Advance Data Sheet
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microelectronics group

Lucent Technologies
Bell Labs Innovations

C48-Type 2.5 Gbits/s Cooled Laser Transmitters

Offering multiple output power options and SONET/SDH compatibility, the C48-Type Cooled Laser Transmitters are manufactured in a 24-pin plastic DIP with a single-mode fiber pigtail.

Features

- Data rates to 2.5 Gbits/s
- SONET and ITU-T compliant at OC-48 and STM-16
- Cooled, InGaAsP MQW-DFB laser
- Wavelength range, 1528.77 nm—1563.86 nm
- User-selectable wavelengths
- Clocked or nonclocked operation with single-ended or differential inputs
- 50 Ω ac-coupled PECL compatible data and clock inputs
- Operation from 3.3 V and 5 V power supplies
- Low-profile, 24-pin package
- Automatic optical power control
- Wide operating case temperature range, –15 °C to +70 °C
- Laser bias monitor alarm
- Laser back-facet monitor output
- Transmitter-enable input
- FC/PC or SC connectors

Applications

- Telecommunications:
  - — SONET/SDH SR/IR/LR
  - — Subscriber loop
  - — Metropolitan area networks
- High-speed data communications

Description

The C48-Type 2.5 Gbits/s Laser Transmitters are designed for use in transmission systems and high-speed data communication applications. The transmitter operates at the SONET OC-48 rate, as well as the ITU-T SDH rate of STM-16. The device supports two wavelengths. The second wavelength is selectable via pin 10.

The transmitters meet all present *Telcordia Technologies** GR-253-CORE requirements and the ITU-T G.957 and G.958 recommendations. They are also ideally suited for extended-distance data and networking applications.

Manufactured in a 24-pin DIP, the transmitter incorporates a hermetic MQW isolated 1550 nm DFB laser (D2526 versions), an InGaAs PIN photodiode back-facet monitor, and a GaAs laser driver IC. The unit uses two power supplies. The laser transmitter requires 5 V and the TE cooler requires 3.3 V. The clock may be enabled for those applications where jitter is critical.

Pin information is listed in Table 1.

* *Telcordia Technologies* is a trademark of Bell Communications Research, Inc.

Transmitter Processing

The transmitter can withstand normal wave soldering processes. The complete transmitter module is not hermetically sealed; therefore, it should not be immersed in, or sprayed with, any cleaning solution or solvents. The process cap and fiber pigtail jacket can deform at temperatures greater than 85 °C. The transmitter pins can be wave-soldered at a maximum temperature of 250 °C for 10 seconds.

Installation Considerations

Although the transmitter has been designed with ruggedness in mind, care should be used during handling. The optical connector should be kept free from dust, and the process cap should be kept in place as a dust cover when the device is not connected to a cable. If contamination is present on the optical connector, the use of canned air with an extension tube should remove any debris. Other cleaning procedures are identified in the *Cleaning Fiber-Optic Assemblies* Technical Note (TN95-010LWP).

Connector Options

The standard fiber-optic pigtail is an 8 µm core single-mode fiber in a 0.036 in. (914 µm) diameter, tight-buffered outer jacket. The standard length is 39 in. ± 4 in. (1 m ± 10 cm) and is terminated with an FC/PC or SC optical connector. Other connector options may be available on special order. Please contact your Lucent Technologies Account Manager for ordering information.

Table 1. Pin Descriptions

Pin Number	Name
1	Ground (TEC)
2	Back-facet Monitor*
3	Bias Monitor/Laser Degrade Alarm*
4	Tx Enable
5	Clock Select
6	Ground
7	Wavelength-Deviation Error Alarm
8	NUC †
9	NUC†
10	Wavelength Selection Command‡
11	Ground
12	V_{EE}
13	V_{CC}
14	V_{TEC} (TEC supply voltage)
15	Ground
16	DATA
17	Ground
18	$\overline{\text{DATA}}$
19	Ground
20	CLOCK
21	Ground
22	$\overline{\text{CLOCK}}$
23	Ground
24	V_{CC}

* Laser back-facet and bias alarm functions are customer-use options that are not required for normal operations of the transmitter and are normally used during manufacture and for diagnostics. The output bias monitor output will optionally be either a logic signal (LDA) or an analog voltage. (See Table 2.)

† Pins designated no user connection (NUC) must **not** be tied to ground or any other circuit potential.

‡ When logic 0, the nominal channel wavelength is selected; when logic 1, the n – 1 channel wavelength is selected.

Absolute Maximum Ratings

Stresses in excess of the absolute maximum ratings can cause permanent damage to the device. These are absolute stress ratings only. Functional operation of the device is not implied at these or any other conditions in excess of those given in the operations sections of the data sheet. Exposure to absolute maximum ratings for extended periods can adversely affect device reliability.

Parameter	Symbol	Min	Max	Unit
Supply Voltage	—	—	5.25	V
Operating Case Temperature Range	T_C	–15	70	°C
Storage Case Temperature Range	T_{stg}	–40	85	°C
Lead Soldering Temperature/Time	—	—	250/10	°C/s
Relative Humidity (noncondensing)	RH	—	85	%
Minimum Fiber-bend Radius	—	1.00 (25.4)	—	in. (mm)
TEC Voltage	V_{TEC}	—	3.5	V

Characteristics (Min. and max. values specified over operating case temperature range at 50% duty cycle data signal. Typical values are measured at room temperature unless otherwise noted.)

Table 2. Electrical Characteristics

Parameter	Symbol	Min	Typ	Max	Unit
dc Power Supply Voltage	V_{CC}	4.75	5.0	5.25	V
dc Power Supply Current: C482, C484 C486	 I_{CC} I_{CC}	 — —	 350 —	 400 450	 mA mA
Power Dissipation	P_{DIS}	—	4.5	5.2	W
Input Data/Clock Voltage:[1, 2] Single-ended Input Differential Input	 V_{IN} V_{IN}	 250 125	 900 450	 1300 650	 mVp-p mVp-p
Nonclocked/Clocked Select Voltage:[3, 4] Clocked Operation Nonclocked Operation	 V_{SEL_CLK} V_{DIS_CLK}	 0.0 2.0	 — —	 0.8 V_{CC}	 V V
Input Impedance	R_{IN}	—	50	—	Ω
Transmitter Enable Voltage (TTL) V_{IL}	V_{EN}	0.0	—	0.8	V
Transmitter Disable Voltage (TTL) V_{IH}	V_{DIS}	2.0	—	V_{CC}	V
Wavelength Selection Voltage (TTL) V_{IL}	$V_{\lambda N}$	0.0	—	0.8	V
Wavelength Selection Voltage (TTL) V_{IH}	$V_{\lambda N-1}$	2.0	,	V_{CC}	V
λ Deviation Alarm: Levels (CMOS) V_{OL} Levels (CMOS) V_{OH} Setting (active-high)[5]	 $V_{NO\text{-}\lambda ALARM}$ $V_{\lambda ALARM}$ λ_{ALARM}	 0 4.5 –100	 — — —	 0.3 V_{CC} 100	 V V pm
Laser Degrade Alarm: Levels (CMOS) V_{OH} Levels (CMOS) V_{OL} Setting (active-low)	 $V_{NO\text{-}ALARM}$ V_{ALARM} LD_{ALARM}	 4.5 0 —	 — — —	 V_{CC} 0.3 55	 V V mA
Laser Bias Monitor Voltage	V_{LBM}	—	20	—	mV/mA
Laser Back-facet Monitor Voltage (50% duty cycle)[6]	V_{BF}	—	500	—	mV/mW
Clock Duty Cycle	C_{DC}	40	50	60	%
TEC Current	I_{TEC}	—	0.6	1.2	A
TEC Voltage	V_{TEC}	3.0	3.3	3.5	V
Return Loss: [7, 8] Input Data Input Clock	 RL_{DATA} RL_{CLK}	 –10 –12	 — —	 — —	 dB dB

1. Inputs are ac-coupled into an equivalent input impedance of 50 Ω.
2. Single-ended or differential operation may used. If the inputs are driven single-ended, the unused inputs must be terminated in 50 Ω.
3. Clocked operation is optional. For clocked operation, pin 5 must be a logic 1. With clocked operation, the optical output changes state with the rising edge of the input clock signal.
4. If left unselected, clocked operation will be selected.
5. Deviation due to temperature variation detected by the thermistor.
6. This voltage is measured from pin 2 to GND.
7. Frequency range: 100 kHz—2 GHz.
8. At frequency of 2.5 GHz.

Characteristics (continued)

Table 3. Optical Characteristics

Parameter	Symbol	Min	Typ	Max	Unit
Average Optical Power Output:[1] C482, C484	 $P_{AVG\ BOL}$ $P_{AVG\ EOL}$	 0 –2.0	 — —	 2.0 2.0	 dBm dBm
Average Optical Power Output:[1] C486	 $P_{AVG\ BOL}$ $P_{AVG\ EOL}$	 6.0 4.0	 — —	 8.0 8.0	 dBm dBm
Output Power Variation (over temperature and wavelength)	ΔP	–0.5	—	0.5	dBm
Center Wavelength Range (See Table 5.)	λ_C	1528.77	—	1563.86	nm
Wavelength Accuracy [2]	$\Delta\lambda_C$	–0.015	—	0.015	nm
Variation in Center Wavelength over Temperature	$\Delta\lambda_T$	–0.05	—	0.05	nm
Center Wavelength Aging	$\Delta\lambda_{t\ EOL}$	–0.10	—	0.10	nm
Spectral Width (full width at –3 dB)	$\Delta\lambda$	—	0.1	0.30	nm
Spectral Width (full width at –20 dB)[3]	$\Delta\lambda_{20}$	—	0.3	0.5	nm
Side-mode Suppression Ratio [4]	SMSR	30	—	—	dB
Jitter, Intrinsic[5]	—	—	—	0.05	UIp-p
Extinction Ratio[6]	r_e	8.2	—	—	dB
Eye Mask of Optical Output [7, 8]	—	Meets SONET and ITU-T			—
Optical Rise/Fall Time (20%—80%): C482, C484 C486	 t_R, t_F t_R, t_F	 — —	 — —	 130 140	 ps ps
Maximum Return Loss (optical)	O_{RL}	—	—	24	dB

1. Output power definitions and measurement per ITU-T Recommendation G.957.
2. At room temperature.
3. Full spectral width measured 20 dB down from the maximum of the central wavelength peak under fully modulated conditions.
4. Ratio of the average output power in the dominant longitudinal mode to the power in the most significant side mode under fully modulated conditions.
5. Filter bandwidth from 12 kHz—20 MHz, according to ITU-T G813.
6. Ratio of logic 1 output power to logic 0 output under fully modulated conditions.
7. GR-253-CORE, *Synchronous Optical Network (SONET) Transport Systems: Common Generic Criteria.*
8. ITU-T Recommendation G.957, *Optical Interfaces for Equipment and Systems Relating to the Synchronous Digital Hierarchy.*

Characteristics (continued)

Table 4. Dispersion Performance

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Dispersion Penalty for Extended Reach:						
C482, C486	DP	1800 ps/nm	—	—	2.0	dB
C484	DP	3000 ps/nm	—	—	2.0	dB

Table 5. Data Timing

Symbol	Test Conditions	Setup (Min)	Hold (Min)	Unit
t1	C_L = (TBD) pF	35	—	ps
t2	C_L = (TBD) pF	—	60	ps

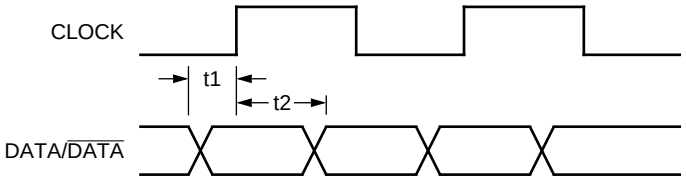

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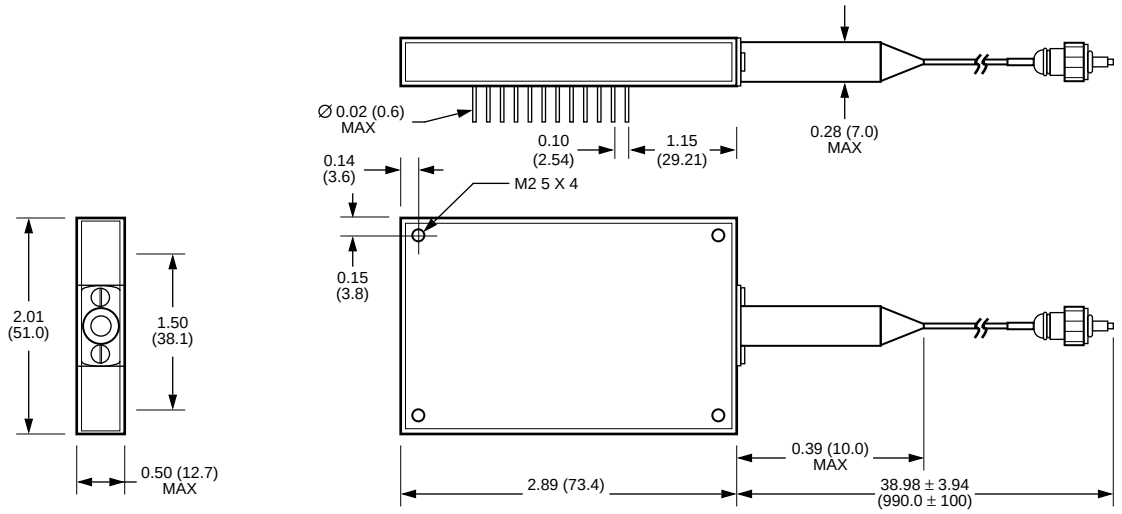
Figure 1. Data Timing Diagram

Outline Drawings

Dimensions are in inches and (millimeters).

Transmitter Package



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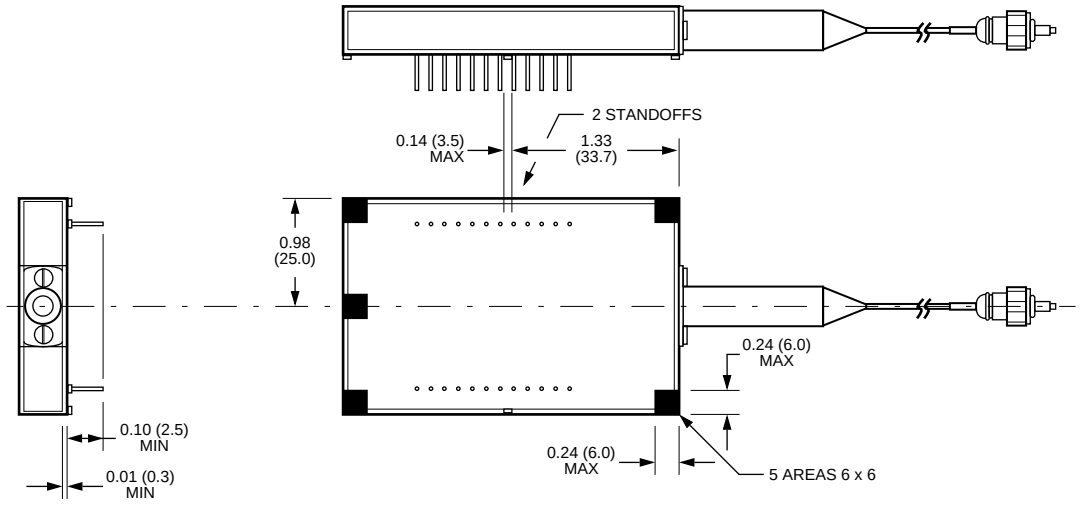
Transmitter Package with Standoffs



1-1050 (F)

Qualification and Reliability

To help ensure high product reliability and customer satisfaction, Lucent is committed to an intensive quality program that starts in the design phase and proceeds through the manufacturing process. Optoelectronics modules are qualified to Lucent internal standards using MIL-STD-883 test methods and procedures and using sampling techniques consistent with *Telcordia Technologies* requirements. This qualification program fully meets the intent of *Telcordia Technologies* reliability practices TR-NWT-000468 and TA-TSY-000983. In addition, the Lucent Technologies Microelectronics Group Optoelectronics design, development, and manufacturing facility has been certified to be in full compliance with the latest *ISO**-9001 Quality System Standards.

Laser Safety Information

Class I Laser Product

FDA/CDRH Class I laser product. The C482-Type and C484-Type Transmitters are Class I laser products per CDRH, 21 CFR 1040 Laser Safety requirements. Both versions are Class I laser products per *IEC*† 60825-1:1993.

This product complies with 21 CFR 1040.10 and 1040.11.
8 µm/125 µm single-mode fiber with 914 µm tight-buffered cladding, and connector
Wavelength = 1.5 µm
Maximum power =1.6 mW
Product is not shipped with power supply.

Caution: Use of controls, adjustments, and procedures other than those specified herein may result in hazardous laser radiation exposure.

NOTICE
UNTERMINATED OPTICAL CONNECTORS CAN EMIT LASER RADIATION. DO NOT VIEW WITH OPTICAL INSTRUMENTS.

* *ISO* is a registered trademark of The International Organization for Standardization.
† *IEC* is a registered trademark of The International Electrotechnical Commission.

Laser Safety Information (continued)

Class IIIb/Class 3A Laser Product

FDA/CDRH Class IIIb laser product. The C486-Type Transmitter is a Class IIIb laser product per CDRH, 21 CFR 1040 Laser Safety requirements. The C486-Type Transmitter is a Class 3A laser product per *IEC* 60825-1:1993.

This product complies with 21 CFR 1040.10 and 1040.11.
8 µm/125 µm single-mode fiber with 914 µm tight-buffered cladding, and connector
Wavelength = 1.5 µm
Maximum power = 10 mW
Product is not shipped with power supply.

Caution: Use of controls, adjustments, and procedures other than those specified herein may result in hazardous laser radiation exposure.

Ordering Information

Table 6. C482-Type Transmitter with FC/PC Connector Ordering Information

Product Code	Comcode	ITU Frequency (THz)	Center Wavelength (nm)	Connector
C482FD17	108522459	191.7	1563.86	FC/PC
C482FD18	108522467	191.8	1563.05	FC/PC
C482FD19	108522541	191.9	1562.23	FC/PC
C482FD20	108522558	192.0	1561.42	FC/PC
C482FD21	108522566	192.1	1560.61	FC/PC
C482FD22	108522574	192.2	1559.79	FC/PC
C482FD23	108522582	192.3	1558.98	FC/PC
C482FD24	108522608	192.4	1558.17	FC/PC
C482FD25	108522616	192.5	1557.36	FC/PC
C482FD26	108522624	192.6	1556.55	FC/PC
C482FD27	108522632	192.7	1555.75	FC/PC
C482FD28	108522640	192.8	1554.94	FC/PC
C482FD29	108522657	192.9	1554.13	FC/PC
C482FD30	108522665	193.0	1553.33	FC/PC
C482FD31	108522673	193.1	1552.52	FC/PC
C482FD32	108522681	193.2	1551.72	FC/PC
C482FD33	108522699	193.3	1550.92	FC/PC
C482FD34	108522707	193.4	1550.12	FC/PC
C482FD35	108522715	193.5	1549.32	FC/PC
C482FD36	108522723	193.6	1548.51	FC/PC
C482FD37	108522731	193.7	1547.72	FC/PC
C482FD38	108522905	193.8	1546.92	FC/PC
C482FD39	108522913	193.9	1546.12	FC/PC
C482FD40	108522921	194.0	1545.32	FC/PC
C482FD41	108522939	194.1	1544.53	FC/PC
C482FD42	108522947	194.2	1543.73	FC/PC
C482FD43	108522954	194.3	1542.94	FC/PC
C482FD44	108522962	194.4	1542.14	FC/PC
C482FD45	108522970	194.5	1541.35	FC/PC
C482FD46	108522988	194.6	1540.56	FC/PC
C482FD47	108522996	194.7	1539.77	FC/PC
C482FD48	108523036	194.8	1538.98	FC/PC
C482FD49	108523044	194.9	1538.19	FC/PC
C482FD50	108523051	195.0	1537.40	FC/PC
C482FD51	108523069	195.1	1536.61	FC/PC
C482FD52	108523077	195.2	1535.82	FC/PC
C482FD53	108523085	195.3	1535.04	FC/PC
C482FD54	108523093	195.4	1534.25	FC/PC
C482FD55	108523101	195.5	1533.47	FC/PC
C482FD56	108523119	195.6	1532.68	FC/PC
C482FD57	108523127	195.7	1531.90	FC/PC
C482FD58	108523135	195.8	1531.12	FC/PC
C482FD59	108523143	195.9	1530.33	FC/PC
C482FD60	108523150	196.0	1529.55	FC/PC
C482FD61	108523168	196.1	1528.77	FC/PC

Ordering Information (continued)

Table 7. C484-Type Transmitter with FC/PC Connector Ordering Information

Product Code	Comcode	ITU Frequency (THz)	Center Wavelength (nm)	Connector
C484FD17	108638990	191.7	1563.86	FC/PC
C484FD18	108639808	191.8	1563.05	FC/PC
C484FD19	108639816	191.9	1562.23	FC/PC
C484FD20	108639824	192.0	1561.42	FC/PC
C484FD21	108639832	192.1	1560.61	FC/PC
C484FD22	108639857	192.2	1559.79	FC/PC
C484FD23	108639865	192.3	1558.98	FC/PC
C484FD24	108639881	192.4	1558.17	FC/PC
C484FD25	108639899	192.5	1557.36	FC/PC
C484FD26	108639923	192.6	1556.55	FC/PC
C484FD27	108639931	192.7	1555.75	FC/PC
C484FD28	108639956	192.8	1554.94	FC/PC
C484FD29	108639972	192.9	1554.13	FC/PC
C484FD30	108639980	193.0	1553.33	FC/PC
C484FD31	108640004	193.1	1552.52	FC/PC
C484FD32	108640012	193.2	1551.72	FC/PC
C484FD33	108640038	193.3	1550.92	FC/PC
C484FD34	108640046	193.4	1550.12	FC/PC
C484FD35	108640053	193.5	1549.32	FC/PC
C484FD36	108640079	193.6	1548.51	FC/PC
C484FD37	108640087	193.7	1547.72	FC/PC
C484FD38	108640103	193.8	1546.92	FC/PC
C484FD39	108640111	193.9	1546.12	FC/PC
C484FD40	108640129	194.0	1545.32	FC/PC
C484FD41	108640137	194.1	1544.53	FC/PC
C484FD42	108640145	194.2	1543.73	FC/PC
C484FD43	108640152	194.3	1542.94	FC/PC
C484FD44	108640160	194.4	1542.14	FC/PC
C484FD45	108640178	194.5	1541.35	FC/PC
C484FD46	108640335	194.6	1540.56	FC/PC
C484FD47	108640343	194.7	1539.77	FC/PC
C484FD48	108640350	194.8	1538.98	FC/PC
C484FD49	108640368	194.9	1538.19	FC/PC
C484FD50	108640376	195.0	1537.40	FC/PC
C484FD51	108640384	195.1	1536.61	FC/PC
C484FD52	108640392	195.2	1535.82	FC/PC
C484FD53	108640400	195.3	1535.04	FC/PC
C484FD54	108640418	195.4	1534.25	FC/PC
C484FD55	108640426	195.5	1533.47	FC/PC
C484FD56	108640434	195.6	1532.68	FC/PC
C484FD57	108640442	195.7	1531.90	FC/PC
C484FD58	108640459	195.8	1531.12	FC/PC
C484FD59	108640467	195.9	1530.33	FC/PC
C484FD60	108640475	196.0	1529.55	FC/PC
C484FD61	108640483	196.1	1528.77	FC/PC

Ordering Information (continued)

Table 8. C486-Type Transmitter with FC/PC Connector Ordering Information

Product Code	Comcode	ITU Frequency (THz)	Center Wavelength (nm)	Connector
C486FD17	108637661	191.7	1563.86	FC/PC
C486FD18	108637679	191.8	1563.05	FC/PC
C486FD19	108637687	191.9	1562.23	FC/PC
C486FD20	108637695	192.0	1561.42	FC/PC
C486FD21	108637703	192.1	1560.61	FC/PC
C486FD22	108637711	192.2	1559.79	FC/PC
C486FD23	108637729	192.3	1558.98	FC/PC
C486FD24	108637950	192.4	1558.17	FC/PC
C486FD25	108637968	192.5	1557.36	FC/PC
C486FD26	108637976	192.6	1556.55	FC/PC
C486FD27	108637984	192.7	1555.75	FC/PC
C486FD28	108637992	192.8	1554.94	FC/PC
C486FD29	108638024	192.9	1554.13	FC/PC
C486FD30	108638040	193.0	1553.33	FC/PC
C486FD31	108638123	193.1	1552.52	FC/PC
C486FD32	108638131	193.2	1551.72	FC/PC
C486FD33	108638156	193.3	1550.92	FC/PC
C486FD34	108638164	193.4	1550.12	FC/PC
C486FD35	108638180	193.5	1549.32	FC/PC
C486FD36	108638198	193.6	1548.51	FC/PC
C486FD37	108638214	193.7	1547.72	FC/PC
C486FD38	108638222	193.8	1546.92	FC/PC
C486FD39	108638230	193.9	1546.12	FC/PC
C486FD40	108638255	194.0	1545.32	FC/PC
C486FD41	108638768	194.1	1544.53	FC/PC
C486FD42	108638776	194.2	1543.73	FC/PC
C486FD43	108638784	194.3	1542.94	FC/PC
C486FD44	108638792	194.4	1542.14	FC/PC
C486FD45	108638800	194.5	1541.35	FC/PC
C486FD46	108638818	194.6	1540.56	FC/PC
C486FD47	108638834	194.7	1539.77	FC/PC
C486FD48	108638842	194.8	1538.98	FC/PC
C486FD49	108638859	194.9	1538.19	FC/PC
C486FD50	108638867	195.0	1537.40	FC/PC
C486FD51	108638875	195.1	1536.61	FC/PC
C486FD52	108638891	195.2	1535.82	FC/PC
C486FD53	108638909	195.3	1535.04	FC/PC
C486FD54	108638917	195.4	1534.25	FC/PC
C486FD55	108638925	195.5	1533.47	FC/PC
C486FD56	108638933	195.6	1532.68	FC/PC
C486FD57	108638941	195.7	1531.90	FC/PC
C486FD58	108638958	195.8	1531.12	FC/PC
C486FD59	108638966	195.9	1530.33	FC/PC
C486FD60	108638974	196.0	1529.55	FC/PC
C486FD61	108638982	196.1	1528.77	FC/PC

Ordering Information (continued)

Table 9. C482-Type Transmitter with SC Connector Ordering Information

Product Code	Comcode	ITU Frequency (THz)	Center Wavelength (nm)	Connector
C482CD17	108642281	191.7	1563.86	SC
C482CD18	108642299	191.8	1563.05	SC
C482CD19	108642307	191.9	1562.23	SC
C482CD20	108642315	192.0	1561.42	SC
C482CD21	108642323	192.1	1560.61	SC
C482CD22	108642331	192.2	1559.79	SC
C482CD23	108642349	192.3	1558.98	SC
C482CD24	108642356	192.4	1558.17	SC
C482CD25	108642364	192.5	1557.36	SC
C482CD26	108642372	192.6	1556.55	SC
C482CD27	108642380	192.7	1555.75	SC
C482CD28	108642398	192.8	1554.94	SC
C482CD29	108642406	192.9	1554.13	SC
C482CD30	108642414	193.0	1553.33	SC
C482CD31	108642422	193.1	1552.52	SC
C482CD32	108642430	193.2	1551.72	SC
C482CD33	108642638	193.3	1550.92	SC
C482CD34	108642646	193.4	1550.12	SC
C482CD35	108642653	193.5	1549.32	SC
C482CD36	108642661	193.6	1548.51	SC
C482CD37	108642679	193.7	1547.72	SC
C482CD38	108642687	193.8	1546.92	SC
C482CD39	108642695	193.9	1546.12	SC
C482CD40	108642729	194.0	1545.32	SC
C482CD41	108642737	194.1	1544.53	SC
C482CD42	108642745	194.2	1543.73	SC
C482CD43	108642760	194.3	1542.94	SC
C482CD44	108642778	194.4	1542.14	SC
C482CD45	108642786	194.5	1541.35	SC
C482CD46	108642802	194.6	1540.56	SC
C482CD47	108642810	194.7	1539.77	SC
C482CD48	108642844	194.8	1538.98	SC
C482CD49	108642869	194.9	1538.19	SC
C482CD50	108642877	195.0	1537.40	SC
C482CD51	108642885	195.1	1536.61	SC
C482CD52	108642893	195.2	1535.82	SC
C482CD53	108642901	195.3	1535.04	SC
C482CD54	108642919	195.4	1534.25	SC
C482CD55	108642927	195.5	1533.47	SC
C482CD56	108642935	195.6	1532.68	SC
C482CD57	108642943	195.7	1531.90	SC
C482CD58	108642950	195.8	1531.12	SC
C482CD59	108642968	195.9	1530.33	SC
C482CD60	108642976	196.0	1529.55	SC
C482CD61	108642984	196.1	1528.77	SC

Ordering Information (continued)

Table 10. C484-Type Transmitter with SC Connector Ordering Information

Product Code	Comcode	ITU Frequency (THz)	Center Wavelength (nm)	Connector
C484CD17	108641432	191.7	1563.86	SC
C484CD18	108641440	191.8	1563.05	SC
C484CD19	108641457	191.9	1562.23	SC
C484CD20	108641465	192.0	1561.42	SC
C484CD21	108641473	192.1	1560.61	SC
C484CD22	108641861	192.2	1559.79	SC
C484CD23	108641879	192.3	1558.98	SC
C484CD24	108641887	192.4	1558.17	SC
C484CD25	108641895	192.5	1557.36	SC
C484CD26	108641903	192.6	1556.55	SC
C484CD27	108641911	192.7	1555.75	SC
C484CD28	108641929	192.8	1554.94	SC
C484CD29	108641937	192.9	1554.13	SC
C484CD30	108641945	193.0	1553.33	SC
C484CD31	108641952	193.1	1552.52	SC
C484CD32	108641960	193.2	1551.72	SC
C484CD33	108641978	193.3	1550.92	SC
C484CD34	108641986	193.4	1550.12	SC
C484CD35	108641994	193.5	1549.32	SC
C484CD36	108642000	193.6	1548.51	SC
C484CD37	108642018	193.7	1547.72	SC
C484CD38	108642026	193.8	1546.92	SC
C484CD39	108642034	193.9	1546.12	SC
C484CD40	108642042	194.0	1545.32	SC
C484CD41	108642059	194.1	1544.53	SC
C484CD42	108642067	194.2	1543.73	SC
C484CD43	108642075	194.3	1542.94	SC
C484CD44	108642083	194.4	1542.14	SC
C484CD45	108642109	194.5	1541.35	SC
C484CD46	108642117	194.6	1540.56	SC
C484CD47	108642125	194.7	1539.77	SC
C484CD48	108642133	194.8	1538.98	SC
C484CD49	108642141	194.9	1538.19	SC
C484CD50	108642158	195.0	1537.40	SC
C484CD51	108642166	195.1	1536.61	SC
C484CD52	108642174	195.2	1535.82	SC
C484CD53	108642182	195.3	1535.04	SC
C484CD54	108642190	195.4	1534.25	SC
C484CD55	108642208	195.5	1533.47	SC
C484CD56	108642224	195.6	1532.68	SC
C484CD57	108642232	195.7	1531.90	SC
C484CD58	108642240	195.8	1531.12	SC
C484CD59	108642257	195.9	1530.33	SC
C484CD60	108642265	196.0	1529.55	SC
C484CD61	108642273	196.1	1528.77	SC

Ordering Information (continued)

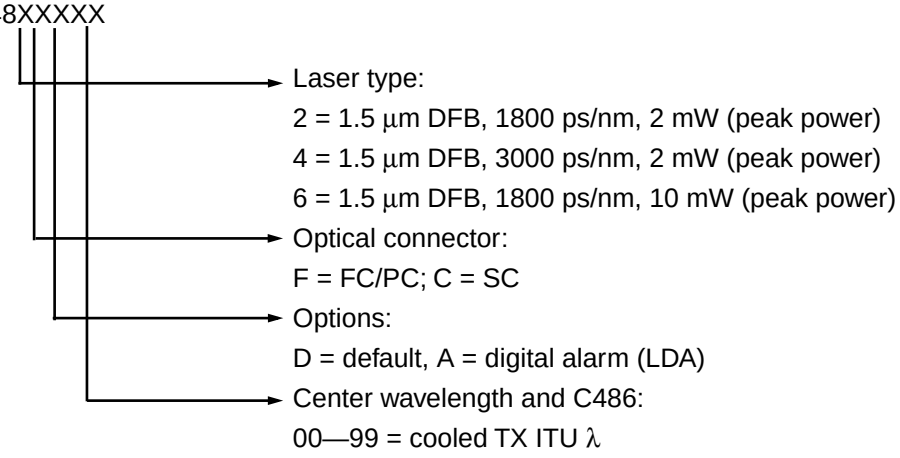
Table 11. C486-Type Transmitter with SC Connector Ordering Information

Product Code	Comcode	ITU Frequency (THz)	Center Wavelength (nm)	Connector
C486CD17	108640582	191.7	1563.86	SC
C486CD18	108640590	191.8	1563.05	SC
C486CD19	108640608	191.9	1562.23	SC
C486CD20	108640616	192.0	1561.42	SC
C486CD21	108640624	192.1	1560.61	SC
C486CD22	108640632	192.2	1559.79	SC
C486CD23	108640640	192.3	1558.98	SC
C486CD24	108640657	192.4	1558.17	SC
C486CD25	108640665	192.5	1557.36	SC
C486CD26	108640673	192.6	1556.55	SC
C486CD27	108640681	192.7	1555.75	SC
C486CD28	108640699	192.8	1554.94	SC
C486CD29	108640707	192.9	1554.13	SC
C486CD30	108640715	193.0	1553.33	SC
C486CD31	108640723	193.1	1552.52	SC
C486CD32	108640731	193.2	1551.72	SC
C486CD33	108640749	193.3	1550.92	SC
C486CD34	108640756	193.4	1550.12	SC
C486CD35	108640764	193.5	1549.32	SC
C486CD36	108640772	193.6	1548.51	SC
C486CD37	108640780	193.7	1547.72	SC
C486CD38	108640798	193.8	1546.92	SC
C486CD39	108640806	193.9	1546.12	SC
C486CD40	108640814	194.0	1545.32	SC
C486CD41	108640822	194.1	1544.53	SC
C486CD42	108640830	194.2	1543.73	SC
C486CD43	108640848	194.3	1542.94	SC
C486CD44	108640855	194.4	1542.14	SC
C486CD45	108640863	194.5	1541.35	SC
C486CD46	108640871	194.6	1540.56	SC
C486CD47	108640889	194.7	1539.77	SC
C486CD48	108640897	194.8	1538.98	SC
C486CD49	108640905	194.9	1538.19	SC
C486CD50	108640913	195.0	1537.40	SC
C486CD51	108640921	195.1	1536.61	SC
C486CD52	108640939	195.2	1535.82	SC
C486CD53	108640947	195.3	1535.04	SC
C486CD54	108640954	195.4	1534.25	SC
C486CD55	108640962	195.5	1533.47	SC
C486CD56	108640970	195.6	1532.68	SC
C486CD57	108640988	195.7	1531.90	SC
C486CD58	108640996	195.8	1531.12	SC
C486CD59	108641002	195.9	1530.33	SC
C486CD60	108641010	196.0	1529.55	SC
C486CD61	108641028	196.1	1528.77	SC

Ordering Information (continued)

Coding Scheme

Example: C48XXXXX



Related Product Information

Product Code	Description	Document Number
1320-Type Lightwave Receiver	Lightwave Receiver with Clock Recovery and Data Retiming for 2488.32 Mbits/s Applications	DS97-113LWP
1320 2.5 Gbits/s Receiver	Biasing and Interfacing to the 1320 2.5 Gbits/s Receiver	AP98-052LWP
R485-Type Lightwave Receiver	Lightwave Receiver with Clock Recover and Internal APD Bias Supply for 2.5 Gbits/s Applications	—

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