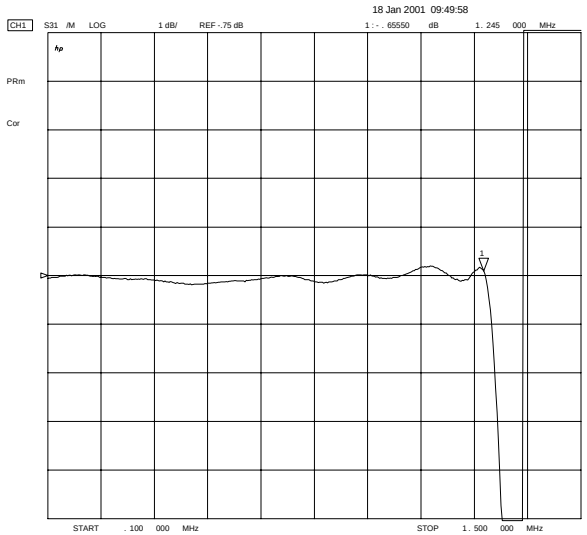


Figure 3

Overall Frequency Response
(10 dB/div) .1 to 10 MHz

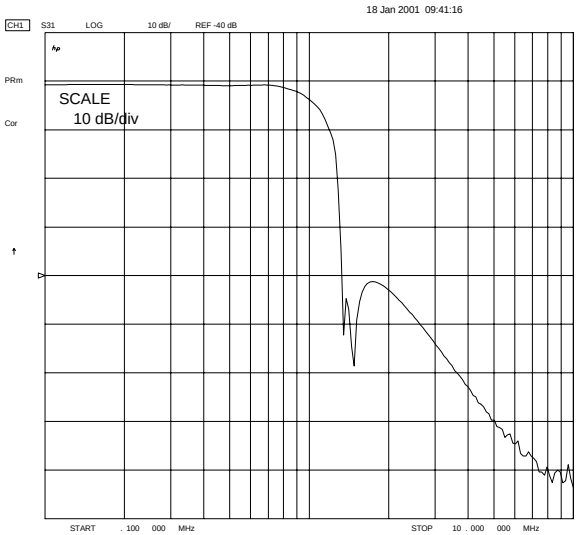


Figure 4

Deviation From Linear Phase
(2°/div) .1 to 1.5 MHz

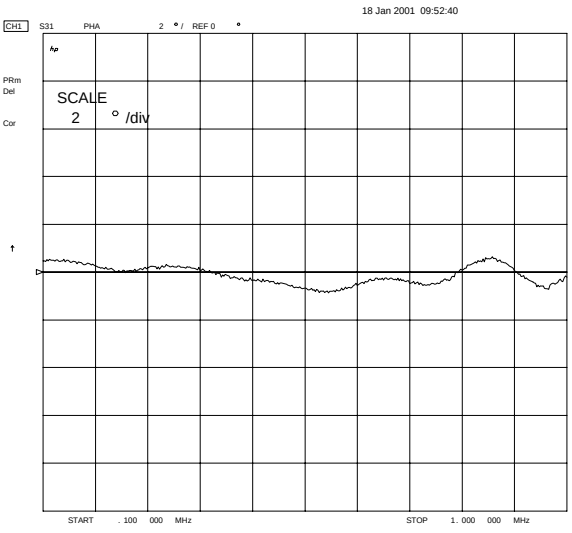


Figure 5

Phase Match Between Pairs
(2°/div) .1 to 1.5 MHz

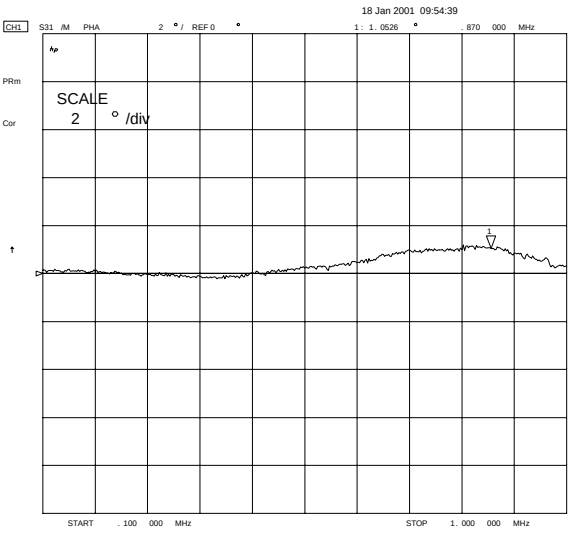


Figure 6

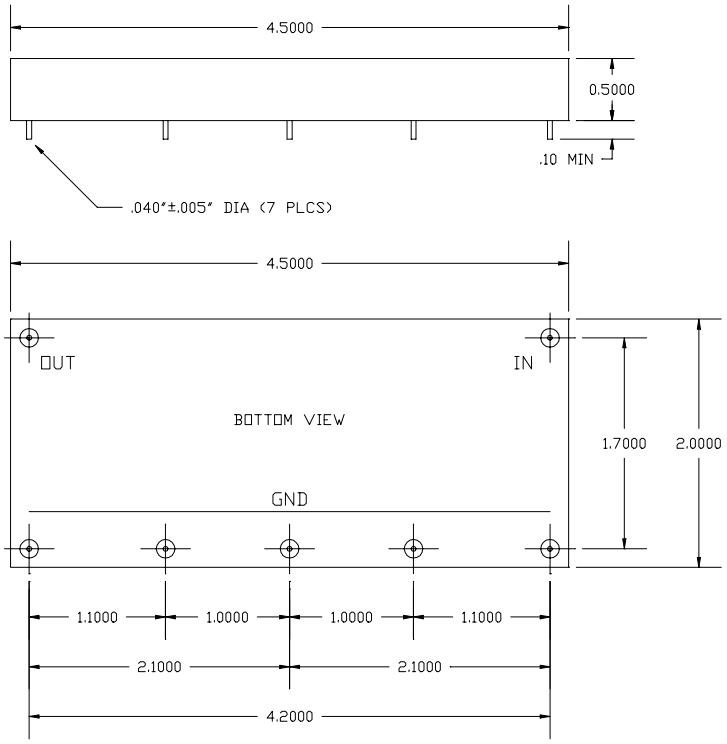
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Specifications

Parameter	Specification
Filter type	Root Raised Cosine
Rolloff factor (α)	0.35
Fs	2 MHz
Source and load impedance	50 Ω
Deviation from ideal	< ± 1 dB to the –12 dB frequency
Deviation from linear phase	<± 2.5° to the –3 dB frequency
Phase match in pairs	<± 2.5° to the –1 dB frequency

Physical Dimensions



NOTES:
1. TOLERANCE ±.010" UNLESS OTHERWISE SPECIFIED

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