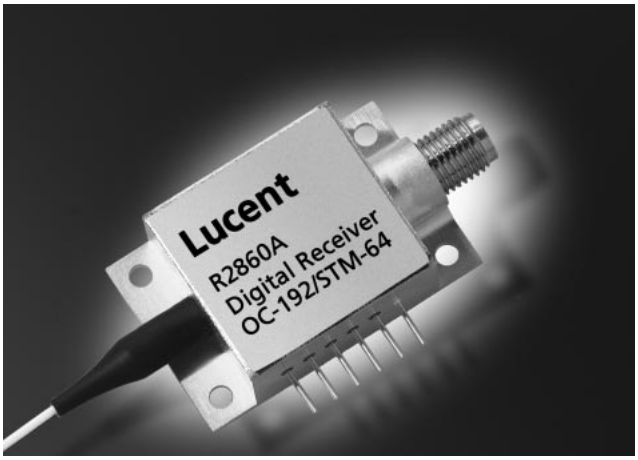
microelectronics group

Lucent Technologies
Bell Labs Innovations

R2860A Digital Receiver OC-192/STM-64



Features

- High sensitivity, –20 dBm typical
- Wide dynamic range, 2 dBm overload typical
- High transimpedance, 1200 Ω typical
- Hermetically sealed
- Qualified in accordance with *Telcordia Technologies** TR-NWT-000468 requirements

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

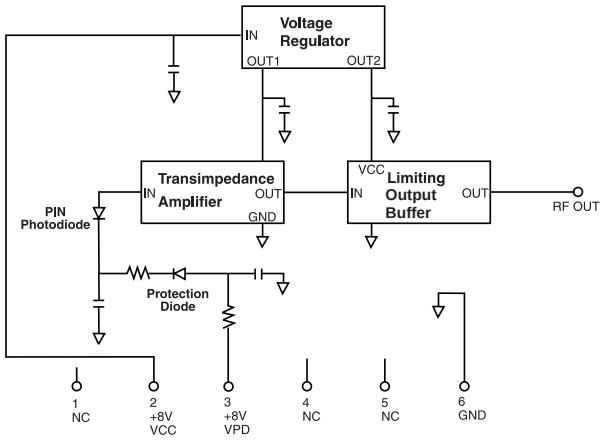
Applications

- 10 Gbits/s short, intermediate, and long-haul systems
- SONET/SDH equipment
- Datacom equipment

Description

The R2860A receiver module, part of the R2860 receiver family, incorporates a high-speed planar PIN diode and a GaAs PHEMT preamplifier to provide exceptionally high performance. The unit provides high bandwidth and sensitivity to operate with long, dispersive fibers, plus wide dynamic range for operation over a variety of loss budgets. High transimpedance coupled with a nonquantizing limiting buffer output provides high gain while limiting the maximum output signal swing, thereby simplifying the interface to subsequent stages.

Block Diagram



Pin Information

Table 1. Pin Descriptions

Pin No.	Description
1	NC
2	8 V (V_{CC})
3	8 V (V_{PD})
4	NC
5	NC
6	Ground

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 operational sections of the data sheet. Exposure to absolute maximum ratings for extended periods can adversely affect device reliability.

Parameter	Symbol	Min	Max	Unit
Operating Temperature Range	T_{OP}	–5	70	°C
Storage Case Temperature Range	Tstg	–40	85	°C
Preamp Supply Voltage	V_{CC}	—	12	V
Photodiode Bias Voltage	V_{PD}	—	20	V
Optical Input Power	P_{IN}	—	4	dBm

Electrical/Optical Characteristics

Table 2. Electrical and Optical Characteristics (25 °C Case Temperature)

Parameter	Symbol	Min	Typ	Max	Unit
Optical Wavelength Range	λ	1280	—	1580	nm
Sensitivity (10^{-10} BER, PRBS 2^{23}-1)	—	—	–20	–18	dBm
Overload (10^{-13} BER, PRBS 2^{23}-1)	—	0	2	—	dBm
Responsivity	R	0.7	0.8	—	A/W
Dark Current	I_D	—	—	1	nA
High-Frequency Cutoff	—	8.0	9.0	—	GHz
Low-Frequency Cutoff	—	—	—	30	kHz
Transimpedance	Z	800	1200	—	Ω
Maximum ac Output Voltage Swing	—	—	450	—	mVp-p
RF Output Return Loss* (0.1 GHz—10 GHz)	RL_{RF}	—	—	10	dB
Optical Return Loss	RL	27	—	—	dB
Logic Sense	—	—	Noninverting	—	—
Preamp Supply Voltage	(Vcc)	7.6	8.0	8.4	V
Photodiode Supply Voltage	V_{PD}	7	8	12	V
Supply Current	I_{CC}	—	80	120	mA

* External blocking capacitor required.

Characteristic Curve

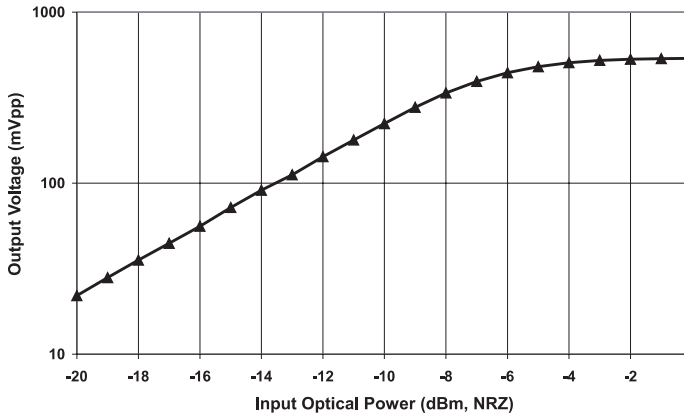
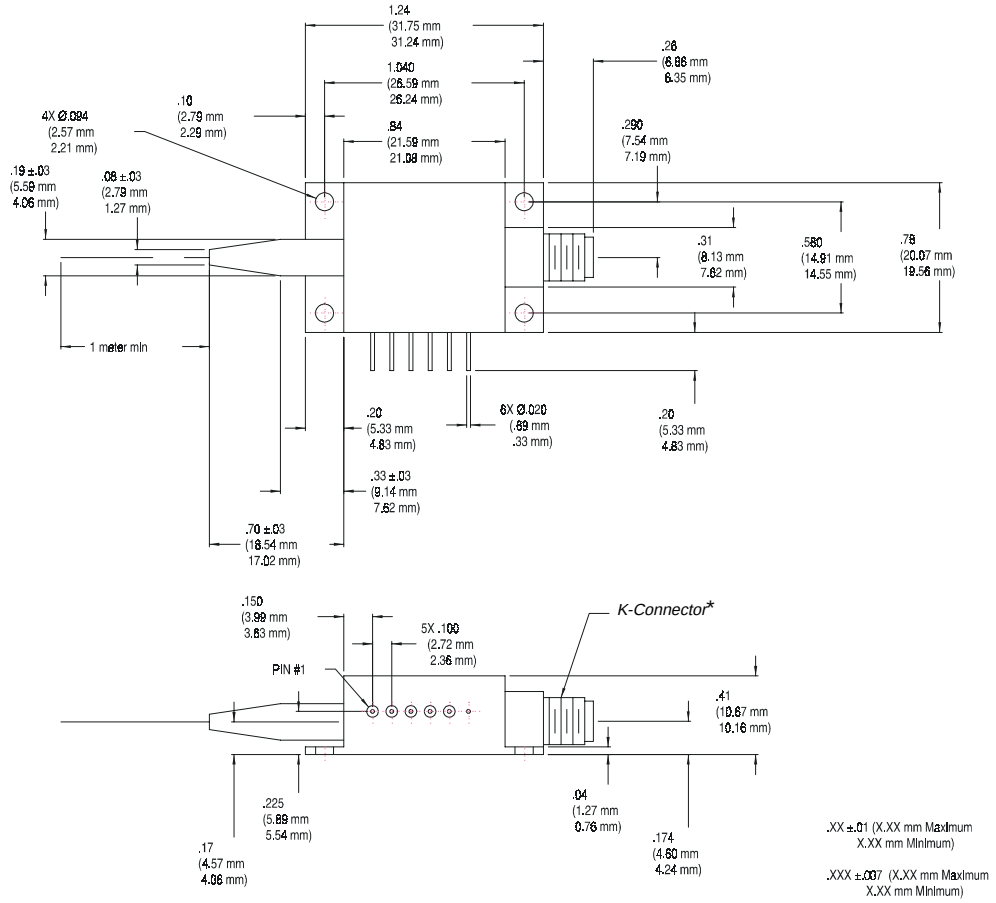


Figure 1. R2860A Typical Electrical Output Voltage vs. Optical Input Power

Outline Diagram

Dimensions are in inches and (millimeters).



* *K-Connector* is a trademark of Anritsu Company.

Note: External dc block required on RF output.

Ordering Information

Table 3. Ordering Information [1]

Device Code	Description	Connector	Pigtail	Comcode
R2860A023	Digital Receiver, 800 Ω min. TIA gain, dc-coupled output	FC/SPC, Standard	*SMF-28*[2](1m min.)	108870080
R2860A040	Digital Receiver, 800 Ω min. TIA gain, dc-coupled output	SC/UPC	*SMF-28*[2](1m min.)	108870098
R2860A050	Digital Receiver, 800 Ω min. TIA gain, dc-coupled output	LC	*SMF-28*[2](1m min.)	108870106

1. Other options available. For additional ordering information, please contact a Lucent account manager at Microelectronics Group, Opto West, 1-800-362-3891 (for sales staff, please press option 2).
2. *SMF-28* is a trademark of Corning Incorporated.

For additional information, contact your Microelectronics Group Account Manager or the following:

INTERNET: **http://www.lucent.com/micro**, or for Optoelectronics information, **http://www.lucent.com/micro/opto**
E-MAIL: **docmaster@micro.lucent.com**
N. AMERICA: Microelectronics Group, Lucent Technologies Inc., 555 Union Boulevard, Room 30L-15P-BA, Allentown, PA 18109-3286
1-800-372-2447, FAX 610-712-4106 (In CANADA: **1-800-553-2448**, FAX 610-712-4106)
ASIA PACIFIC: Microelectronics Group, Lucent Technologies Singapore Pte. Ltd., 77 Science Park Drive, #03-18 Cintech III, Singapore 118256
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