JDSU S26-7402-190 低功率 980nm 泵浦激光器 190mW 250mW

Key Features

- **Operating power range from 100 – 460 mW**
- **Reduced TEC power consumption compatible with legacy temperature control**
- **Low-profile, 14-PIN butterfly package**
- **Fiber Bragg grating stabilization**
- **Wavelength selection available**
- **Integrated thermoelectric cooler, thermistor, and monitor diode**
- **High dynamic range**
- **Excellent low-power stability**

Applications

- Dense wavelength division multiplexing (DWDM) EDFAs for small package designs
- High bit-rate, high channel-count EDFAs
- CATV distribution

Compliance

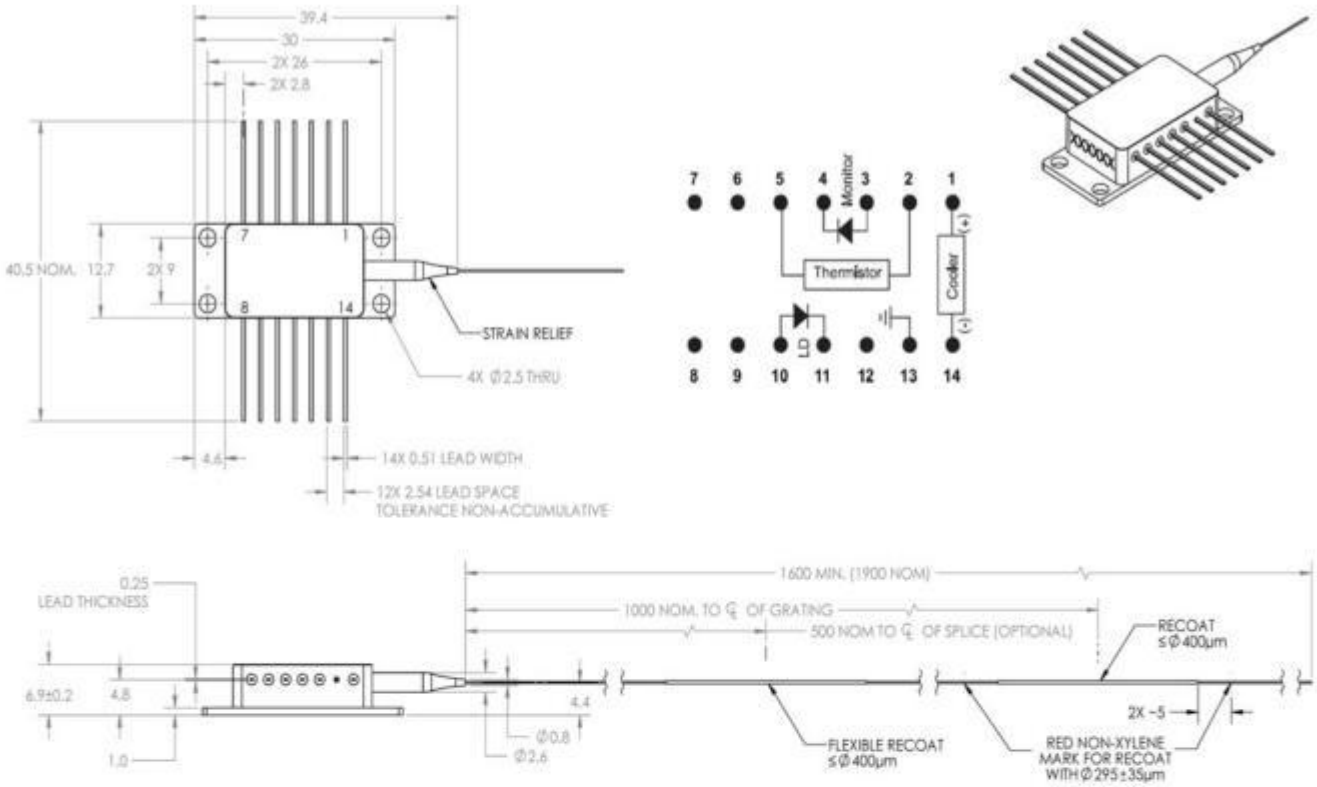
- Telcordia GR-468-CORE

The JDSU S27 Series of 980 nm pump laser modules uses a number of revolutionary design steps and the very latest material technologies to significantly improve scalability of the production process. The semicooled 45°C laser diode operation provides for a significant reduction in TEC and overall power consumption. The module meets the stringent requirements of the telecommunications industry including Telcordia GR-468-CORE for hermetic 980 nm pump modules.

The S27 Series pump module, which uses Fiber Bragg grating stabilization to lock the emission wavelength, provides a noise-free, narrowband spectrum even under changes in temperature, drive current, and optical feedback. Wavelength selection is available for applications requiring the highest performance in spectrum control with the highest power available.

Dimensions Diagram

(Note: Specifications in mm unless otherwise noted; tolerance = x. ± 0.3, x.x ± 0.25)



Pinout

Pin	Description
1	Cooler (+)
2	Thermistor
3	Monitor PD anode
4	Monitor PD cathode
5	Thermistor
6	N/C

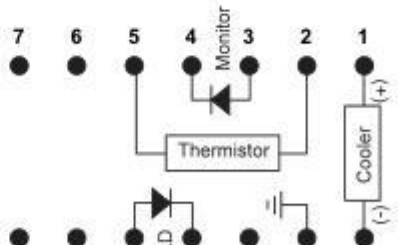


Table 1: Absolute Maximum Ratings

Parameter	Symbol	Test Conditions	Minimum	Maximum
Operating case temperature	T_{op}	-	-5°C	75°C
Storage temperature	T_{stg}	2000 hours	-40°C	85°C
Laser operating temperature	T_{LD}	-	-5°C	50°C
LD reverse voltage	V_r	-	-	2.5 V
LD forward current	If_max	48 hours maximum	-	1200 mA
LD reverse current		-	-	10 µA
PD reverse voltage	V_{PD}	-	-	20 V
PD forward current	I_{PF}	-	-	10 mA
LD electrostatic discharge (ESD)	$V_{ESD\ LD}$	C = 100 pF, R = 1.5 kΩ, human body model	-	1000 V
	$V_{ESD\ PD}$	C = 100 pF, R = 1.5 kΩ, human body model	-	700 V
TEC current	I_{TEC}	-	-0.75 A	1.5 A
TEC voltage	V_{TEC}	-	-	2.5 V
Axial pull force		3 x 10 seconds	-	5 N
Side pull force		3 x 10 seconds	-	2.5 N
Fiber bend radius		-	16 mm	-
Relative humidity	RH	Non-condensing	5%	95%
Lead soldering time		300°C	-	10 seconds

Note: Absolute maximum ratings are the maximum stresses that may be applied to the module for short periods of time without causing damage and are listed in Table 5. Stresses in excess of the absolute maximum ratings can cause permanent damage to the device. Exposure to absolute maximum ratings for extended periods of time or exposure to more than one absolute maximum rating simultaneously may adversely affect device reliability. Specifications may not necessarily be met under these conditions.

Table 2: Operating Parameters (BOL, T_{case} = -5 to 75°C, -50 dB reflection, unless otherwise noted.)

Product Code	Maximum Operating Power P_{op} (mW)	Maximum Operating Current I_{op} (mA)	Minimum Kink-Free Power P_{max} (mW)	Kink-Free Current I_{max} (mA) Maximum
S27-xx02-100	100	250	110	270
S27-xx02-120	120	290	130	310
S27-xx02-140	140	335	155	365
S27-xx02-160	160	375	175	410
S27-xx02-180	180	420	200	465
S27-xx02-200	200	465	220	510
S27-xx02-220	220	510	240	555
S27-xx02-240	240	555	265	610

Table 3: Available Peak Wavelength Selection

Product Code	Minimum Center Wavelength	Maximum Center Wavelength
S27-7402-xxx	973.5 nm	975.0 nm
S27-7602-xxx	975.0 nm	977.0 nm

Table 4: Electro-optical Performance (BOL, T_{case} = -5 to 75°C, Pr range = 20 mW to P_{max}, -50 dB reflection, unless otherwise noted.)

Parameter	Symbol	Test Condition	Minimum	Maximum
Threshold current	$I_{th\text{-}BOL}$		-	42 mA
Forward voltage	V_f	$I_f = I_{op}$	-	2.5 V
Fiber output power range	P_f		20 mW	P_{op}
Pump power in band	P_{pump}	P_{pump} Band = λc±1.5 nm, at P_{op}	90%	-
Spectral width	$\Delta\lambda_{RMS}$	50 mW < P < P_{op}	-	2.0 nm
Wavelength tuning vs. temperature	$\Delta\lambda/T$	$I = I_{op}$	-	0.01 nm/°C
Optical power stability	ΔP_{f_1}	Over P_f range, DC to -50 kHz	-	-
		12 mW < P_{op} < 20 mW	-	4%
		20 mW to P_{op}	-	1.6%
Tracking ratio	TR	0.1P_{op} < P < P_{op}	0.75	1.25
Tracking error	TE	At P_{op}	-25%	25%
Monitor diode responsivity	I_{BF}	At P_{op}	1 µA/mW	5 µA/mW
Thermistor resistance	R_{th}	T_{set} = 45°C	9.5 kΩ	10.5 kΩ
		T_{set} = 25°C	21.7 kΩ	24.0 kΩ
Thermistor constant	B		3600 K	4200 K

1. The tracking error is defined as the normalized change of output power relative to the operating power over case temperature range (0°C to 75°C), at constant back-face monitor current corresponding to the operating power at 45°C.
2. The tracking ratio is a measure of the front-to-back tracking when the output power is varied. On a plot of optical power versus back-face photocurrent, a straight line is drawn between the minimum power (20 mW) and the operating power (P_{op}) points. The tracking ratio is defined as the ratio between measured optical power (shown as data points on the plot) to the value derived from the straight line.

Ordering Information

For more information on this or other products and their availability, please contact your local JDSU account manager or JDSU directly at 1-800-498-JDSU (5378) in North America and +800-5378-JDSU worldwide or via e-mail at customer.service@jdsu.com.

Sample: S27-7402-300

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Code	Peak Wavelength
7402	973.5 to 975.0 nm
7602	975.0 to 977.0 nm

Code	Maximum Operating Power
100	100 mW
120	120 mW
140	140 mW
160	160 mW
180	180 mW
200	200 mW
220	220 mW
240	240 mW
260	260 mW
280	280 mW
300	300 mW
320	320 mW
340	340 mW
360	360 mW
380	380 mW
400	400 mW
420	420 mW
440	440 mW
460	460 mW