MODEL 5933-7.46GHZ
10 GBIT FLAT GROUP DELAY FILTER

PRODUCT SPECIFICATION

- **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.

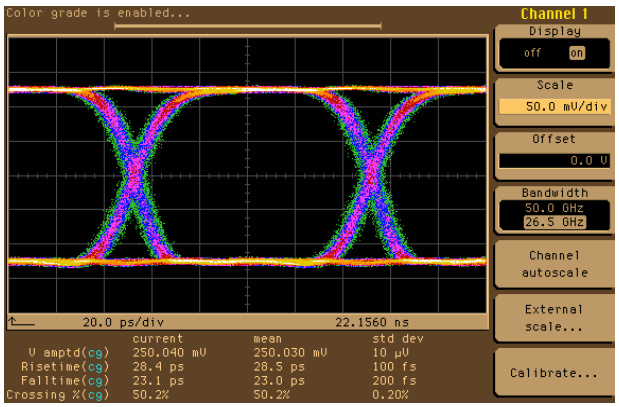
5933 Electrical Specifications

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

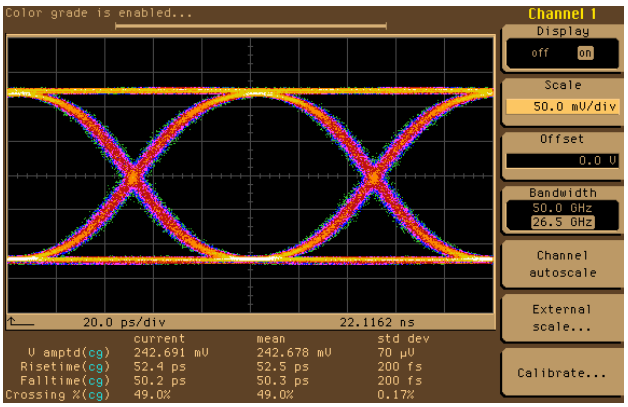
Ordering Information

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)

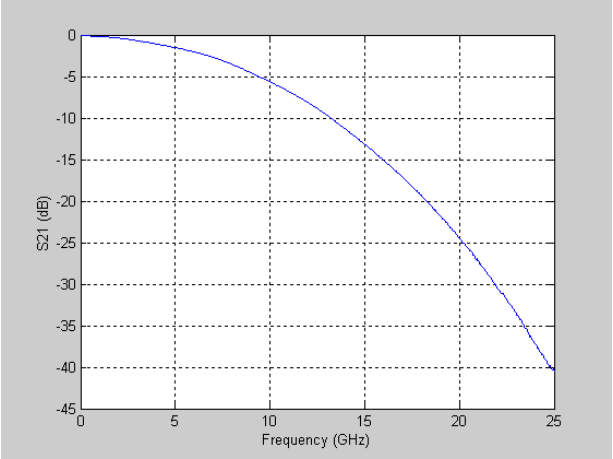
* Other connector combinations may be available on request.



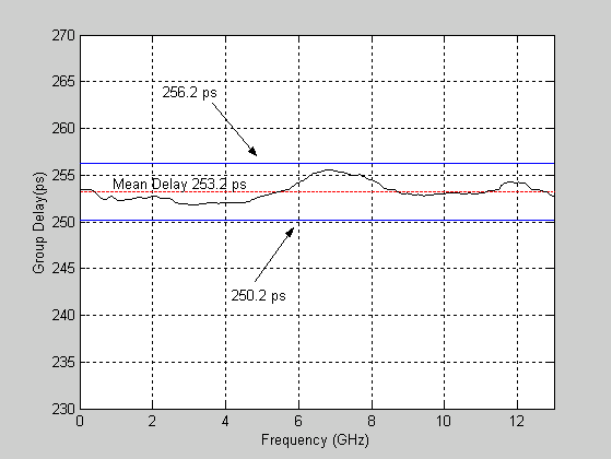
Input Eye Diagram, 10 Gbit/s Data Stream



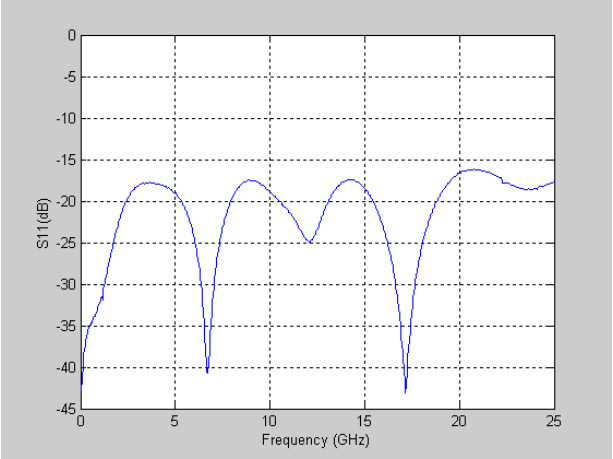
Filter Eye Diagram, 10 GBit/s Datastream



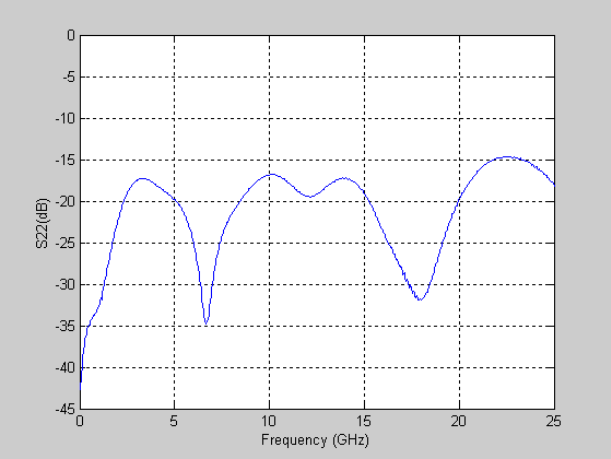
Insertion Loss, 0-25 GHz



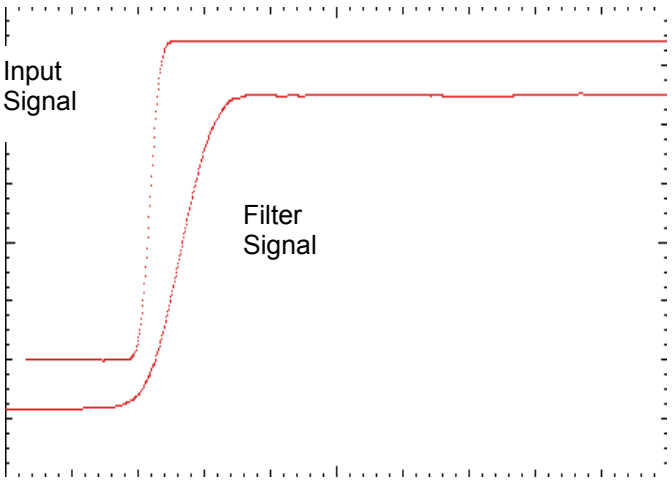
Group Delay, 0.1-13 GHz
Measured with Anritsu 37397C Vector Network Analyzer



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

