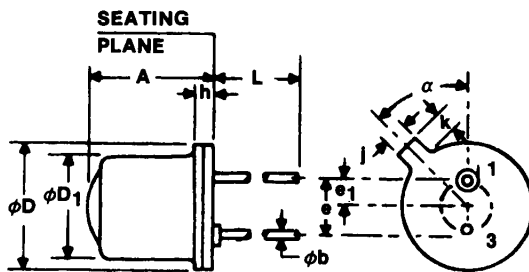


PACKAGE DIMENSIONS



ST1332

| SYMBOL | INCHES | | MILLIMETERS | | NOTES |
|--------|-----------|------|-------------|------|-------|
| | MIN. | MAX. | MIN. | MAX. | |
| A | | .255 | | 6.47 | |
| ⊕b | .016 | .021 | .407 | .533 | |
| ⊕D | .209 | .230 | 5.31 | 5.84 | |
| ⊕D. | .180 | .187 | 4.52 | 4.77 | |
| e | .100 NOM. | | 2.54 NOM. | | 2 |
| e. | .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 |

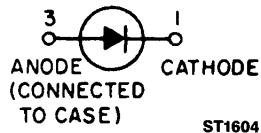
DESCRIPTION

The CQX14/16 are 940nm LEDs in narrow angle, TO-46 packages.

FEATURES

- Good optical to mechanical alignment
- Mechanically and wavelength matched to TO-18 phototransistor
- Hermetically sealed package
- High irradiance level
- European "Pro Electron" registered

PACKAGE OUTLINE



NOTES:

1. MEASURED FROM MAXIMUM DIAMETER OF DEVICE.
2. LEADS HAVING MAXIMUM DIAMETER .021" (.533mm) MEASURED IN GAUGING PLANE .054" + .001" - .000 (1.37 + 0.25 - 0.00mm) BELOW THE REFERENCE PLANE OF THE DEVICE SHALL BE WITHIN .007" (.778mm) THEIR TRUE POSITION RELATIVE TO MAXIMUM WIDTH TAB.
3. FROM CENTERLINE TAB.



GaAs INFRARED EMITTING DIODE

ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ Unless Otherwise Specified)

| | |
|--|---|
| Storage Temperature | -65°C to $+150^\circ\text{C}$ |
| Operating Temperature | -65°C to $+125^\circ\text{C}$ |
| 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, 1 μS ; 200 Hz) | 10 A |
| Reverse Voltage | 3 Volts |
| Power Dissipation ($T_A = 25^\circ\text{C}$) | 170 mW ⁽¹⁾ |
| Power Dissipation ($T_C = 25^\circ\text{C}$) | 1.3 W ⁽²⁾ |

ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ Unless Otherwise Specified)

(All measurements made under pulse conditions.)

| PARAMETER | SYMBOL | MIN. | TYP. | MAX. | UNITS | TEST CONDITIONS |
|---------------------------------------|-------------|------|---------|------|---------------|-----------------------------|
| Forward Voltage | V_f | — | | 1.7 | V | $I_f = 100\text{ mA}$ |
| Reverse Leakage Current | I_R | — | | 10 | μA | $V_R = 3\text{ V}$ |
| Peak Emission Wavelength | λ_p | | 940 | | nm | $I_f = 100\text{ mA}$ |
| Emission Angle at $\frac{1}{2}$ Power | θ | | ± 8 | | Degrees | |
| Total Power CQX14 | P_o | 5.4 | | — | mW | $I_f = 100\text{ mA}^{(7)}$ |
| Total Power CQX16 | P_o | 1.5 | | — | mW | $I_f = 100\text{ mA}^{(7)}$ |
| 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 $1.70\text{mW}/^\circ\text{C}$ above 25°C ambient.
2. Derate power dissipation linearly $13.0\text{mW}/^\circ\text{C}$ above 25°C case.
3. RMA flux is recommended.
4. Methanol or Isopropanol alcohols are recommended as cleaning agents.
5. Soldering iron tip $\frac{1}{16}$ " (1.6 mm) minimum from housing.
6. As long as leads are not under any stress or spring tension.
7. Total power output, P_o , is the total power radiated by the device into a solid angle of 2π steradians.

TYPICAL CHARACTERISTICS

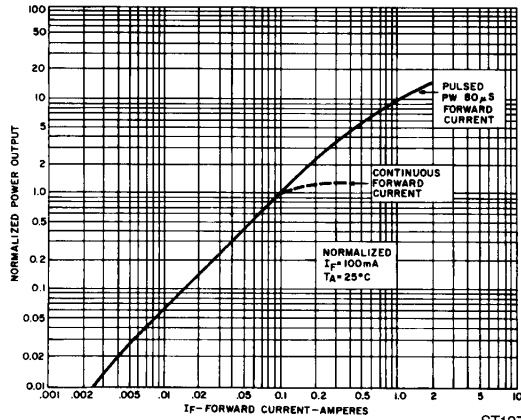


Fig. 1. Power Output vs. Input Current ST1271

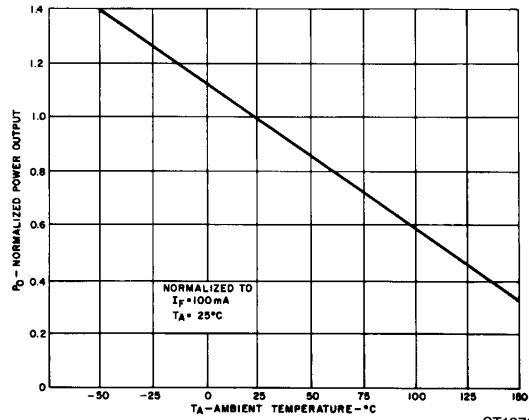


Fig. 2. Power Output vs. Temperature ST1276

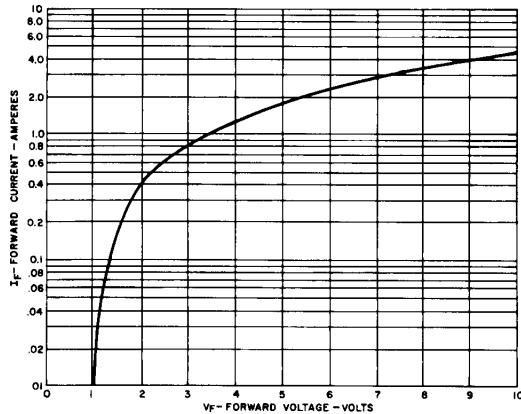


Fig. 3. Forward Voltage vs. Forward Current ST1272

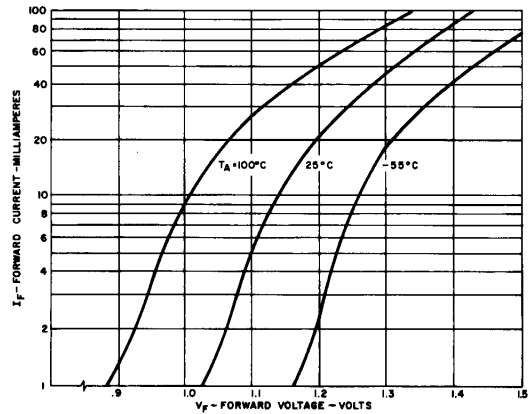


Fig. 4. Forward Voltage vs. Forward Current ST1275

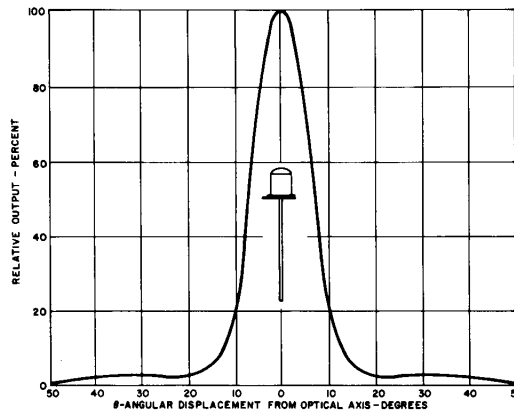


Fig. 5. Typical Radiation Pattern ST1273