




LED55BF, LED55CF, LED56F

Hermetic GaAs Infrared Emitting Diode

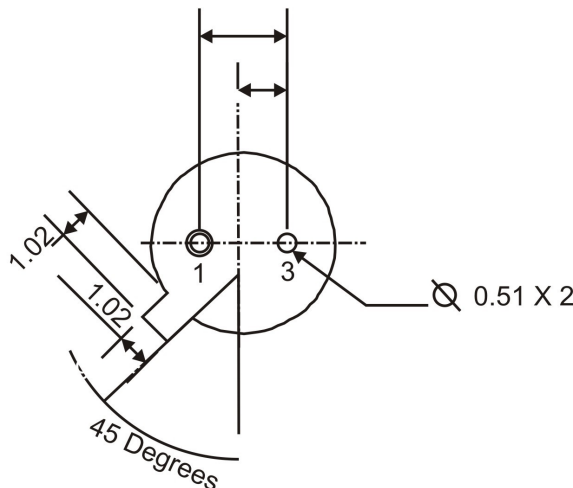
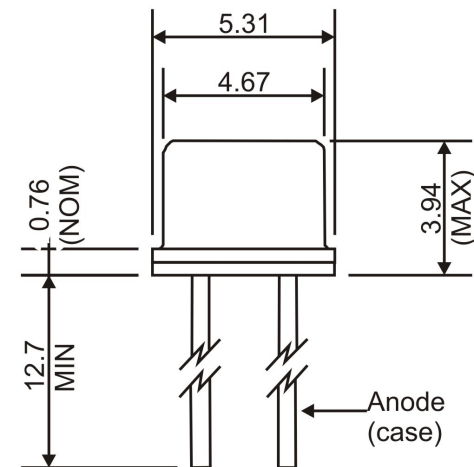
Features

- Good optically to mechanical alignment
- Mechanically and wavelength matched to the TO-18 series phototransistor
- High total radiant flux - typ. 11mW
- RoHS compliant 

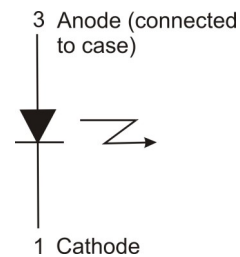
Description

The LED55BF, LED55CF, LED56F are a 940nm LED in a wide angle TO-46 package.

Package Dimensions



Schematic



Notes:

1. Dimensions for all drawings are in mm.
2. Tolerances of + or - 0.25mm on all non-nominal dimensions, unless otherwise specified.

LED55BF LED55CF LED56F — Hermetic GaAs Infrared Emitting Diode

Absolute Maximum Ratings ($T_A = 25^\circ\text{C}$ unless otherwise specified)

Stresses exceeding the absolute maximum ratings may damage the device. The device may not function or be operable above the recommended operating conditions and stressing the parts to these levels is not recommended. In Addition, extended exposure to stresses above the recommended operating conditions may affect device reliability. The absolute maximum ratings are stress ratings only.

Parameter	Symbol	Rating	Units
Operating Temperature	T_{OPG}	-65°C to $+125^\circ\text{C}$	$^\circ\text{C}$
Storage Temperature	T_{STG}	-65°C to $+150^\circ\text{C}$	$^\circ\text{C}$
Solder Temperature (Iron) ^(3,4,5,6)	T_{SOL-I}	240 $^\circ\text{C}$ for 5 sec	$^\circ\text{C}$
Solder Temperature (Flow) ^(3,4,6)	T_{SOL-F}	260 $^\circ\text{C}$ for 10 sec	$^\circ\text{C}$
Continuous Forward Current	I_F	100	mA
Forward Current (pw, 1 μs ; 200Hz)	I_F	10	A
Reverse Voltage	V_R	3	V
Power Dissipation $T_A = 25^\circ\text{C}$ ⁽¹⁾	P_D	170	mW
Power Dissipation $T_A = 25^\circ\text{C}$ ⁽²⁾	P_D	1.3	W

Electrical/Optical Characteristics ($T_A = 25^\circ\text{C}$)

Parameter	Test Conditions	Symbol	Min	Typ	Max	Units
Peak Emission Wavelength	$I_f = 100\text{mA}$	λ_c		940		nm
Emission Angle at 1/2 Power	$I_f = 100\text{mA}$	Θ		+/- 40		Deg.
Forward Voltage	$I_f = 100\text{mA}$	V_f			1.7	V
Reverse Leakage Current	$V_R = 3\text{V}$	I_R			10	μA
Total Radiant Flux LED55BF ⁽⁷⁾	$I_f = 100\text{mA}$	P_o	3.5	5		mW
Total Radiant Flux LED55CF ⁽⁷⁾	$I_f = 100\text{mA}$	P_o	5.4	11		mW
Total Radiant Flux LED56F ⁽⁷⁾	$I_f = 100\text{mA}$	P_o	1.5	2.5		mW
Rise Time 0-90% of output		t_r		1		μs
Fall Time 100-10% of output		t_f		1		μs

Notes:

- 1 Derate power dissipation linearly 1.70 mW/ $^\circ\text{C}$ above 25 $^\circ\text{C}$ ambient.
- 2 Derate power dissipation linearly 13.0 mW/ $^\circ\text{C}$ above 25 $^\circ\text{C}$ case.
- 3 RMA flux is recommended.
- 4 Methanol or Isopropyl alcohols are recommended as cleaning agents.
- 5 Soldering iron tip 1.6mm minimum from housing.
- 6 As long as leads are not under stress or spring tension.
- 7 Total power output, P_o , is the total power radiated by the device into a solid angle of 2π steradians.

Typical Performance Characteristics

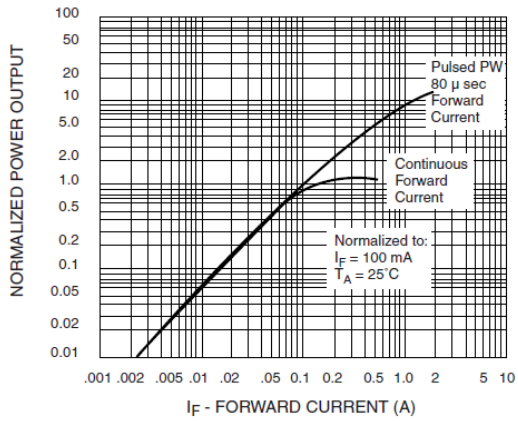


Fig. 1 Power Output vs. Input Current

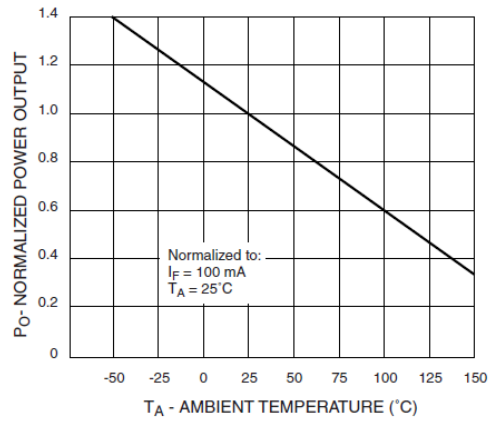


Fig. 2 Power Output vs. Temperature

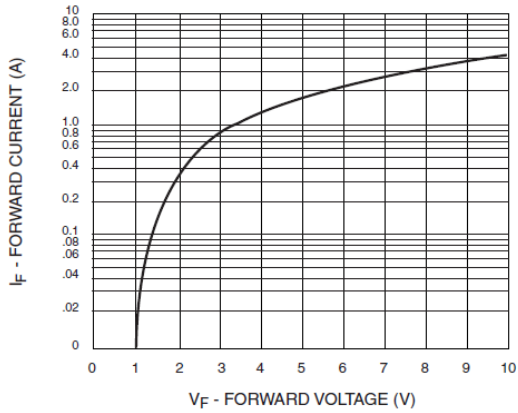


Fig. 3 Forward Voltage vs. Forward Current

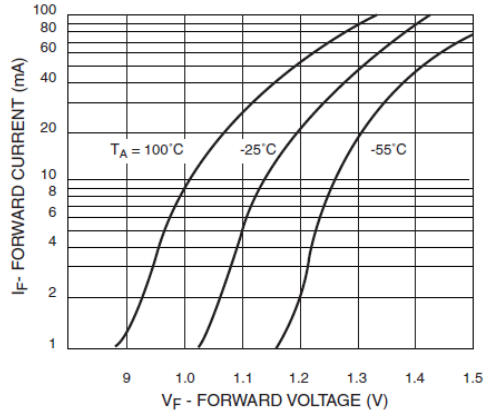


Fig. 4 Forward Voltage vs. Forward Current

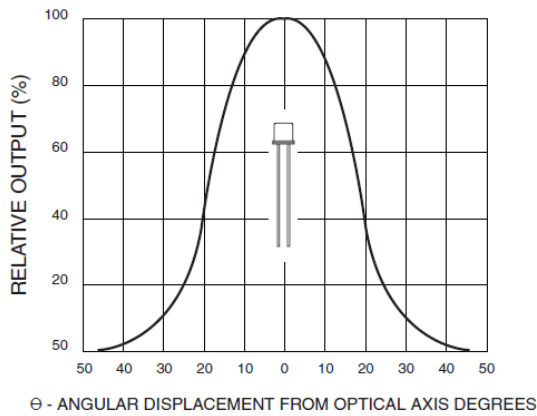


Fig. 5 Typical Radiation Pattern



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