

- **OC-192**
- **Z-matched**
- **Low Reflection**
- **Low-Pass Risetime Filter**



The PSPL model 5933 Flat Group Delay Low-Pass Filter is designed for OEM use in high-speed digital networks and telecom systems. The devices use a proprietary, absorptive filter design that has attenuation and time domain characteristics similar to those of the 4th order **Bessel-Thomson** filter. Traditional Bessel-Thomson designs filter by reflecting stop-band frequency signals and thus can cause increased bit error rates and eye diagram closure due to multiple reflections. By contrast, the PSPL filters filter by *absorption*. They have excellent impedance matches and very good return losses, both within and above the filter pass band. The Flat Group Delay style filter exhibits quasi-Gaussian insertion loss characteristics, with superior time domain performance.

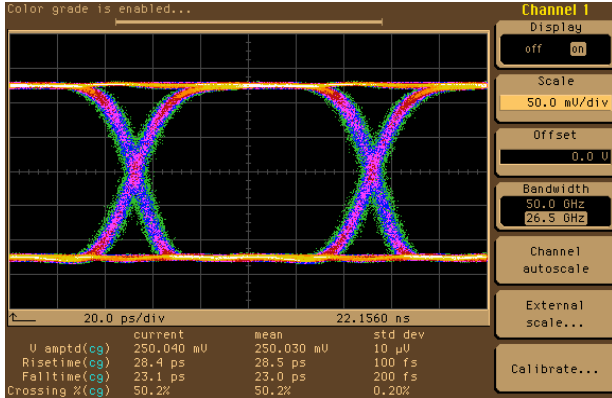
5933 Electrical Specifications

PARAMETER	SYMBOL	UNITS	MIN	TYPICAL	MAX	COMMENTS
Impedance	Z	Ohms		50		
Bandwidth (-3dB)	f _o	GHz		7.46		0.75*OC-192 Bit Rate
Bandwidth Tolerance		%			± 3	At 23 °C
Bandwidth Drift		MHz / °C		-2.1	-3.1	
Risetime	t _r	ps		47		10-90%
Insertion Loss	S ₂₁	dB				See S ₂₁ plot
Return Loss	S ₁₁	dB				See S ₁₁ plot
Return Loss	S ₂₂	dB				See S ₂₂ plot
Group Delay	Td	ps		253		See Group Delay plot
Group Delay Flatness	ΔTd	ps		±3	±4	See Group Delay plot
RF Power	P	dBm			29	Total spectral average
Operating Temperature	T	°C	-10		+70	At maximum power

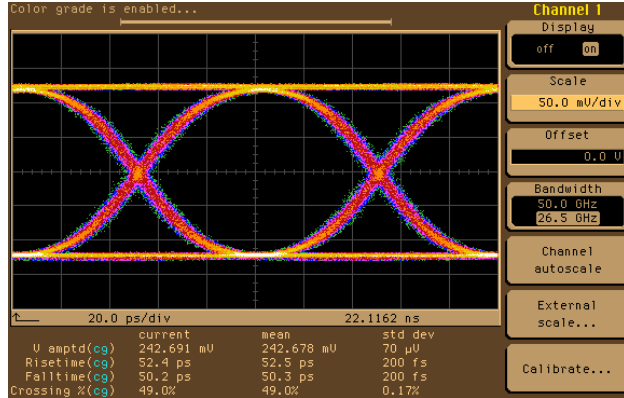
Ordering Information

Model Number	Connector Configuration*
5933-110-7.46GHZ	SMA Jack (f) — Plug (m)
5933-100-7.46GHZ	SMA Jack (f) — Jack (f)
5933-205-7.46GHZ	2.4mm Jack (f) — Plug (m)
5933-200-7.46GHZ	2.4mm Jack (f) — Jack (f)

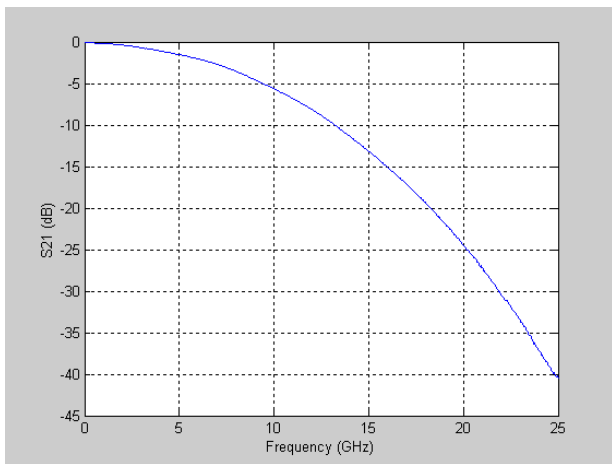
* Other connector combinations may be available on request.



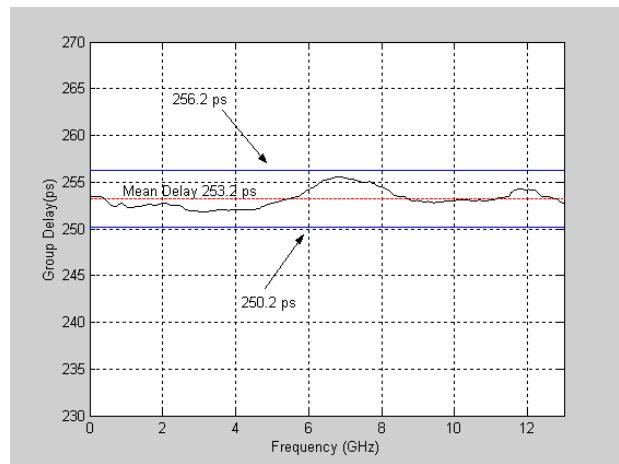
Input Eye Diagram, 10 Gbit/s Data Stream



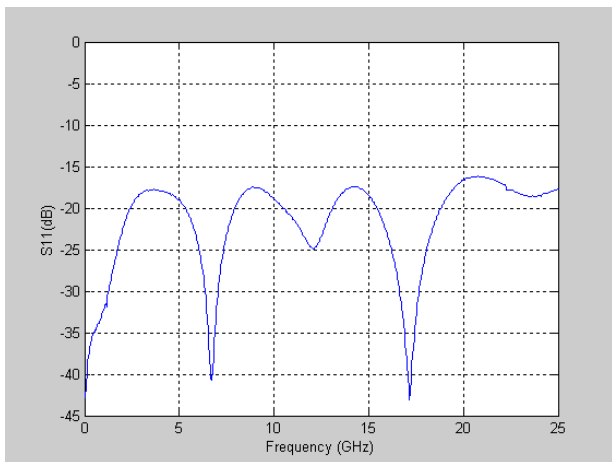
Filter Eye Diagram, 10 Gbit/s Datastream



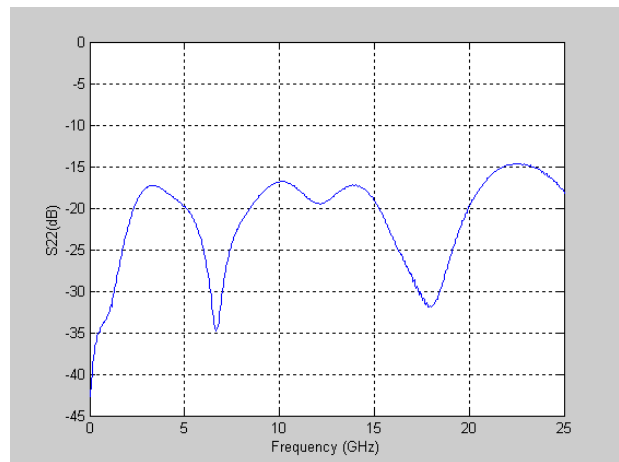
Insertion Loss, 0-25 GHz



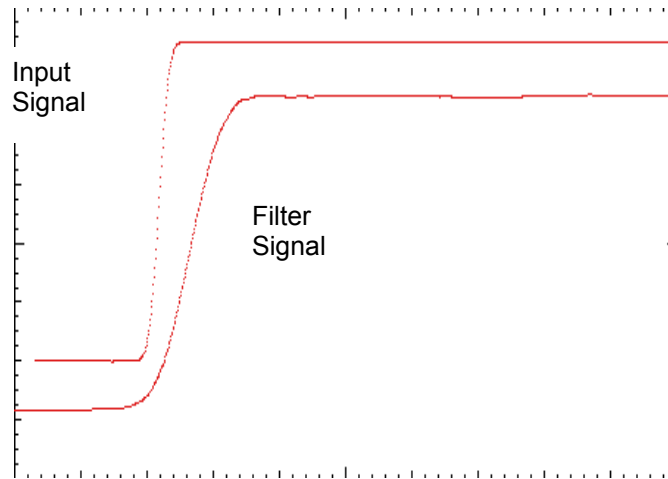
Group Delay, 0.1-13 GHz
Measured with Anritsu 37397C Vector Network Analyzer



Input Return Loss, 0-25 GHz



Output Return Loss, 0-25 GHz



TDT Response to 15 ps step. Timebase 50 ps/div.
 Measured with PSPL 4015C, 15 ps Pulse Generator
 & HP54750, 50 GHz Oscilloscope.
 See AN-5C for details.

5933 Mechanical Drawing

