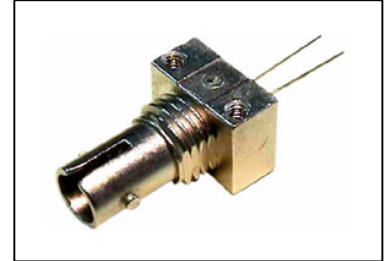


TTR-1A23

Connectorized High-speed VCSEL

FEATURES:

- Industry standard connector of metallic ST*-type receptacle.
- Pre-aligned for multi-mode fiber communication.
- High stability to temperature variation.
- Solution of 10/100/622/1250 Mbps applications.
- LED transmitter alternative.



ELECTRO-OPTICAL CHARACTERISTICS:

PARAMETERS	SYMBOL	MIN	TYP	MAX	UNIT	TEST CONDITIONS ⁽¹⁾
Threshold Current	I_{th}		3	6	mA	
Fiber Coupled Power (50/125, 62.5/125 μ m MMF) ⁽²⁾	P_o	-4 -9.5 -17		2 -4 -12	dBm	$I_F=12$ mA ⁽³⁾
Slope Efficiency	η		0.1		mW/mA	$I_F=12$ mA ⁽⁴⁾
Wavelength	λ_p	830	850	860	nm	$I_F=12$ mA
Spectral Width (RMS)	$\Delta\lambda$			0.85	nm	$I_F=12$ mA
Transverse Mode Number		2	3	4		$I_F=12$ mA
Forward Voltage	V_F	1.7	1.9	2.3	V	$I_F=12$ mA
Breakdown voltage	V_{BD}	10	15		V	$I_R=10$ μ A
Rise/Fall Time (20%~80%)	T_R/T_F		130/200		ps	$T_A=25^\circ\text{C}$, Extinction Ratio > 10dB

Notes:

1. All parameters except mentioned are measured at $I_F=12$ mA, 25°C , CW.
2. TTR-1A22 is product type specified for 50/125 μ m MMF, and TTR-1A23 is product type specified for 62.5/125 μ m MMF.
3. Specific power range can be provided under request.
4. Slope efficiency is defined as $\Delta P/(12-I_{th})$ at 25°C .

THERMAL CHARACTERISTICS:

PARAMETERS	SYMBOL	MIN	TYP	MAX	UNIT	TEST CONDITIONS
Thermal Resistance	R_{th}		900		$^\circ\text{C}/\text{W}$	$T_A=25^\circ\text{C}$
I_{th} Temperature Variation	ΔI_{th}	-1		1	mA	$T_A=0\sim 70^\circ\text{C}$
V_F Temperature Coefficient	$\Delta V_F/\Delta T$	-3.5	-2.5		mV/ $^\circ\text{C}$	$T_A=0\sim 70^\circ\text{C}$, $I_F=12$ mA
η Temperature Coefficient	$\Delta \eta/\Delta T$		-0.15		%/ $^\circ\text{C}$	$T_A=0\sim 70^\circ\text{C}$, $I_F=12$ mA
λ_p Temperature Coefficient	$\Delta \lambda_p/\Delta T$		0.06		nm/ $^\circ\text{C}$	$T_A=0\sim 70^\circ\text{C}$, $I_F=12$ mA

ABSOLUTE MAXIMUM RATINGS:

PARAMETERS	MIN	MAX	UNIT	CONDITIONS
Storage Temperature	-40	100	$^\circ\text{C}$	
Operating Temperature	-20	85	$^\circ\text{C}$	
Lead Solder Temperature		260	$^\circ\text{C}$	10 seconds
Continuous Forward Current		40	mA	
Continuous Reverse Voltage		10	V	

* ST is a registered trademark of AT&T.

Fig. 1 Typical Optical Characteristics

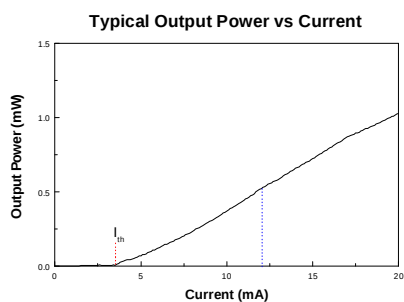


Fig. 2 Typical Electrical Characteristics

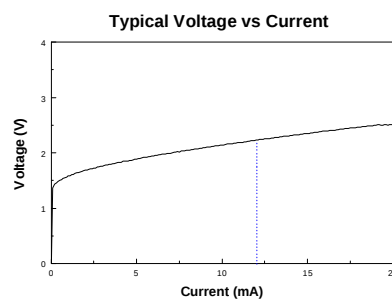
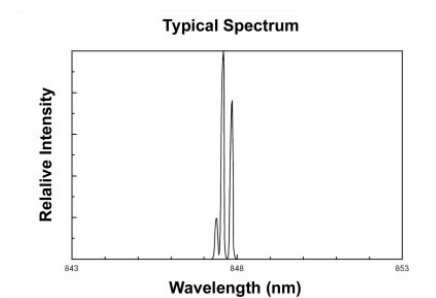
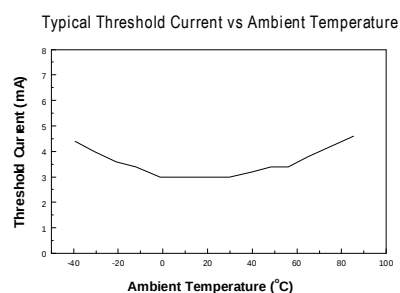


Fig. 3 Spectrum When Driving Current 12 mA



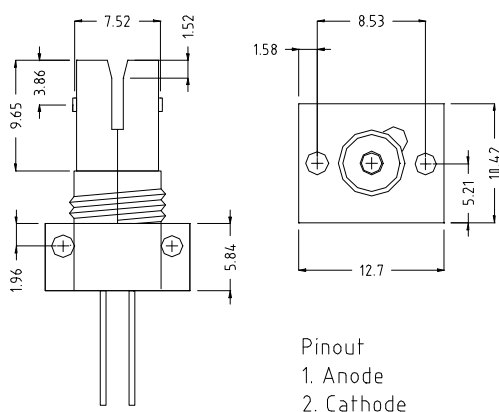
3 transverse modes typically.

Fig. 4 Temperature Dependence of Threshold Current



OUTLINE DIMENSIONS:

- Unit: mm



WARNING:

The VCSEL is a class IIIb laser in the safety standard ANSI Z136.1 and should be treated as a potential eye hazard.

