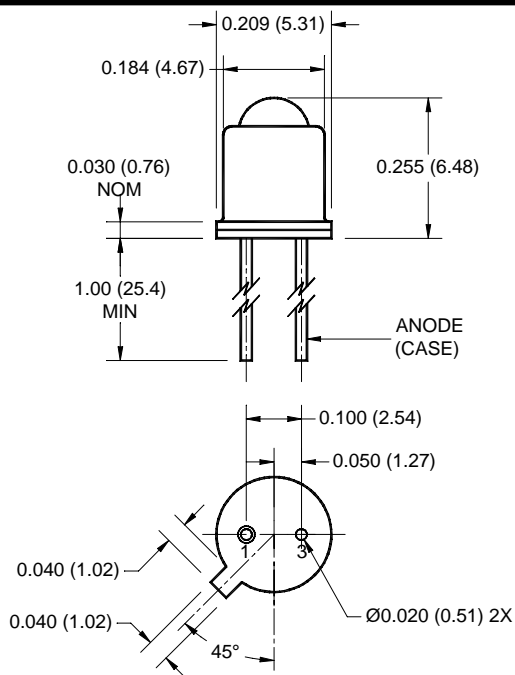




# THE DATASHEET OF F5D2



### PACKAGE DIMENSIONS

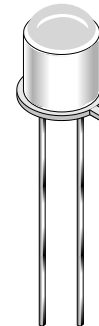


**NOTES:**

1. Dimensions for all drawings are in inches (mm).
2. Tolerance of  $\pm .010$  (.25) on all non-nominal dimensions unless otherwise specified.

### DESCRIPTION

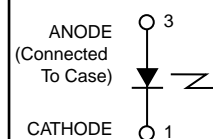
- The F5D series is a 880 nm LED in a narrow angle, TO-46 package.



### FEATURES

- Good optical to mechanical alignment
- Mechanically and wavelength matched to the TO-18 series phototransistor
- Hermetically sealed package
- High irradiance level

### SCHEMATIC



1. Derate power dissipation linearly 1.70 mW/°C above 25°C ambient.
2. Derate power dissipation linearly 13.0 mW/°C above 25°C case.
3. RMA flux is recommended.
4. Methanol or isopropyl alcohols are recommended as cleaning agents.
5. Soldering iron tip 1/16" (1.6mm) minimum from housing.
6. As long as leads are not under any stress or spring tension
7. Total power output, P<sub>O</sub>, is the total power radiated by the device into a solid angle of 2 π steradians.

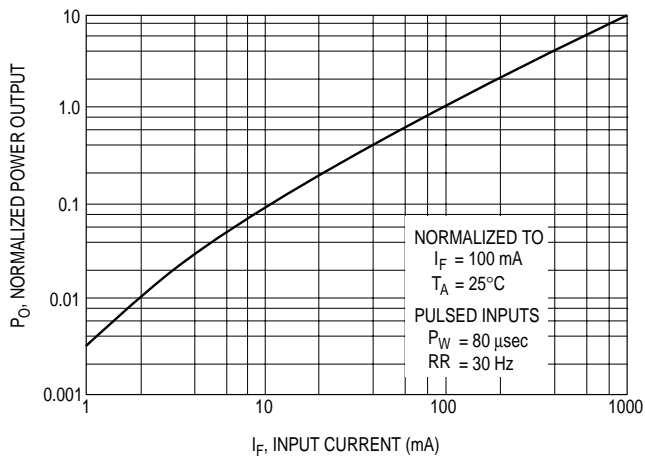
### ABSOLUTE MAXIMUM RATINGS (T<sub>A</sub> = 25°C unless otherwise specified)

Parameter	Symbol	Rating	Unit
Operating Temperature	T <sub>OPR</sub>	-65 to +125	°C
Storage Temperature	T <sub>STG</sub>	-65 to +150	°C
Soldering Temperature (Iron) <sup>(3,4,5 and 6)</sup>	T <sub>SOL-I</sub>	240 for 5 sec	°C
Soldering Temperature (Flow) <sup>(3,4 and 6)</sup>	T <sub>SOL-F</sub>	260 for 10 sec	°C
Continuous Forward Current	I <sub>F</sub>	100	mA
Forward Current (pw, 10µs; 100Hz)	I <sub>F</sub>	3	A
Forward Current (pw, 1µs; 200Hz)	I <sub>F</sub>	10	A
Reverse Voltage	V <sub>R</sub>	3	V
Power Dissipation (T <sub>A</sub> = 25°C) <sup>(1)</sup>	P <sub>D</sub>	170	mW
Power Dissipation (T <sub>C</sub> = 25°C) <sup>(2)</sup>	P <sub>D</sub>	1.3	W

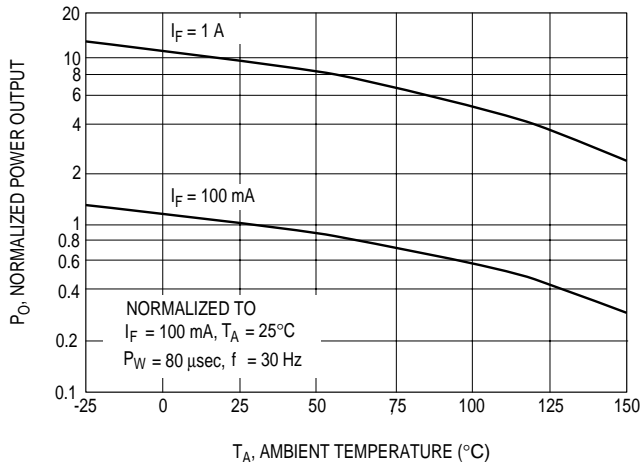
### ELECTRICAL / OPTICAL CHARACTERISTICS (T<sub>A</sub> = 25°C) (All measurements made under pulse conditions)

PARAMETER	TEST CONDITIONS	SYMBOL	MIN	TYP	MAX	UNITS
Peak Emission Wavelength	I <sub>F</sub> = 100 mA	λ <sub>P</sub>	—	880	—	nm
Emission Angle at 1/2 Power	I <sub>F</sub> = 100 mA	θ	—	±8	—	Deg.
Forward Voltage	I <sub>F</sub> = 100 mA	V <sub>F</sub>	—	—	1.7	V
Reverse Leakage Current	V <sub>R</sub> = 3 V	I <sub>R</sub>	—	—	10	µA
Total Power F5D1 <sup>(7)</sup>	I <sub>F</sub> = 100 mA	P <sub>O</sub>	12.0	—	—	mW
Total Power F5D2 <sup>(7)</sup>	I <sub>F</sub> = 100 mA	P <sub>O</sub>	9.0	—	—	mW
Total Power F5D3 <sup>(7)</sup>	I <sub>F</sub> = 100 mA	P <sub>O</sub>	10.5	—	—	mW
Rise Time 0-90% of output		t <sub>r</sub>	—	1.5	—	µs
Fall Time 100-10% of output		t <sub>f</sub>	—	1.5	—	µs

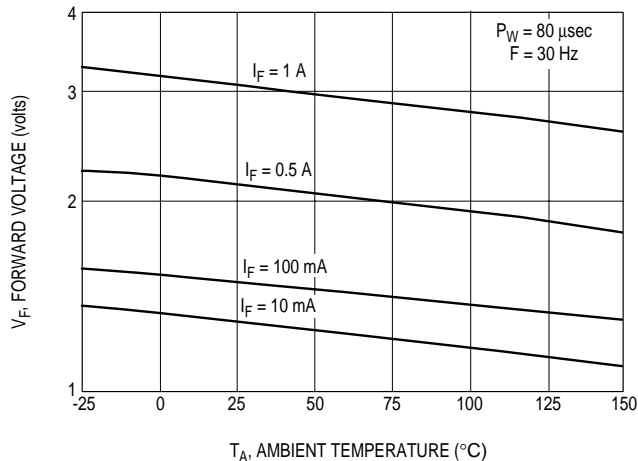
**Figure 1. Power Output vs. Input Current**



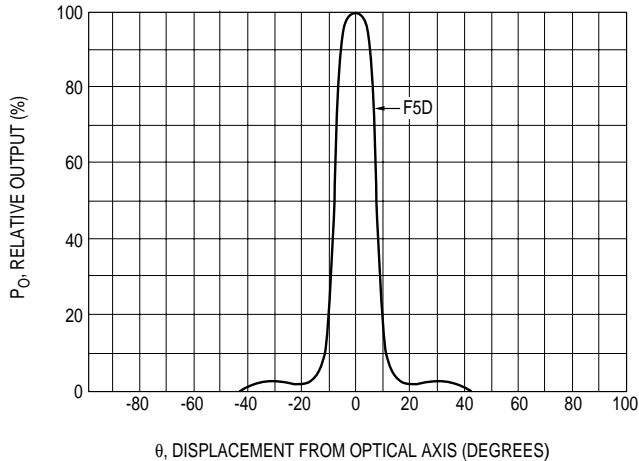
**Figure 2. Power Output vs. Temperature**



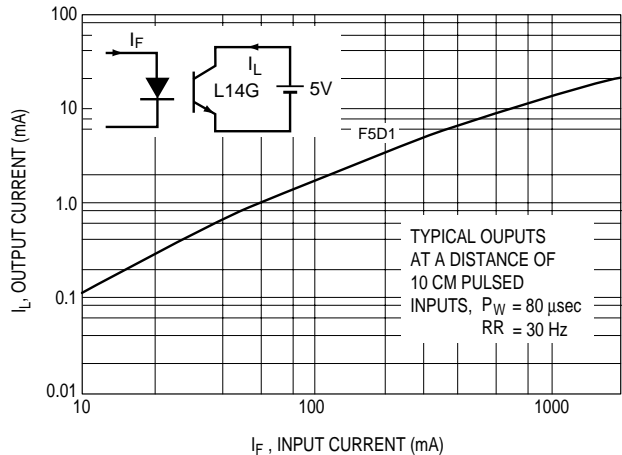
**Figure 3. Forward Voltage vs. Temperature**



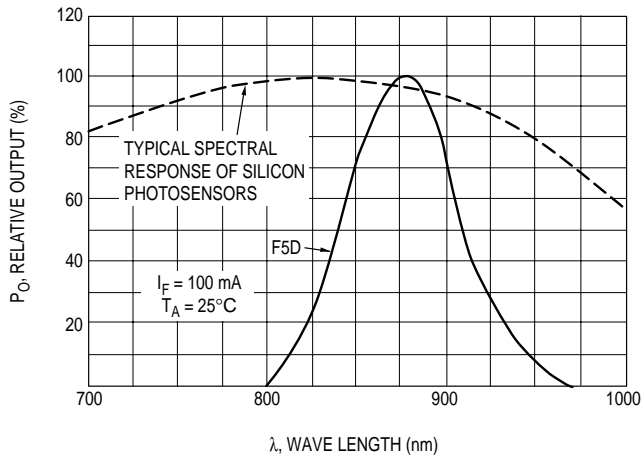
**Figure 4. Typical Radiation Pattern**



**Figure 5. Output vs. Input with L14G Detector**



**Figure 6. Output vs. Wavelength**



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2. A critical component in any component of a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system, or to affect its safety or effectiveness.

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