

Key Features

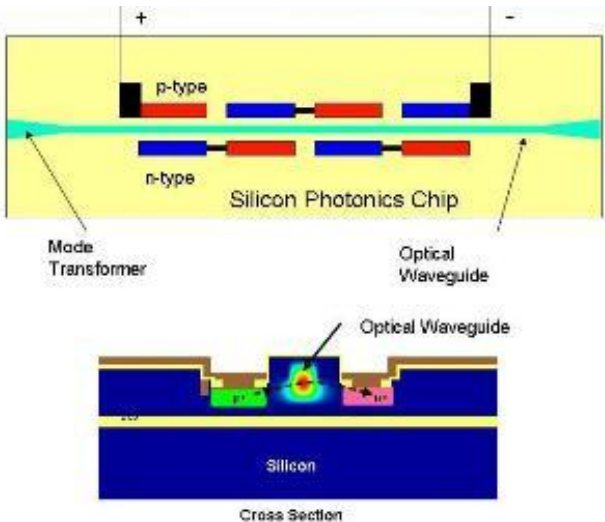
- High Speed < 1 μs
- Attenuation Range >25 dB
- Low PDL
- All solid-state design
- Compact package

Applications

- Channel power equalization
- Optical transient suppression
- Analog signal modulation
- Power control in WDM and configurable networks

Compliance

- Telcordia Qualification
- RoHS 6/6



Theory of Operation:

Kotura’s UltraVOA™ design uses a silicon photonics chip to provide reliable solid-state current-controlled optical attenuation enabling ultra-fast signal level control in optical networks. As shown in the diagram to the left, the VOA consists of a reliable silicon *p-i-n* structure built across a silicon optical waveguide. As current is applied through the diodes, the free carriers in the waveguide absorb photons, creating a current-controlled variable attenuation.

Because the physical effect is based on electronic control, the response time of the VOA is fast—on the order of 1 μs in typical situations. This VOA is well suited to the most demanding applications in metro and long-haul transmission applications. The high speed of these VOAs makes them particularly useful for optical transient suppression, blocking and analog signal modulation applications.

Optical and Electrical Specifications

This table describes the guaranteed optical and electrical parameters of the VOA, measured over the full operating range of the VOA, unless otherwise specified.

Specification		Units	Min	Typ	Max	Notes
Operating wavelength		nm	1525		1565	
Insertion Loss		dB		1.6	1.8	[1]
Attenuation		dB	25			[2]
Response time		μs		1.0	2.0	
PDL	0 - 10	dB		0.2	0.4	
	10 - 25	dB			0.5	
Attenuation variation with wavelength		dB/nm			0.06	[3]
Optical return loss		dB	40			
PMD		ps		0.05	0.1	
Chromatic dispersion		ps/nm	-0.05		0.05	
Optical input power		dBm			17	
Attenuation variation with temperature		dB/°C			0.15	
Operating current range		mA	0		65	
Current at 25 dB attenuation		mA		55	65	
Forward voltage		V			5.0	

Table 1 – Electrical and Optical Specifications

Table 1 Notes:

1. Without connectors. Connectors add typically 0.2 dB to the insertion loss.
2. Attenuation values are referred to optical loss at 0mA.
3. Average slope over full wavelength range at 25 dB attenuation. Value scales linearly with attenuation.

Operating Conditions

This table describes the environmental operating conditions under which the device is guaranteed to meet the operating specifications listed in Table 1.

Specification	Units	Min	Typ	Max	Notes
Case temperature	°C	0		75	
Storage temperature	°C	-40		85	
Environmental operating RH	%			85	

Table 2 – Environmental Specifications

Maximum Ratings

This table describes the maximum optical and electrical values that can be applied to the module for short periods of time without incurring irreversible damage.

Specification	Units	Min	Typ	Max	Notes
Optical input power	dBm			20	
Electrical power dissipation	mW			500	
Current	mA			100	
Reverse bias voltage	V			20	
Soldering temperature	°C			240	
Soldering time	sec			5	

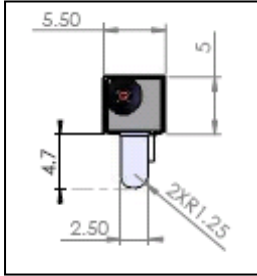
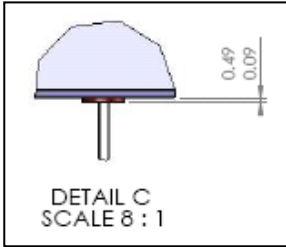
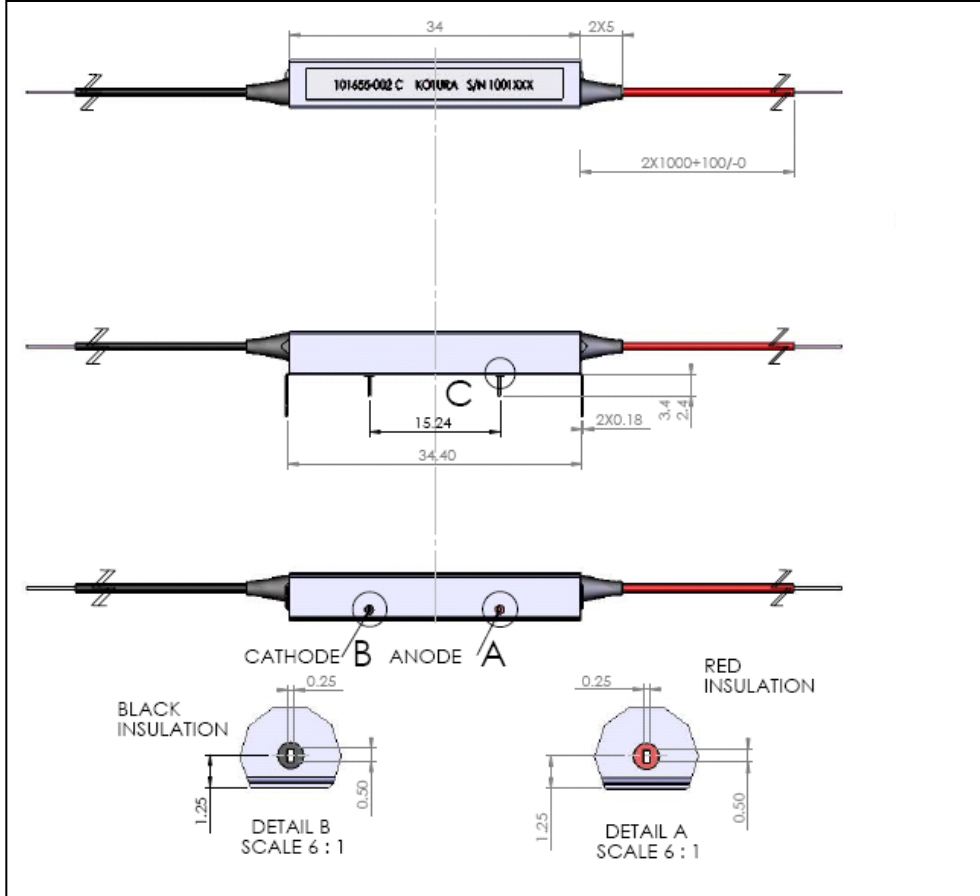
Table 3 – Maximum Ratings

Physical Parameters

Specification	Units	Values	Notes
Dimensions	mm	34(L)x 5.5(W)x 5.0 (H)	
Weight	grams	5	
Optical Fiber		SMF-28E	
Standard optical connector option		LC-UPC	

Table 4 – Physical Parameters

Package Drawing



Ordering Information

For more information on this or other products and their availability, please contact Kotura directly at (626) 236-4582 or via e-mail at sales@kotura.com.

Visit Kotura on the Web at www.kotura.com

Kotura, Inc.
2630 Corporate Place
Monterey Park, CA 91754
Tel: (626) 236-4500
Fax: (626) 236-4513