

HFE4867

Low Drive Current Fiber Optic LED

FEATURES

- Power out designed for drive currents between 5 and 50 mA
- Industry standard ST®-LP fiber connector
- Optimized for linear optical output with drive currents between 5 and 50 mA
- High speed: 85 MHz
- Popular straight lead, low profile package
- Wave solderable

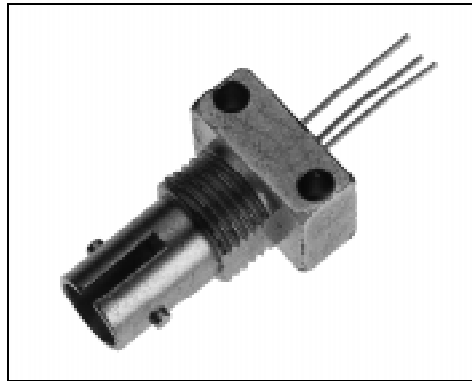
DESCRIPTION

The HFE4867 is a high radiance GaAlAs 850 nanometer LED optimized for coupling into small fiber core diameters at a forward current of 5 to 50 mA. The "Caprock™" LED chip is designed to combine high power coupling with wide bandwidth. The peak wavelength is matched for use with Honeywell silicon fiber optic detectors and receivers. When the HFE4867 is used at elevated temperatures, thermal resistance must be taken into consideration. The mechanical construction uses a highly reliable ST®-LP fiber optic connector / housing designed for easy mounting on printed circuit boards.

APPLICATION

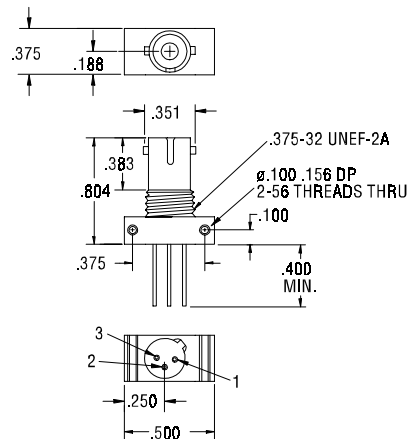
The HFE4867 is a high radiance LED packaged in a ST®-LP metal housing. Data rates can vary from DC to above 85 MHz depending upon component application. The LED is designed to convert electrical current into optical power that can be used in fiber optic communications. As the current varies (typically from 5 to 50 mA), the light intensity increases proportionally.

The HFE4867 LED is designed to give high fiber coupled power (high radiance into a standard fiber optic cable). In order to enhance the light being sent into a fiber optic cable, a 0.30 mm diameter glass microlens is placed over the "Caprock™" junction. The microlens collimates the light, increasing the intensity directed toward a fiber optic cable. This creates a "SWEET SPOT" of power, allowing greater power to be launched into standard fiber optic cables.



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OUTLINE DIMENSIONS in inches (mm)



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Pinout

1. Anode
2. Cathode
3. Not connected

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ELECTRO-OPTICAL CHARACTERISTICS (-40°C < T_C < 100°C unless otherwise stated)

PARAMETER	SYMBOL	MIN	TYP	MAX	UNITS	TEST CONDITIONS
Fiber Coupled Power	P _{OC}	10.0 -20.0	12.0 -19.0		μW dBm	I _F = 6 mA, 100/140 micron, 0.29 NA fiber, T = 25°C ⁽¹⁾
Forward Voltage	V _F		1.70	2.00	V	I _F = 50 mA
Reverse Voltage	B _{VR}	1.0	5.0		V	I _R = 10 μA
Peak Wavelength	λ _P		850		nm	I _F = 25 mA DC
Spectral Bandwidth	Δλ		50		nm	I _F = 25 mA DC
Response Time					ns	1 V Prebias, 50 mA peak
T = 25°C, 10-90%	t _R		12	20		
T = 25°C, 90-10%	t _F		12	20		
Analog Bandwidth	BWE		85		MHz	I _F = 50 mA DC, small signal sinusoidal modulation
P _O Temperature Coefficient	ΔP _O /ΔT _O		-0.019		mV/°C	I _F = 50 mA
Series Resistance	r _S		4.0		Ω	DC
Capacitance	C		70		pF	V _R = 0 V, f = 1 MHz
Thermal Resistance			250		°C/W	Heat sunked

Notes

1. HFE4867 is tested using a 100/140 micron fiber cable. Actual coupled power values may vary due to mechanical alignment procedures and/or receptacle and fiber tolerances.

ABSOLUTE MAXIMUM RATINGS

(25°C Free-Air Temperature unless otherwise noted)

Storage temperature	-40 to +100°C
Case operating temperature	-40 to +100°C
Lead solder temperature	260°C, 10 s
Continuous forward current (heat sunked)	50 mA

Stresses greater than those listed under "Absolute Maximum Ratings" may cause permanent damage to the device. This is a stress rating only and functional operation of the device at these or any other conditions above those indicated in the operational section of this specification is not implied. Exposure to absolute maximum rating conditions for extended periods of time may affect reliability.

FIBER INTERFACE

Honeywell LEDs are designed to interface with multimode fiber with sizes ranging from 50/125 to 200/230 microns. Honeywell performs final tests using 100/140 micron core fiber. All multimode fiber optic cables between 50/125 and 200/230 should operate with similar excellent performance. See table for typical powers.

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ORDER GUIDE

Description	Catalog Listing
Standard screening, typical power out 12 μ W	HFE4867-013

WARNING

Under certain application conditions, the infrared optical output of this device may exceed Class 1 eye safety limits, as defined by IEC 825-1 (1993-11). Do not use magnification (such as a microscope or other focusing equipment) when viewing the device's output.

CAUTION

The inherent design of this component causes it to be sensitive to electrostatic discharge (ESD). To prevent ESD-induced damage and/or degradation to equipment, take normal ESD precautions when handling this product.



Fig. 1 Typical Optical Power Output vs Forward Current

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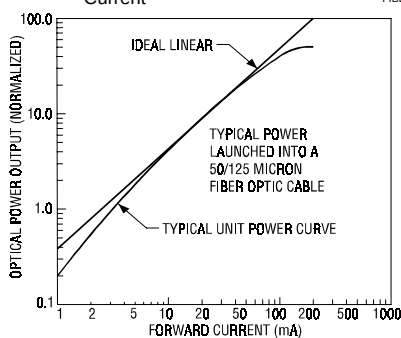


Fig. 2 Typical Spectral Output vs Wavelength

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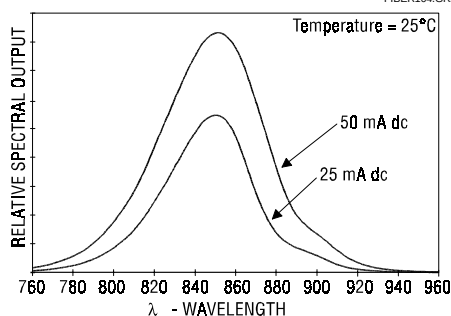
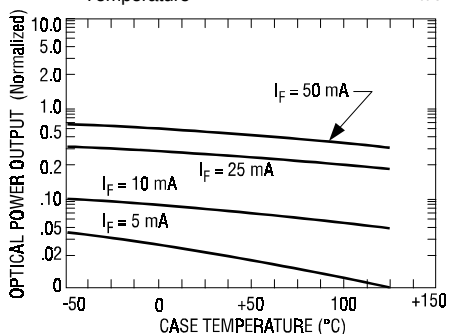


Fig. 3 Typical Optical Power Output vs Case Temperature

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All Performance Curves Show Typical Values

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Honeywell reserves the right to make changes in order to improve design and supply the best products possible.

Honeywell

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