Integrated Solid State Variable Photonic Time Delay

(patent pending)

Product Description

The SSTD Series Photonic Time Delay selectively routes optic signal through N delay segments whose delay time increase successively by a power of 2. Since each switching element allows the signal to either connect or bypass a delay segment, a delay T may be inserted that can take any value, in increments of ΔT, up to the maximum value T. This is achieved using patent pending non-mechanical configurations and activated via an electrical control signal. Latching operation preserves the selected optical path after the drive signal has been removed. All solid-state configurations eliminates the need for mechanical movement and organic materials. The device is designed to meet the most demanding switching requirements of ultra-high reliability and fast response time.

Features

· 4-Bit Resolution or more
· High Speed
· Non-Mechanical
· High Reliability
· Fail-Safe Latching
· Low Insertion Loss
· Low Power Consumption

Applications

· Phase-Array Antennas
· Instrumentation

Performance Specifications

SSTD Series Photonic Delay Line	Min	Typical	Max	Unit
Wavelength band	1520	1550	1580	nm
	1280	1310	1340	nm
Insertion Loss[1]	2.5	2.8	3.5	dB
Cross Talk	22	28	35	dB
Switching Time(fall, rise)		50	200	$\square$S
Repetition Rate			1	KHz
Delay Time Range for 1ΔT	1		22	ps
Polarization Dependent Loss	0.15	0.35	0.45	dB
Polarization Mode Dispersion		0.1	0.2	ps
Return Loss	50	55	60	dB
Operating Temperature	0		60	^{o}C
Optical Power Handling		400		mW
Storage Temperature	-40		85	^{o}C
Fiber Type	Corning SMF-28			
Package Dimension				mm

•Agiltron can achieve same SPEC at L band

1. Excluding connectors.

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Electrical Driving Requirements

Parameter	Typical	Minimum	Maximum	Unit
Switch Voltage	2.5	2.3	2.8	V
Switch Current	140	120	160	mA
Pulse Duration	1	0.1	100	ms

Evaluation kit with TTL and RS232 interfaces and Windows™ GUI also available.

Prototype Picture

Ordering Information

SSTD-	Type	Wavelength	Configuration	Package	Fiber Type		Delay Range	Connector
	8 8	☐	1	1	1	☐	0	☐
		1310=3 1550=5 Special=0			SMF-28=1 Special=0	Bare fiber=1 900um loose tube=3 Special=0	Custom	None=1 FC/PC=2 FC/APC=3 SC/PC=4 SC/APC=5 ST/PC=6 LC=7 Special=0