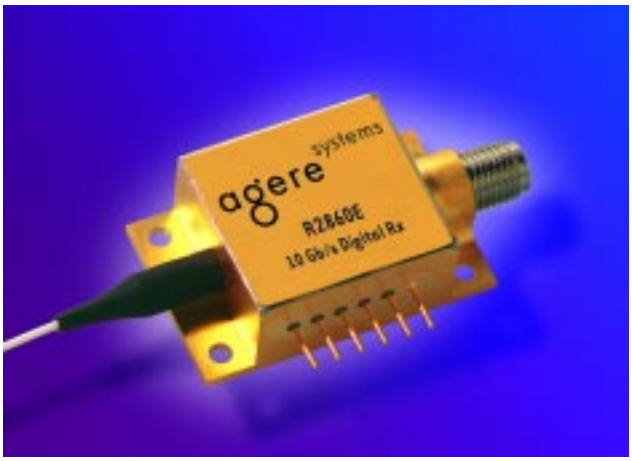
Data Sheet, Rev. 2
September 2001

R2860E 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
- Optimized for multiple supply voltages, including ±5 V dual supplies, 8 V only, or –8 V only
- ac-coupled output

Applications

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

Description

The R2860E 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.

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}-V_{EE}	—	12	V
Photodiode Bias Voltage	V_{PD}-V_{EE}	—	20	V
Optical Input Power	P_{IN}	—	4	dBm

Electrical/Optical Characteristics

Table 1. 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	—	—	1.0	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	—	mV p-p
RF Output Return Loss (0.1 GHz—10 GHz)	RL_{RF}	—	—	10	dB
Optical Return Loss	RL	27	—	—	dB
Logic Sense	—	—	Noninverting	—	—
Photodiode Supply Voltage*	V_{PD}	3	5	7	V
Positive Supply Voltage*	V_{CC}	4	5	5.5	V
Negative Supply Voltage*	V_{EE}	–5.5	–5	–4	V
Supply Current	I_{CC}, $–I_{EE}$	—	80	120	mA

* Floating supply capability allows alternate powering configurations such as V_{PD} = 8 V, V_{CC} = 8 V, and V_{EE} = GND, or V_{PD} = GND, V_{CC} = GND, and V_{EE} = –8 V.

Pin Information

Table 2. Pin Descriptions

Pin No.	Description
1	NC
2	V_{CC}
3	V_{PD}
4	V_{EE}
5	NC
6	Ground

Characteristic Curve

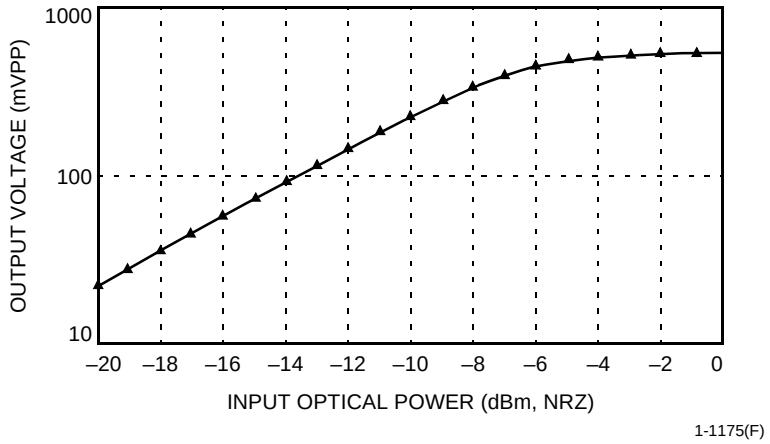
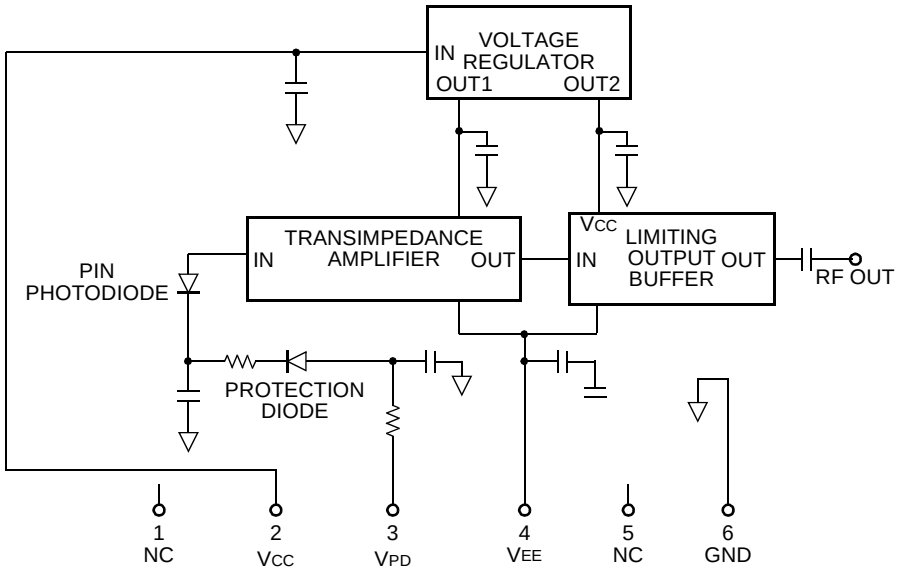


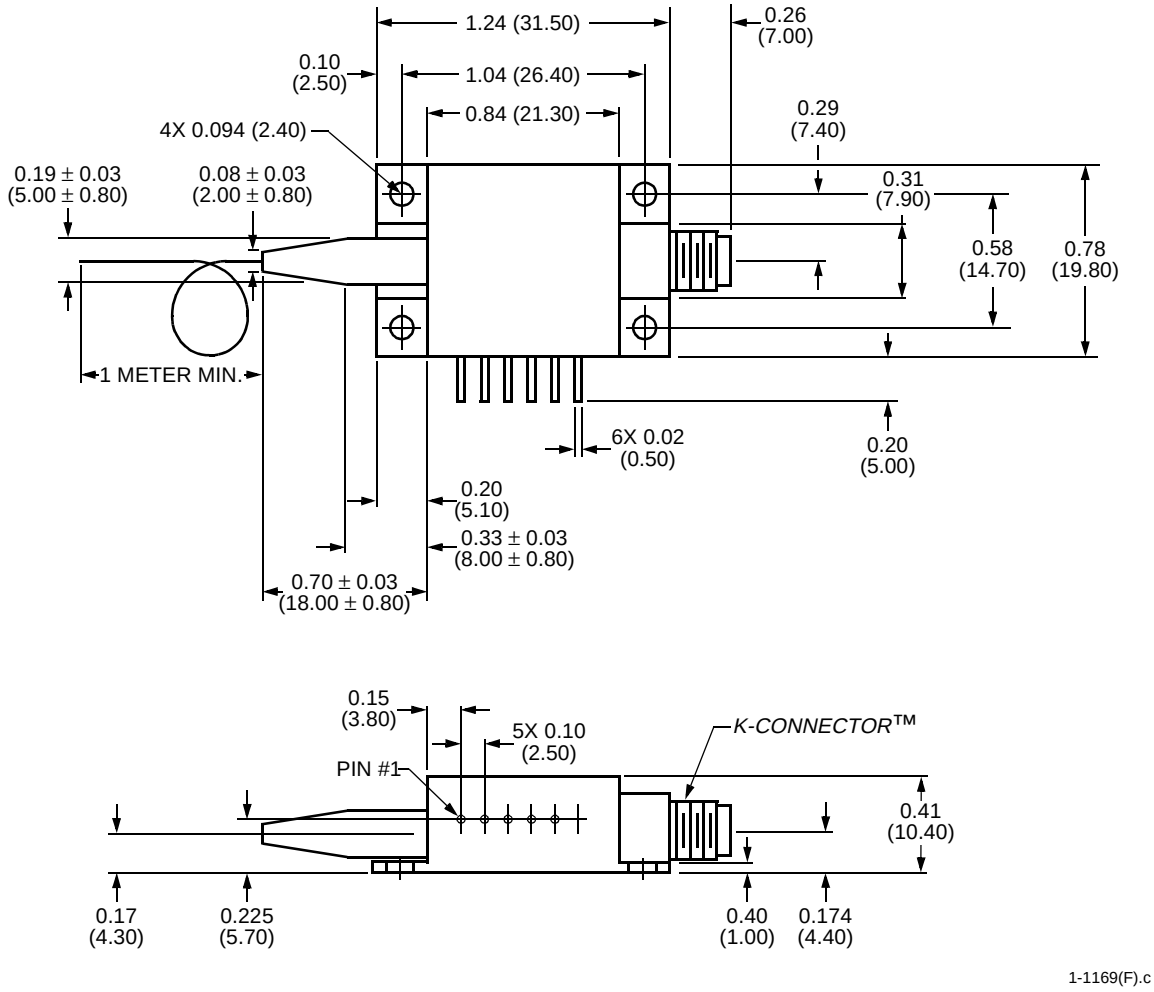
Figure 1. R2860E Typical Electrical Output Voltage vs. Optical Input Power

Block Diagram



Outline Diagram

Dimensions are in inches and (millimeters).



Ordering Information

Table 3. Ordering Information[1]

Device Code	Description	Connector	Pigtail	Comcode
R2860E023	Digital Receiver 800 Ω min. TIA gain, ac-coupled output	FC/SPC, Standard	*SMF-28*™ (1 m min.)	108870270
R2860E040	Digital Receiver 800 Ω min. TIA gain, ac-coupled output	SC/UPC	*SMF-28* (1 m min.)	108870288

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).

K-Connector is a trademark of Anritsu Company.
SMF-28 is a trademark of Corning Incorporated.

For additional information, contact your Agere Systems Account Manager or the following:
INTERNET: **http://www.agere.com**
E-MAIL: **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
CHINA: **(86) 21-5047-1212** (Shanghai), **(86) 10-6522-5566** (Beijing), **(86) 755-695-7224** (Shenzhen)
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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