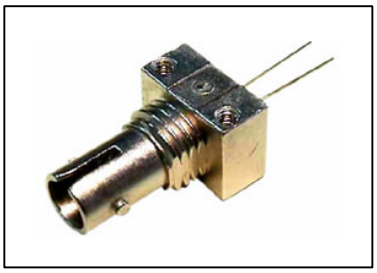
TTR-1A23

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 μm 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)	Δλ			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 μA
Rise/Fall Time (20%~80%)	T_R/T_F		130/200		ps	T_A=25°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 50/125μm MMF, and TTR-1A23 is product type specified for 62.5/125μm 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		°C /W	T_A=25°C
I_{th} Temperature Variation	ΔI_{th}	-1		1	mA	T_A=0~70°C
V_F Temperature Coefficient	$\Delta V_F/\Delta T$	-3.5	-2.5		mV/°C	T_A=0~70°C, I_F=12 mA
η Temperature Coefficient	$\Delta\eta/\Delta T$		-0.15		%/°C	T_A=0~70°C, I_F=12 mA
λ_P Temperature Coefficient	$\Delta\lambda_P/\Delta T$		0.06		nm/°C	T_A=0~70°C, I_F=12 mA

ABSOLUTE MAXIMUM RATINGS:

PARAMETERS	MIN	MAX	UNIT	CONDITIONS
Storage Temperature	-40	100	°C	
Operating Temperature	-20	85	°C	
Lead Solder Temperature		260	°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

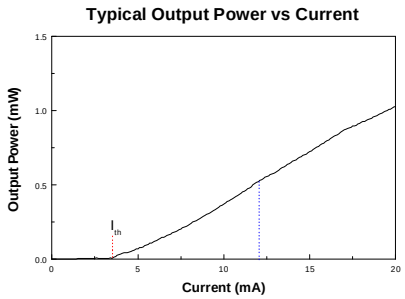


Fig. 2 Typical Electrical Characteristics

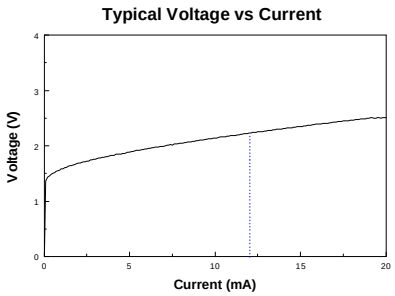
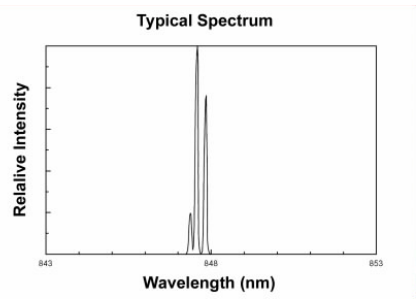
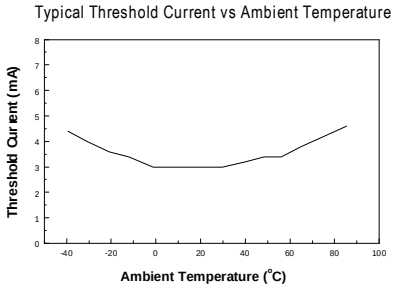


Fig. 3 Spectrum When Driving Current 12 mA



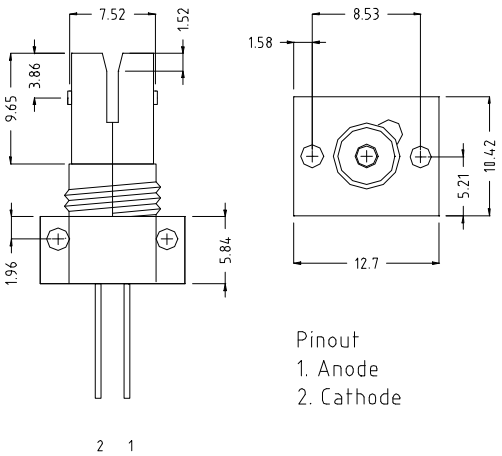
3 transverse modes typically.

Fig. 4 Temperature Dependence of Threshold Current



OUTLINE DIMENSIONS:

• Unit: mm



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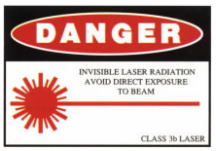
The VCSEL is a class IIIb laser in the safety standard ANSI Z136.1 and should be treated as a potential eye hazard.