

# 2.5 Gbps Multi-Mode VCSEL T056

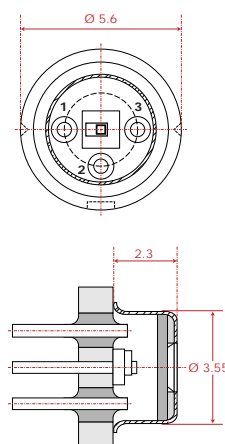
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## Features

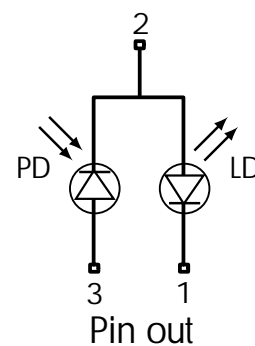
- Single VCSEL chip
- 850nm wavelength range
- Low threshold current
- Data rates up to 3.5 Gbps
- Back monitor photo diode



## TO-56 window package dimension



## Electrical connections



## Ordering information

Part Number APA7201011500

# 2.5 Gbps Multi-Mode VCSEL T056

## Electro-optical characteristics

Parameter*	Symbol	Conditions	Ratings			Units
			Min	Typ	Max	
<b>VCSEL</b>						
Threshold current	$I_{th}$		1.0	1.8	2.5	mA
Optical output power	$P_{out}$	$I_{op} = 6 \text{ mA}$		0.7		mW
Operating voltage	$V_{op}$	$I_{op} = 6 \text{ mA}$		1.9		V
Emission wavelength	$\lambda$	$I_{op} = 6 \text{ mA}$	840	850	860	nm
Spectral bandwidth, RMS	$\Delta\lambda$	$I_{op} = 6 \text{ mA}$			0.85	nm
Slope efficiency	$\eta$	$I_{op} = 6 \text{ mA}$	0.1	0.17	0.25	mW/mA
Beam divergence	$\theta$	Full width, $1/e^2$ , $I_{op} = 6 \text{ mA}$		27		°
Diferential resistance	$R_{Diff}$	$I_{op} = 6 \text{ mA}$	25	45	50	$\Omega$
bandwidth	$f_{3dB}$	$I_{op} = 6 \text{ mA}$	3.5	5		GHz
Relative intensitiy noise	$RIN_{12}$ (OMA)	$I_{op} = 6 \text{ mA}$ , 1GHz			-122	dB/Hz
<b>Back Monitor Photo Diode</b>						
Dark current	$I_{d_{pd}}$	Bias = 3 V		1	30	nA
Capacitance	$C_{pd}$	Bias = 3 V		6		pF
Reverse breakdown voltage	$BVR_{pd}$		30			V
Monitor current	$I_{pd}$	$P_{out} = 0.5 \text{ mW}$	70	200	400	$\mu\text{A}$

## Thermal characteristics

Parameter	Symbol	Ratings			Units
		Min	Typ	Max	
Temperature tuning coefficient	$\delta\lambda/\delta T$		0.06		nm/K
Threshold current variation 0 – 70°C	$\Delta I_{th}$		0.8		mA

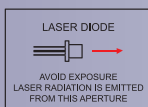
## Absolute maximum ratings

Parameter*	Rating	Units
Optical output power	3.5	mW
Peak forward current	10	mA
VCSEL reverse voltage	5	V
PIN Photodiode reverse voltage	10	V
PIN Photodiode forward current	10	mA
Operating temperature	0 to +85	°C
Storage temperature	-40 to +100	°C
Lead solder temperatur (for 10 sec.)	260	°C

\*(T=25°C unless otherwise noted)

**AVALON**  
PHOTONICS

The above specifications are subject to change without notice



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