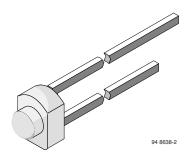


Vishay Semiconductors

Infrared Emitting Diode, 950 nm, GaAs



FEATURES

- Package type: leaded
- Package form: T-¾
- Dimensions (in mm): Ø 1.8
- Peak wavelength: $\lambda_p = 950 \text{ nm}$
- High reliability
- Angle of half intensity: $\phi = \pm 12^{\circ}$
- Low forward voltage
- Suitable for high pulse current operation
- · Good spectral matching with Si photodetectors
- Package matches with detector BPW17N
- Compliant to RoHS Directive 2002/95/EC and in accordance to WEEE 2002/96/EC

APPLICATIONS

• Radiation source in near infrared range

DESCRIPTION

CQY37N is an infrared, 950 nm emitting diode in GaAs technology molded in a miniature, clear plastic package with lens.

PRODUCT SUMMARY

| COMPONENT | l _e (mW/sr) | φ (deg) | λ _P (nm) | t _r (ns) |
|-----------|------------------------|---------|---------------------|---------------------|
| CQY37N | 5 | ± 12 | 950 | 800 |

Note

• Test conditions see table "Basic Characteristics"

| ORDERING INFORMATION | | | | | |
|----------------------|-----------------------|------------------------------|--------------|--|--|
| ORDERING CODE | DERING CODE PACKAGING | | PACKAGE FORM | | |
| CQY37N | Bulk | MOQ: 5000 pcs, 5000 pcs/bulk | T-3⁄4 | | |

Note

• MOQ: minimum order quantity

| ABSOLUTE MAXIMUM RATINGS (T _{amb} = 25 °C, unless otherwise specified) | | | | | |
|--|-----------------------|-------------------|---------------|------|--|
| PARAMETER | TEST CONDITION | SYMBOL | VALUE | UNIT | |
| Reverse voltage | | V _R | 5 | V | |
| Forward current | | I _F | 100 | mA | |
| Surge forward current | $t_p \le 100 \ \mu s$ | I _{FSM} | 2 | A | |
| Power dissipation | | Pv | 160 | mW | |
| Junction temperature | | Tj | 100 | °C | |
| Operating temperature range | | T _{amb} | - 25 to + 85 | °C | |
| Storage temperature range | | T _{stg} | - 25 to + 100 | °C | |
| Soldering temperature | $t \leq 3 s$ | T _{sd} | 245 | °C | |
| Thermal resistance junction/ambient | Leads not soldered | R _{thJA} | 450 | K/W | |



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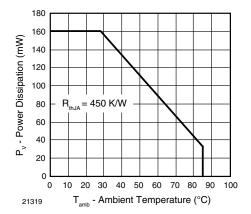


Fig. 1 - Power Dissipation Limit vs. Ambient Temperature

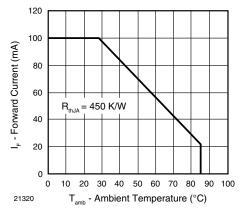


Fig. 2 - Forward Current Limit vs. Ambient Temperature

| BASIC CHARACTERISTICS (T _{amb} = 25 °C, unless otherwise specified) | | | | | | |
|---|---|-------------------|------|-------|------|-------|
| PARAMETER | TEST CONDITION | SYMBOL | MIN. | TYP. | MAX. | UNIT |
| Forward voltage | I_F = 50 mA, $t_p \le$ 20 ms | V _F | | 1.3 | 1.6 | V |
| Temperature coefficient of V _F | I _F = 100 mA | TK _{VF} | | - 1.3 | | mV/K |
| Breakdown voltage | I _R = 100 μA | V _(BR) | 5 | | | μA |
| Junction capacitance | $V_{R} = 0 V, f = 1 MHz, E = 0$ | Cj | | 50 | | pF |
| Radiant intensity | I_F = 50 mA, $t_p \le$ 20 ms | l _e | 2.2 | 5 | 11 | mW/sr |
| Radiant power | I_F = 50 mA, $t_p \le$ 20 ms | фе | 4.8 | 10 | 17.8 | mW |
| Temperature coefficient of ϕ_{e} | I _F = 50 mA | ΤΚφ _e | | - 0.8 | | %/K |
| Angle of half intensity | | φ | | ± 12 | | deg |
| Peak wavelength | I _F = 50 mA | λρ | | 950 | | nm |
| Spectral bandwidth | I _F = 50 mA | Δλ | | 50 | | nm |
| Rise time | I _F = 100 mA | t _r | | 800 | | ns |
| | I_F = 1.5 A, t_p/T = 0.01, $t_p \le 10 \ \mu s$ | t _r | | 400 | | ns |
| Virtual source diameter | | d | | 1.2 | | mm |

BASIC CHARACTERISTICS (Tamb = 25 °C, unless otherwise specified)

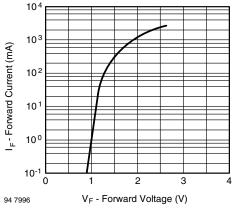


Fig. 3 - Forward Current vs. Forward Voltage

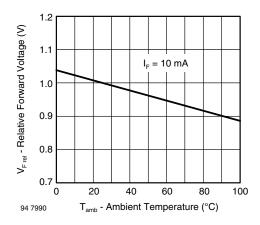


Fig. 4 - Relative Forward Voltage vs. Ambient Temperature



CQY37N

Infrared Emitting Diode, 950 nm, GaAs Vishay Semiconductors

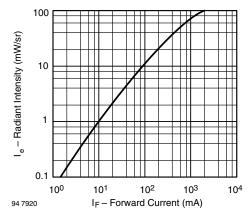


Fig. 5 - Radiant Intensity vs. Forward Current

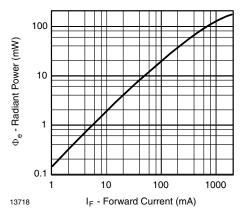


Fig. 6 - Radiant Power vs. Forward Current

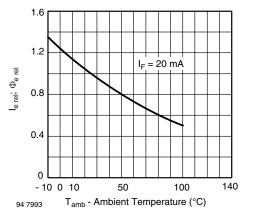


Fig. 7 - Relative Radiant Intensity/Power vs. Ambient Temperature

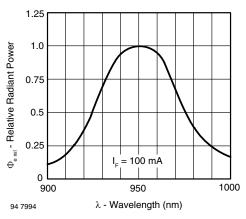


Fig. 8 - Relative Radiant Power vs. Wavelength

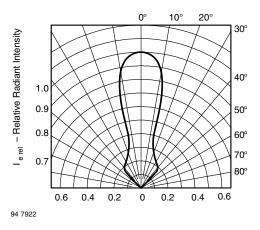


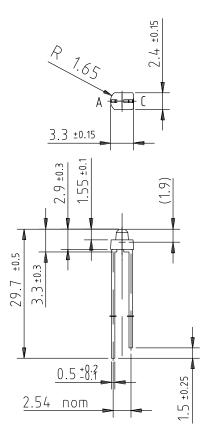
Fig. 9 - Relative Radiant Intensity vs. Angular Displacement

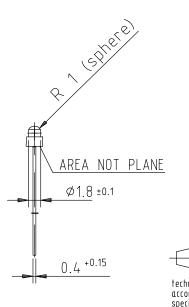
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Infrared Emitting Diode, 950 nm, GaAs



PACKAGE DIMENSIONS in millimeters







technical drawings according to DIN specifications

Drawing-No.: 6.544-5052.01-4 Issue: 1; 12.10.95 95 11262



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