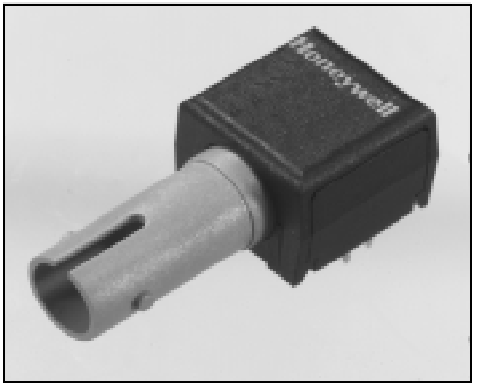
Not recommended for new designs
HFE4218-321 see HFD4225-023

HFE4218

High Power Fiber Optic LED for Ethernet Applications

FEATURES

- Industry standard ST® fiber connector
- 850 nm GaAlAs LED
- Designed to meet IEEE Ethernet standard 802.3 FOIRL 10Base-FB/FL specification
- High reliability construction
- Popular Fiber DIP package
- Wave solderable
- Non-conductive plastic ST® barrel



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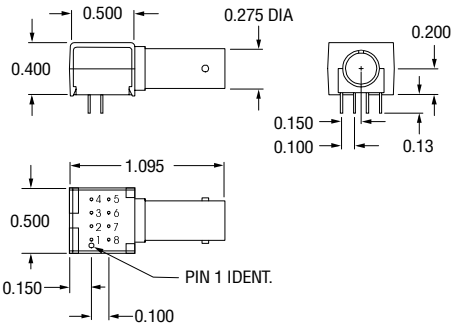
DESCRIPTION

The HFE4218 series is a GaAlAs 850 nanometer LED designed to meet IEEE Ethernet 802.3 specifications. The LED component is electrically isolated from the connector. The mechanical construction uses a high reliability ST® Fiber-Dip fiber optic connector/housing designed for easy mounting on printed circuit boards without the need for additional hardware. This connector accepts a wide variety of fiber sizes (50/125 micron through 100/140 micron) and is designed to meet the Ethernet 802.3 specification utilizing a 62.5/125 micron diameter fiber cable. The LED is designed to be driven with a 50% duty cycle at 100 mA (-311)/60 mA (-312) peak forward current for the electrical input signal.

OUTLINE DIMENSIONS in inches (mm)



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Pinout

1. NC	5. NC
2. Anode	6. Anode
3. Cathode	7. Anode
4. NC	8. NC

Pins 1,4, 5 and 8 are electrically common.

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ELECTRO-OPTICAL CHARACTERISTICS (T_C = 25°C unless otherwise stated)

PARAMETER		SYMBOL	MIN	TYP	MAX	UNITS	TEST CONDITIONS
Fiber Coupled Power		P_{OC} (AVG)					
	HFE4218-311		15.8	50.0	63.1	µW	I_F = 100 mA Peak (1)
			-18	-13.0	-12	dBm	NA = 0.275, 50% Duty Cycle
	HFE4218-312		15.8	45.0	63.1	µW	I_F = 60 mA Peak (1)
			-18	-13.5	-12	dBm	NA = 0.275, 50% Duty Cycle
Forward Voltage	HFE4218-311	V_F		1.85	2.20	V	I_F = 100 mA
	HFE4218-312			1.60	1.90	V	I_F = 60 mA
Reverse Voltage		B_{VR}	1.0	5.0		V	I_R = 10 µA
Peak Wavelength	HFE4218-311	λ_P		850		nm	I_F = 100 mA DC
	HFE4218-312			850		nm	I_F = 60 mA DC
Spectral Bandwidth	HFE4218-311	$\Delta\lambda$		60		nm	I_F = 100 mA DC
	HFE4218-312			50		nm	I_F = 60 mA DC
Response Time		t_R/t_F				ns	10-90%, 1.0 V Prebias
	HFE4218-311			6	10		I_F = 100 mA
	HFE4218-312			6	10		I_F = 60 mA
Analog Bandwidth	HFE4218-311	BWE		85		MHz	I_F = 100 mA DC, sinusoidal modulation
	HFE4218-312			70		MHz	I_F = 60 mA DC, sinusoidal modulation
P_O Temperature Coefficient		P_O/T					
	HFE4218-311			-0.017		dB/°C	I_F = 100 mA, +25°C < T_A < +80°C
	HFE4218-312			-0.006		dB/°C	I_F = 60 mA, +25°C < T_A < +80°C
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 sinked
Overshoot	HFE4218-311			10		%	I_F = 100 mA peak 1.0 V Prebias
	HFE4218-312			10		%	I_F = 60 mA peak 1.0 V Prebias

Notes

1. HFE4218 is tested using a 10 meter length of 62.5/125 µm dia. fiber cable. Actual coupled power values may vary due to mechanical alignment tolerances/procedures.

ABSOLUTE MAXIMUM RATINGS

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

Storage temperature	-55 to +85°C
Case operating temperature	-40 to +85°C
Lead solder temperature	260°C, 10 s
Continuous forward current (heat sinked)	100 mA
Reverse voltage	1 V @ 10 µA

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.

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HFE4218

High Power Fiber Optic LED for Ethernet Applications

ORDER GUIDE

Description	Catalog Listing
100 mA High Power LED, for Ethernet application	HFE4218-311
60 mA High Power LED, for Ethernet application	HFE4218-312

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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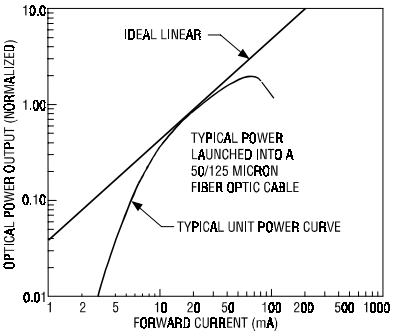

Fig. 2 Typical Spectral Output vs Wavelength

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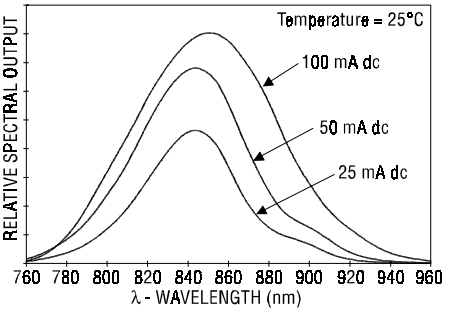

Fig. 3 Typical Optical Power Output vs Case Temperature

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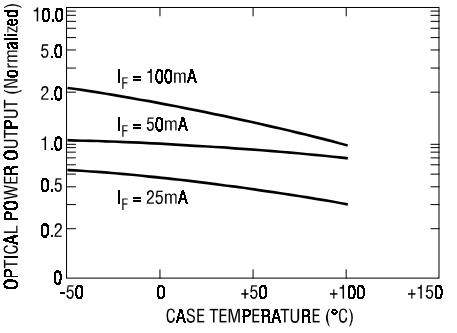

All Performance Curves Show Typical Values

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