

MF431 ST



ST Assembly

Ordering Information

PART #	RECEPTACLE
MF431 ST	ST
-40°C to +85°C	

Applications

- FDDI
- ATM-SDH/SONET 155Mbps
- Intra-Office Telecommunications
- General Purpose

Features

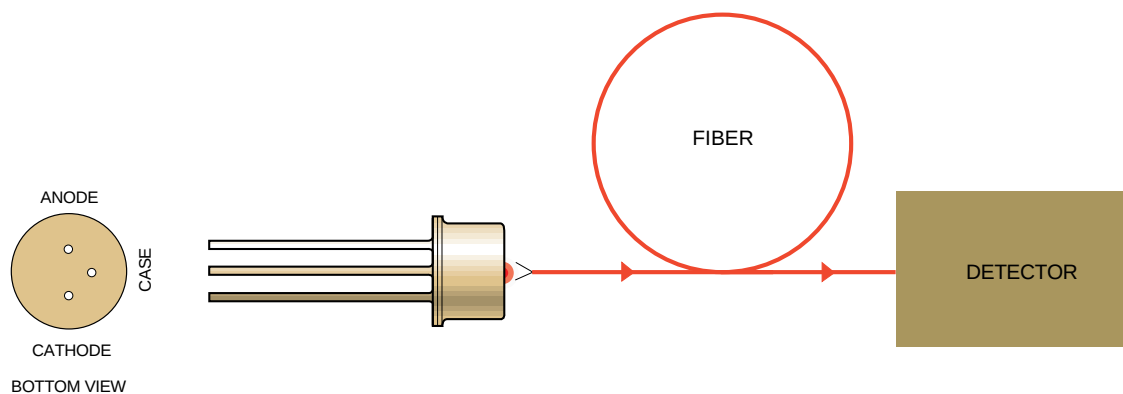
- 1320nm Surface-Emitting LED
- 125MHz Bandwidth
- Designed for 62.5/125μm Fiber
- Aligned in ST® Receptacle
- MTTF >1,000,000 hours

Description

This LED is designed for Datacom, Telecom and General Purpose Applications. It has a long wavelength LED for links up to 10 km at 125Mbps. It meets standards for FDDI (ANSI X3T9.5) and ATM155Mbps.

The device is optimized for 62.5/125μm fiber and actively aligned in an ST® receptacle. The MF432 PIN Photodiode is recommended as Receiver for this LED.

MF431 Functional Diagram



MF431 LED

Absolute Maximum Ratings*

Parameter	Symbol	Min.	Max.	Units
Storage Temperature	Tstg	-40	+85	°C
Operating Temperature (Fig 4)	Top	-40	+85	°C
Electrical Power Dissipation (Fig 4)	Ptot		160	mW
Continuous Forward Current ($f \leq 10\text{kHz}$)	IF		80	mA
Peak Forward Current (duty cycle $\leq 50\%$, $f \geq 1\text{MHz}$)	IFRM		130	mA
Reverse Voltage	VR		0.5	V
Soldering Temperature (Note 1)	Tsld		260	°C

*Exceeding these values may cause permanent damage. Functional operation under these conditions is not implied.

Note 1: 2mm from the case for 10s.

Optical & Electrical Characteristics (Case Temperature -25 to +70°C)

Parameter	Symbol	Min.	Typ.	Max.	Units	Test Conditions
Fiber-Coupled-Power (Fig 1, 2, 3)	P_{fiber}	-19			dBm	$I_{\text{Peak}}=60\text{mA}$ (Note 1, 2)
Rise & Fall Time (10-90%, no bias)	t_r, t_f		2.0	2.5	ns	$I_F=60\text{mA}$ (Note 2, 3)
Bandwidth (3dB _{el})	f_c		125		MHz	$I_F=60\text{mA}$ (Note 2)
Peak Wavelength	λ_p	1285	1320	1355	nm	$I_F=60\text{mA}$ (Note 3)
Spectral Width (FWHM)	$\Delta\lambda$		135	170	nm	$I_F=60\text{mA}$ (Note 3)
Forward Voltage (Fig 5)	V_F		1.3	1.65	V	$I_F=60\text{mA}$
Reverse Current	I_R			100	μA	$V_R=1\text{V}$
Capacitance	C		200		pF	$V_R=0\text{V}$, $f=1\text{MHz}$

Note 1: Average power at 10MHz/50% duty cycle. Measured at the exit of 100m of fiber.

Note 2: 62.5/125 μm graded index fiber (NA = 0.275).

Note 3: Meets the FDDI ANSI X3T9.5 specification for FDDI.

Thermal Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Units
Thermal Resistance - Infinite Heat Sink	R_{thjc}			200	°C/W
Thermal Resistance - On PCB	R_{thjb}			300	°C/W
Temperature Coefficient - Optical Power	dP/dT_j		-0.75		%/°C
Temperature Coefficient - Wavelength	$\Delta\lambda/dT_j$		0.45		nm/°C

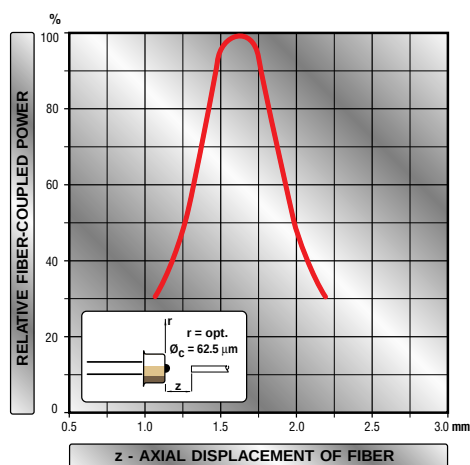


Figure 1

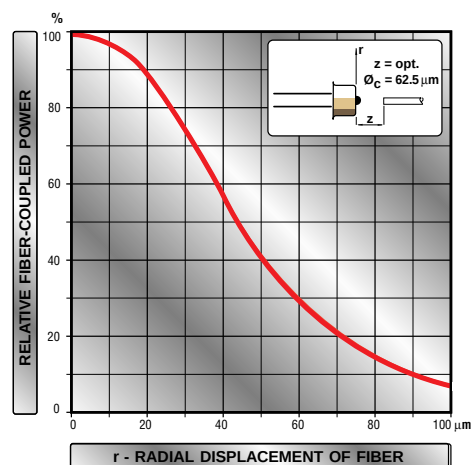


Figure 2

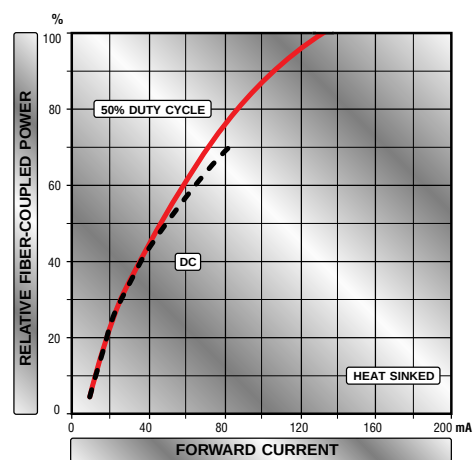


Figure 3

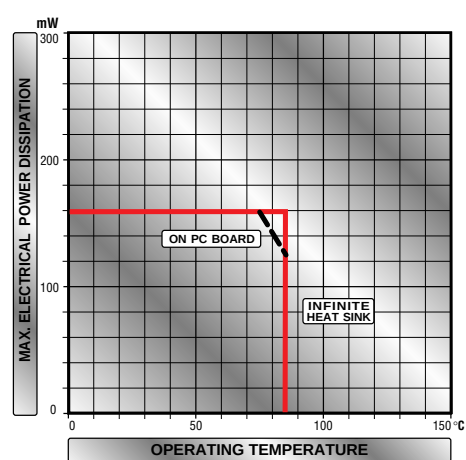


Figure 4

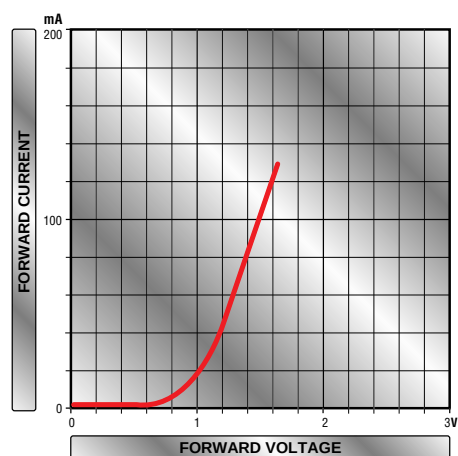
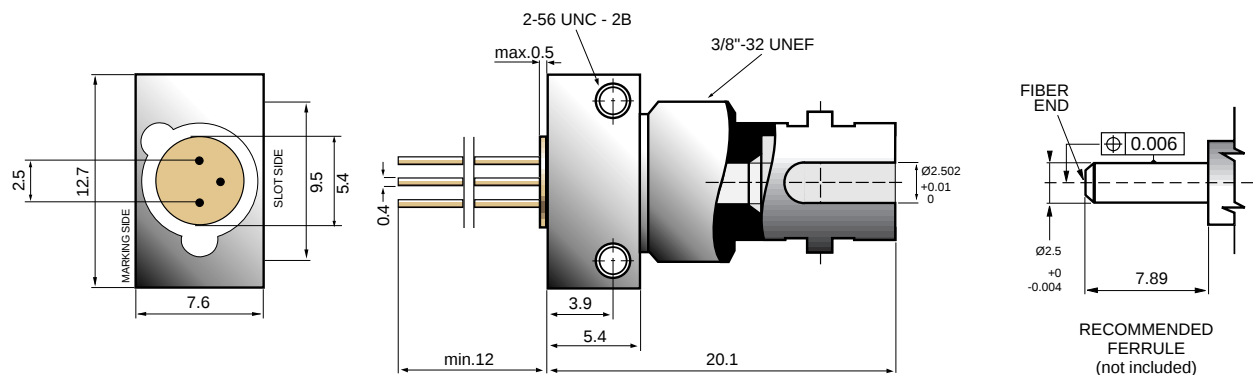


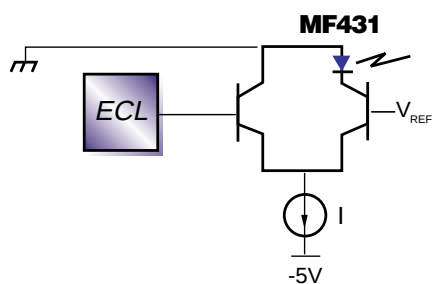
Figure 5

MF431 ST Mechanical Data

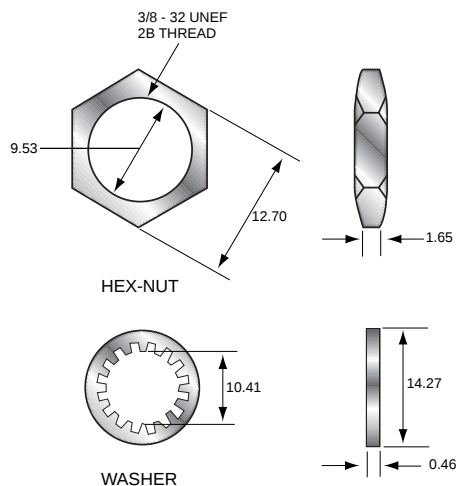


Note: The LED chip is isolated from the case. All dimensions in mm.

Typical Drive Circuit



ST Packaging Hardware





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