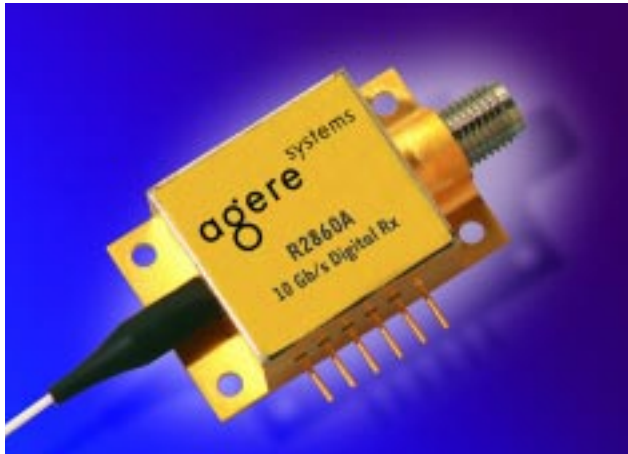


## R2860A Digital Receiver OC-192/STM-64

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### Features

- High sensitivity, -20 dBm typical
- Wide dynamic range, 2 dBm overload typical
- High transimpedance, 1200  $\Omega$  typical
- Hermetically sealed
- Qualified in accordance with *Telcordia Technologies*™ TR-NWT-000468 requirement

### Applications

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

### Description

The R2860A receiver module 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.

Agere Systems Inc. offers several 1R and 2R high-speed receiver components for 10 Gbits/s and 12.5 Gbits/s applications. APD and PIN versions are available in a 6-pin hermetic package with coaxial output. In addition, Agere Systems also offers a PIN receiver with coplanar waveguide in a multisource agreement form-factor or a smaller, space-sensitive package. For more information about the complete line of high-speed receiver products, please visit the Agere Systems' website at [www.agere.com/opto](http://www.agere.com/opto).

## 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 <sub>OP</sub>  | –5  | 70  | °C   |
| Storage Case Temperature Range | T <sub>stg</sub> | –40 | 85  | °C   |
| Preamplifier Supply Voltage    | V <sub>CC</sub>  | —   | 12  | V    |
| Photodiode Bias Voltage        | V <sub>PD</sub>  | —   | 20  | V    |
| Optical Input Power            | P <sub>IN</sub>  | —   | 4   | dBm  |

## Electrical/Optical Characteristics

**Table 1. Electrical and Optical Characteristics** (25 °C Case Temperature)

| Parameter                                                     | Symbol             | Min  | Typ          | Max  | Unit     |
|---------------------------------------------------------------|--------------------|------|--------------|------|----------|
| Optical Wavelength Range                                      | $\lambda$          | 1280 | —            | 1580 | nm       |
| Sensitivity (10 <sup>–10</sup> BER, PRBS 2 <sup>23</sup> – 1) | —                  | —    | –20          | –18  | dBm      |
| Overload (10 <sup>–13</sup> BER, PRBS 2 <sup>23</sup> – 1)    | —                  | 0    | 2            | —    | dBm      |
| Responsivity                                                  | R                  | 0.7  | 0.8          | —    | A/W      |
| Dark Current                                                  | I <sub>D</sub>     | —    | —            | 1    | nA       |
| High-Frequency Cutoff                                         | —                  | 8.0  | 9.0          | —    | GHz      |
| Low-Frequency Cutoff                                          | —                  | —    | —            | 30   | kHz      |
| Transimpedance                                                | Z                  | 800  | 1200         | —    | $\Omega$ |
| Maximum ac Output Voltage Swing                               | —                  | —    | 450          | —    | mVp-p    |
| RF Output Return Loss*<br>(0.1 GHz—10 GHz)                    | R <sub>LRF</sub>   | —    | —            | 10   | dB       |
| Optical Return Loss                                           | R <sub>L</sub>     | 27   | —            | —    | dB       |
| Logic Sense                                                   | —                  | —    | Noninverting | —    | —        |
| Preamplifier Supply Voltage                                   | (V <sub>CC</sub> ) | 7.6  | 8.0          | 8.4  | V        |
| Photodiode Supply Voltage                                     | V <sub>PD</sub>    | 7    | 8            | 12   | V        |
| Supply Current                                                | I <sub>CC</sub>    | —    | 80           | 120  | mA       |

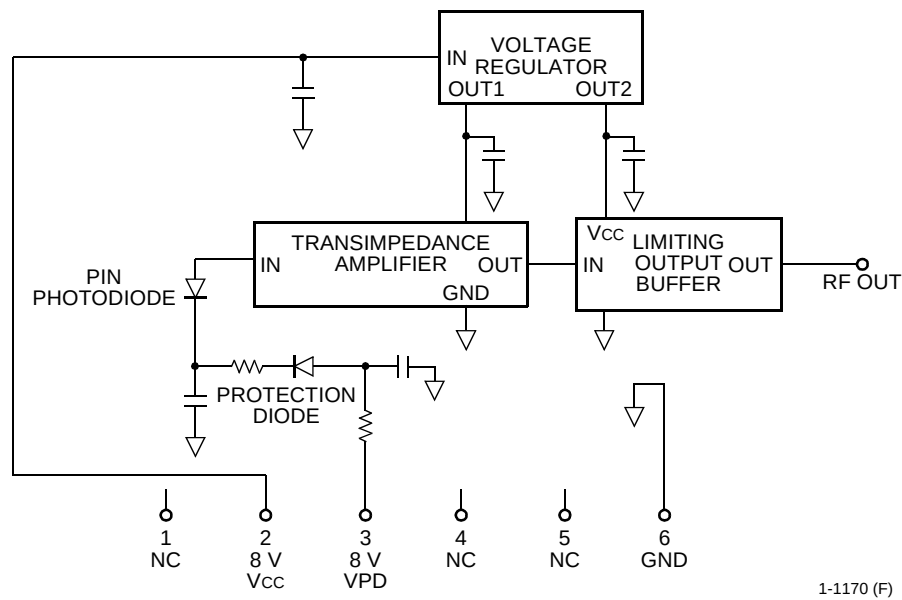
\* External blocking capacitor required.

## Pin Information

Table 2. Pin Descriptions

| Pin No. | Description |
|---------|-------------|
| 1       | NC          |
| 2       | 8 V (VCC)   |
| 3       | 8 V (VPD)   |
| 4       | NC          |
| 5       | NC          |
| 6       | Ground      |

## Block Diagram



## Characteristic Curve

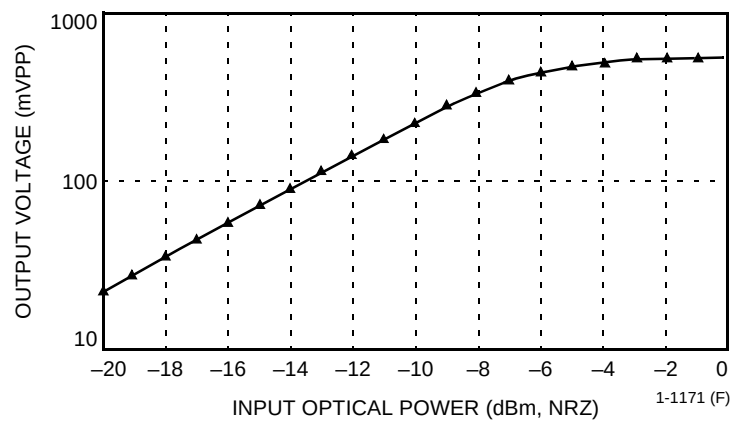
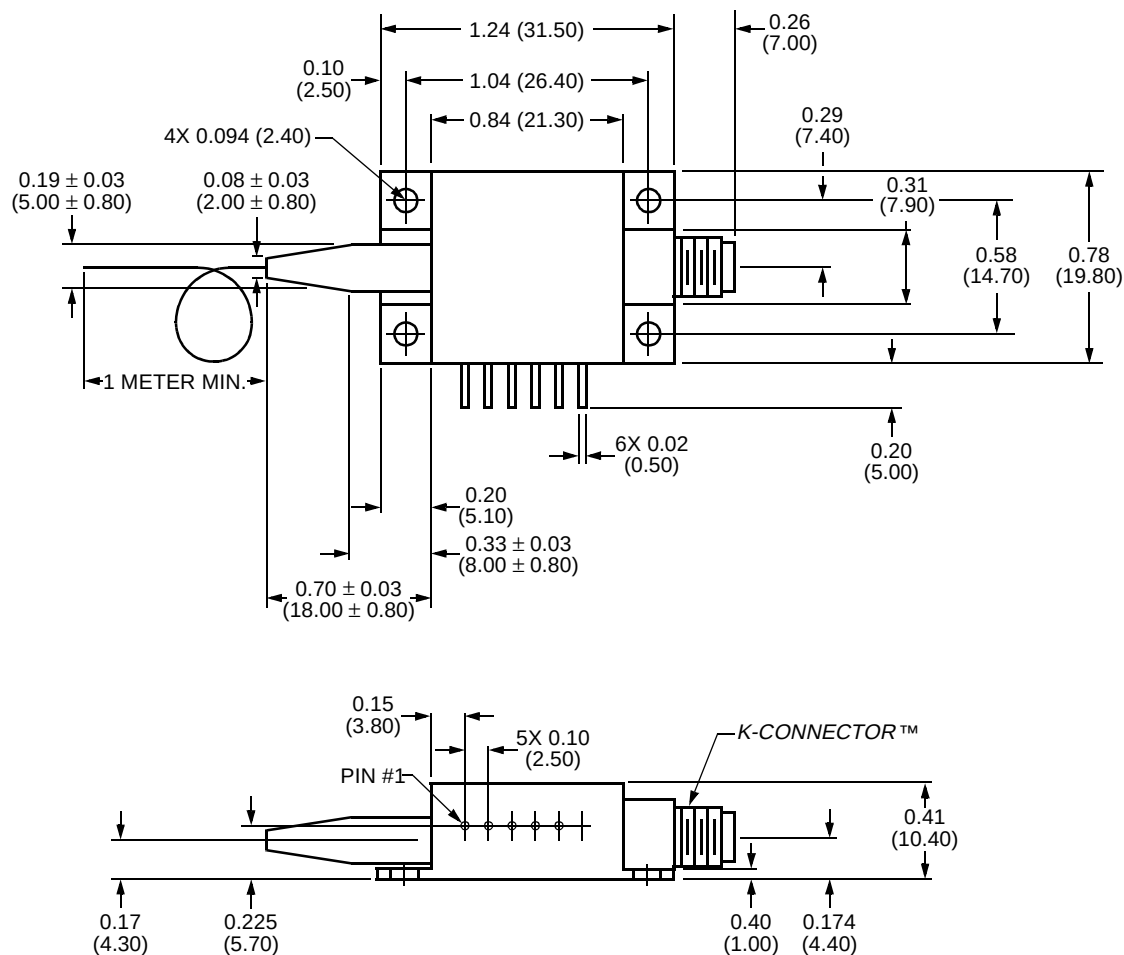


Figure 1. R2860A Typical Electrical Output Voltage vs. Optical Input Power

## Outline Diagram

Dimensions are in inches and (millimeters).



1-1169 (F)

Note: External dc block required on RF output.

## Ordering Information

Table 3. Ordering Information<sup>1</sup>

| Device Code | Description                                                           | Connector           | Pigtail            | Comcode   |
|-------------|-----------------------------------------------------------------------|---------------------|--------------------|-----------|
| R2860A023   | Digital Receiver,<br>800 $\Omega$ min. TIA gain,<br>dc-coupled output | FC/SPC,<br>Standard | SMF-28™ (1 m, min) | 108870080 |
| R2860A040   | Digital Receiver,<br>800 $\Omega$ min. TIA gain,<br>dc-coupled output | SC/UPC              | SMF-28 (1 m, min)  | 108870098 |
| R2860A050   | Digital Receiver,<br>800 $\Omega$ min. TIA gain,<br>dc-coupled output | LC                  | SMF-28 (1 m, min)  | 108870106 |

1. Other options available. For additional ordering information, please contact an account manager at Opto West, Agere Systems Inc., 1-800-362-3891 (for sales staff, please press option 2).

*Telcordia Technologies* is a trademark of Telcordia Technologies, Inc.  
*K-Connector* is a trademark of Anritsu Company.  
*SMF-28* is a trademark of Corning Incorporated.

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For additional information, contact your Agere Systems Account Manager or the following:

INTERNET: **<http://www.agere.com>**

E-MAIL: **[docmaster@agere.com](mailto:docmaster@agere.com)**

N. AMERICA: Agere Systems 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: Agere Systems Hong Kong Ltd., Suites 3201 & 3210-12, 32/F, Tower 2, The Gateway, Harbour City, Kowloon

**Tel. (852) 3129-2000**, FAX (852) 3129-2020

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JAPAN: **(81) 3-5421-1600** (Tokyo), KOREA: **(82) 2-767-1850** (Seoul), SINGAPORE: **(65) 778-8833**, TAIWAN: **(886) 2-2725-5858** (Taipei)

EUROPE: **Tel. (44) 7000 624624**, FAX (44) 1344 488 045

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- Подбор аналогов.
- Поставку компонентов в любых объемах, удовлетворяющих вашим потребностям.
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