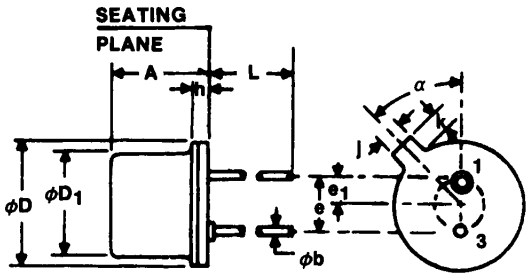
QT OPTOELECTRONICS

# GaAs INFRARED EMITTING DIODE

# LED55BF/CF, LED56F

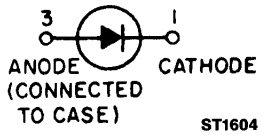
## PACKAGE DIMENSIONS




ST1331

| SYMBOL | INCHES | | MILLIMETERS | | NOTES |
|---|---|---|---|---|---|
| | MIN. | MAX. | MIN. | MAX. | |
| A | | .155 | | 3.93 | |
| ⌀b | .016 | .021 | .407 | .533 | |
| ⌀D | .209 | .230 | 5.31 | 5.84 | |
| ⌀D1 | .180 | .188 | 4.57 | 4.77 | |
| e | .100 NOM. | | 2.54 NOM. | | 2 |
| e1 | .050 NOM. | | 1.27 NOM. | | 2 |
| h | | .030 | | .76 | |
| j | .031 | .044 | .79 | 1.11 | |
| k | .036 | .046 | .92 | 1.16 | 1 |
| L | 1.00 | | 25.4 | | |
| α | 45° | 45° | 45° | 45° | 3 |

## PACKAGE OUTLINE




ST1604

NOTES:
1. MEASURED FROM MAXIMUM DIAMETER OF DEVICE.
2. LEADS HAVING MAX. DIAMETER .021" (.533mm) MEASURED IN GAUGING PLANE .054" + .001" – .000 (137 + 025 – 000mm) BELOW THE REFERENCE PLANE OF THE DEVICE SHALL BE WITHIN .007" (.778mm) THEIR TRUE POSITION RELATIVE TO A MAXIMUM WIDTH TAB.
3. FROM CENTERLINE TAB.

## DESCRIPTION

The LED55BF/CF and LED56F are 940nm 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

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## ABSOLUTE MAXIMUM RATINGS ($T_A$ = 25°C Unless Otherwise Specified)

Storage Temperature ..... −65°C to +150°C
Operating Temperature ..... −65°C to +125°C
Soldering:
Lead Temperature (Iron) ..... 240°C for 5 sec.(3,4,5,6)
Lead Temperature (Flow) ..... 260°C for 10 sec.(3,4,6)
Continuous Forward Current ..... 100 mA
Forward Current (pw, 1μS; 200 Hz) ..... 10 A
Reverse Voltage ..... 3 Volts
Power Dissipation ($T_A$ = 25°C) ..... 170 mW(1)
Power Dissipation ($T_C$ = 25°C) ..... 1.3 W(2)

## ELECTRICAL CHARACTERISTICS ($T_A$ = 25°C Unless Otherwise Specified)
(All measurements made under pulse conditions.)

| PARAMETER | SYMBOL | MIN. | TYP. | MAX. | UNITS | TEST CONDITIONS |
|---|---|---|---|---|---|---|
| Forward Voltage | $V_F$ | — | | 1.7 | V | $I_F$ = 100 mA |
| Reverse Leakage Current | $I_R$ | — | | 10 | μA | $V_R$ = 3 V |
| Peak Emission Wavelength | $\lambda_p$ | | 940 | | nm | $I_F$ = 100 mA |
| Emission Angle at ½ Power | θ | | ±40 | | Degrees | |
| Total Power LED55BF | Po | 3.5 | | — | mW | $I_F$ = 100 mA(7) |
| Total Power LED55CF | Po | 5.4 | | — | mW | $I_F$ = 100 mA(7) |
| Total Power LED56F | Po | 1.5 | | — | mW | $I_F$ = 100 mA(7) |
| Rise Time 0-90% of output | $t_r$ | | 1.0 | | μS | |
| Fall Time 100-10% of output | $t_f$ | | 1.0 | | μS | |

## NOTES

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 Isopranol alcohols are recommended as cleaning agents.*
5. *Soldering iron tip 1/16" (1.6 mm) minimum from housing.*
6. *As long as leads are not under any stress or spring tension.*
7. *Total power output, Po, is the total power radiated by the device into a solid angle of 2π steradians.*

## TYPICAL CHARACTERISTICS

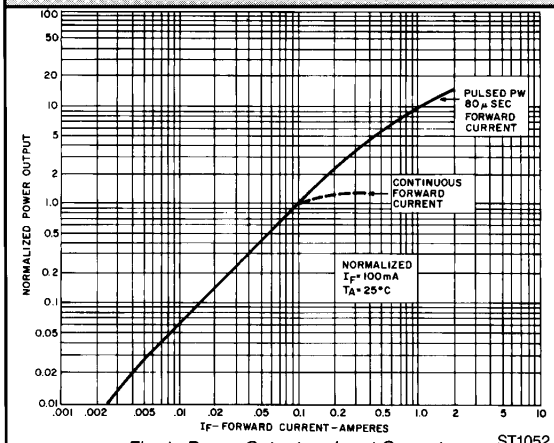


*Fig. 1. Power Output vs. Input Current* ST1052

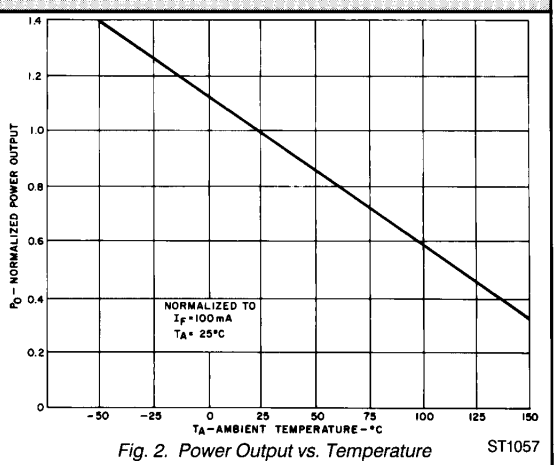


*Fig. 2. Power Output vs. Temperature* ST1057

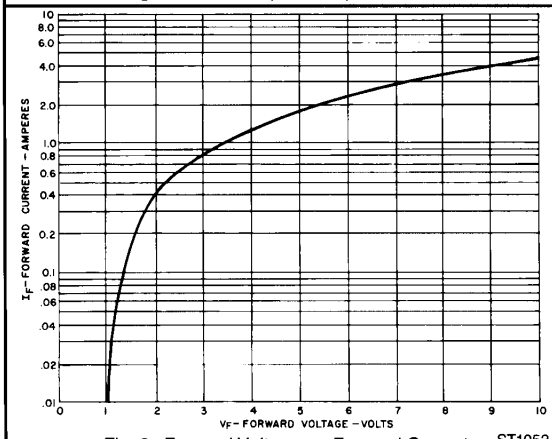


*Fig. 3. Forward Voltage vs. Forward Current* ST1053

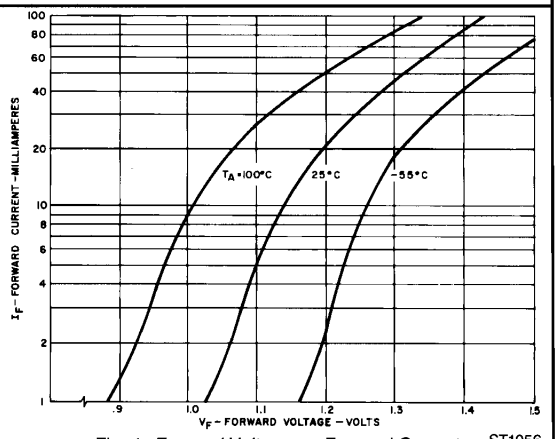


*Fig. 4. Forward Voltage vs. Forward Current* ST1056

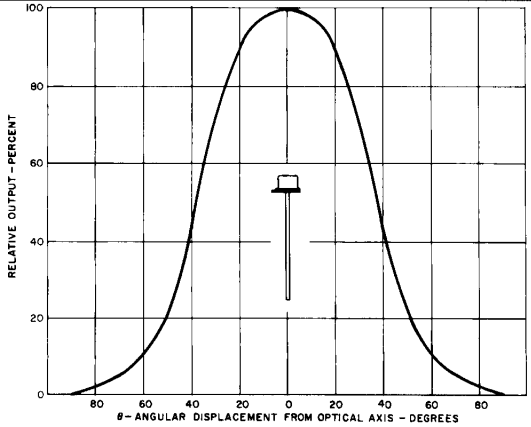


*Fig. 5. Typical Radiation Pattern* ST1055