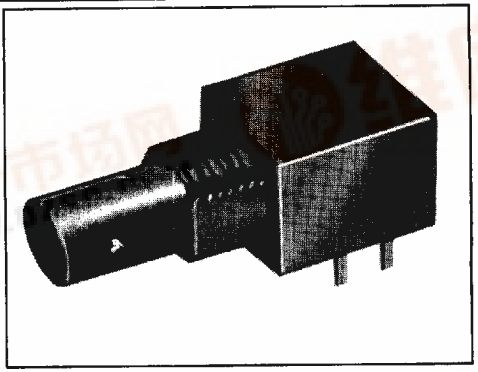
HFE4226

Next Generation High Power LEDs, Metal ST Package

FEATURES

- Industry standard ST® fiber connector
- 850 nm GaAlAs LED
- Fiber Dip package style
- High reliability construction
- Threaded metal barring and housing
- Wave solderable
- Metal package provides enhanced durability and heat dissipation over plastic packages



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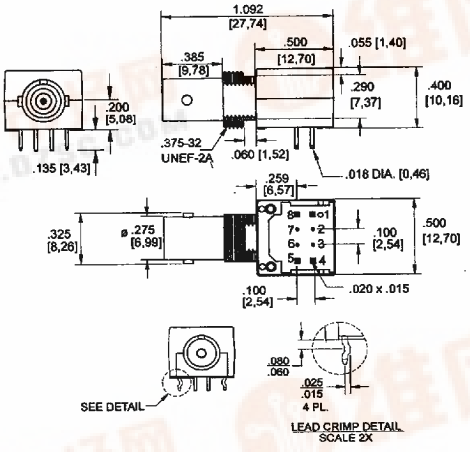
DESCRIPTION

Next Generation LEDs are designed for use in IEEE 802.3 Ethernet and IEEE 802.5J Token Ring applications such as repeaters, bridges, hubs, routers, switches and gateways. The devices are GaAlAs 850 nm LEDs which are designed to efficiently couple optical power into different fiber sizes ranging from 50/125 micron to 200/240 micron. They typically couple -12.0 dBm into 62.5/125 micron cable at 60 mA peak. The LED component is eletrically isolated from the connector barrel. The mechanical construction uses a high reliability ST Fiber-Dip fiber optic connector/housing designed to be easily mounted on printed circuit boards without the need for additional hardware. This component is specifically designed to provide performance and flexibility to the designer and should be driven with a 50% duty cycle at 60 mA to 100 mA peak forward current for the electrical input signal.

Next Generation LEDs have been updated and improved over existing Fiber Optic LEDs. The Next Generation LEDs provide an improved lensing scheme which makes the fiber optic coupling more repeatable. The LEDs are manufactured with an automated process that eliminates variable introduced by a manual process. The Next Generation LEDs are pin for pin compatible with existing Fiber Dip LEDs.

OUTLINE DIMENSIONS in inches (mm)



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Pinout

1. Common*	5. Common*
2. Anode	6. Anode
3. Cathode	7. Anode
4. Common*	8. Common*

Pins 1, 4, 5 and 8 are common and connected to the metal housing

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ELECTRO-OPTICAL CHARACTERISTICS (T_A = -40 to +85°C unless otherwise specified)

PARAMETER	SYMBOL	MIN	TYP (1)	MAX	UNITS	TEST CONDITIONS
Fiber Coupled Power (HFE4226-X22)	P_{OC}				dBm	I_F=100 mA Peak 50/125µm
Peak, T_A=25°C		-17.3	-13.8	-11.4		fiber, NA = 0.20
Peak over temp.		-18.9		-10.8		
Fiber Coupled Power	P_{OC}				dBm	I_F = 60 mA Peak 50/125 µm
Peak, T_A=25°C		-18.8	-15.8	-13.8		fiber, NA = 0.20
Peak over temp.		-19.8		-12.8		
Fiber Coupled Power	P_{OC}				dBm	I_F = 100 mA Peak 62.5/125 µm
Peak, T_A=25°C		-13.5	-10.0	-7.6		fiber, NA = 0.275
Peak over temp.		-15.1		-7.0		
Fiber Coupled Power	P_{OC}				dBm	I_F = 60 mA Peak 62.5/125 µm
Peak, T_A=25°C		-15.0	-12.0	-10.0		fiber, NA = 0.275
Peak over temp.		-16.0		-9.0		
Fiber Coupled Power (HFE4226-X23)	P_{OC}				dBm	I_F = 60 mA Peak 62.5/125 µm
Peak, T_A=25°C		-15.0	-10.5	-9.0		fiber, NA = 0.275
Peak over temp.		-16.0		-8.0		
Forward Voltage	V_F		1.84		V	I_F = 100 mA
	V_F	1.48	1.70	2.09	V	I_F = 60 mA
Forward Voltage Temperature	$\Delta V_F/\Delta T$		-0.18		mV/°C	I_F = 100 mA
Coefficient	$\Delta V_F/\Delta T$		-0.22		mV/°C	I_F = 60 mA
Reverse Voltage	B_{VR}	1.8	3.8		V	I_R = 10 µA, T_A=25°C
Peak Wavelength	λ_P	810	856	895	nm	I_F = 100 mA DC
	λ_P	810	850	885	nm	I_F = 60 mA DC
Spectral Bandwidth (FWHM)			55		nm	I_F = 100 mA DC
			50		nm	I_F = 60 mA DC
Response Time	t_R/t_F		4.0	6.3	ns	I_F = 60 mA peak, No Prebias
P_O Temperature Coefficient	$\Delta P_O/\Delta T$		-0.017		dB/°C	I_F = 100 mA
	$\Delta P_O/\Delta T$		-0.006		dB/°C	I_F = 60 mA
Series Resistance	r_S		4.0		Ω	DC
Device Capacitance	C		40		pF	V_R = 0 V, f = 1 MHz
Thermal Resistance			260		°C/W	Heat sinked

Notes

1. Typical specifications are for operations at T_C= 25°C.
2. P_{OC} is measured using a 10 meter mode stripped cable which is intended to accurately represent a working system.

ABSOLUTE MAXIMUM RATINGS

Storage temperature	-55 to +85°C
Case operating temperature	-40 to +85°C
Lead solder temperature	269°C, 10 s
Reverse voltage	1.8 V
Continuous forward current (heat sinked)	100 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.

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ORDER GUIDE

Description	Catalog Listing
Threaded metal barrel and housing, standard power	HFE4226-022
Threaded metal barrel and housing, crimped leads, standard power	HFE4226-422
Threaded metal barrel and housing, extended power	HFE4226-023
Threaded metal barrel and housing, crimped leads, extended power	HFE4226-423

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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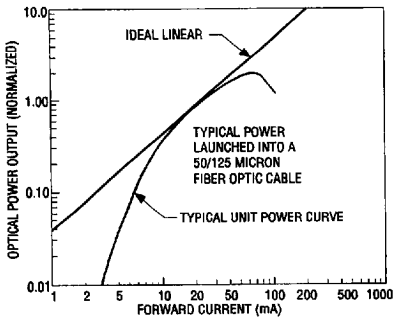

Fig. 2 Typical Spectral Output vs Wavelength

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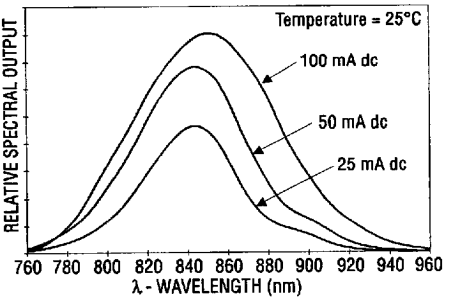

Fig. 3 Typical Optical Power Output vs Case Temperature

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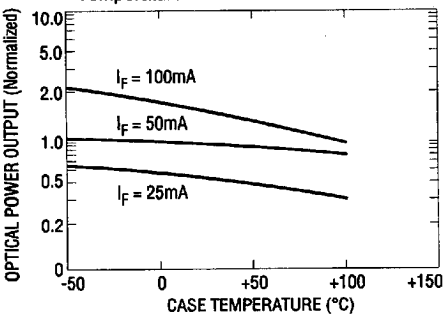

All Performance Curves Show Typical Values

Honeywell