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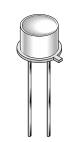
# F5E1/2/3 AIGaAs INFRARED EMITTING DIODE

## **PACKAGE DIMENSIONS** -- 0.209 (5.31) **-**-0.184 (4.67) 0.030 (0.76) 0.155 (3.94) NQM MAX 1.00 (25.4) MIN ANODE (CASE) 0.100 (2.54) 0.050 (1.27) 0.040 (1.02) Ø0.020 (0.51) 2X 0.040 (1.02) NOTES:

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

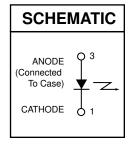
## **DESCRIPTION**

The F5E series are 880nm LEDs in a wide 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



- 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.
- 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,  $P_O$ , is the total power radiated by the device into a solid angle of 2  $\pi$  steradians.

#### **ABSOLUTE MAXIMUM RATINGS** (T<sub>A</sub> = 25°C unless otherwise specified) **Parameter** Symbol Rating Unit Operating Temperature -65 to +125 °C T<sub>OPR</sub> Storage Temperature -65 to +150 °C $T_{STG}$ Soldering Temperature (Iron)(3,4,5 and 6) °C 240 for 5 sec T<sub>SOL-I</sub> Soldering Temperature (Flow)(3,4 and 6) 260 for 10 sec °C $T_{SOL-F}$ Continuous Forward Current $I_{\mathsf{F}}$ 100 mΑ Forward Current (pw, 10µs; 100Hz) 3 Α Forward Current (pw, 1µs; 200Hz) 10 Α $I_{\mathsf{F}}$ ٧ Reverse Voltage 3 $V_R$ Power Dissipation (T<sub>A</sub> = 25°C)<sup>(1)</sup> 170 $P_D$ mW Power Dissipation (T<sub>C</sub> = 25°C)(2) $P_D$ 1.3 W

PARAMETER	TEST CONDITIONS	SYMBOL	MIN	TYP	MAX	UNITS
Peak Emission Wavelength	I <sub>F</sub> = 100 mA	$\lambda_{PE}$	_	880	_	nm
Emission Angle at 1/2 Power		θ	_	±40	_	Deg.
Forward Voltage	I <sub>F</sub> = 100 mA	$V_{F}$	_	_	1.7	V
Reverse Leakage Current	$V_R = 3 V$	I <sub>B</sub>	_	_	10	μΑ
Total Power F5E1 (7)	I <sub>F</sub> = 100 mA	Po	12.0	_	_	mW
Total Power F5E2 (7)	I <sub>F</sub> = 100 mA	Po	9.0	_	_	mW
Total Power F5E3 (7)	I <sub>F</sub> = 100 mA	Po	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



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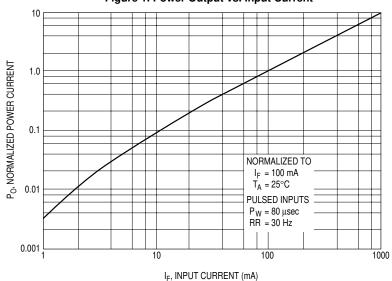


Figure 2. Power Output vs. Temperature

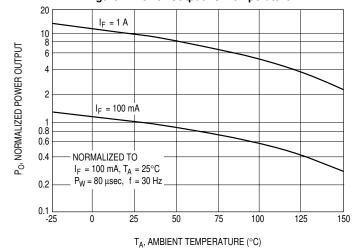


Figure 3. Forward Voltage vs. Temperature

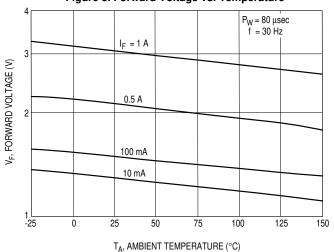
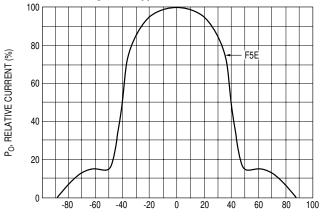
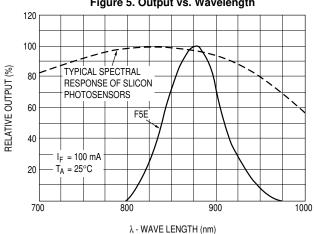


Figure 4. Typical Radiation Pattern



θ - DISPLACEMENT FROM OPTICAL AXIS (DEGREES)

Figure 5. Output vs. Wavelength





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