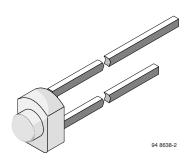


### Vishay Semiconductors

## Infrared Emitting Diode, 950 nm, GaAs



## DESCRIPTION

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

#### **FEATURES**

Package type: leadedPackage form: T-¾

Dimensions (in mm): Ø 1.8
 Peak wavelength: λ<sub>p</sub> = 950 nm

High reliability

• Angle of half intensity:  $\varphi = \pm 12^{\circ}$ 

• 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



• Radiation source in near infrared range

PRODUCT SUMMARY					
COMPONENT	I <sub>e</sub> (mW/sr)	φ (deg)	λ <sub>P</sub> (nm)	t <sub>r</sub> (ns)	
CQY37N	5	± 12	950	800	

#### Note

• Test conditions see table "Basic Characteristics"

ORDERING INFORMATION					
ORDERING CODE PACKAGING		REMARKS	PACKAGE FORM		
CQY37N	Bulk	MOQ: 5000 pcs, 5000 pcs/bulk	T-¾		

#### Note

MOQ: minimum order quantity

<b>ABSOLUTE MAXIMUM RATINGS</b> (T <sub>amb</sub> = 25 °C, unless otherwise specified)					
PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT	
Reverse voltage		V <sub>R</sub>	5	V	
Forward current		I <sub>F</sub>	100	mA	
Surge forward current	t <sub>p</sub> ≤ 100 μs	I <sub>FSM</sub>	2	А	
Power dissipation		P <sub>V</sub>	160	mW	
Junction temperature		T <sub>j</sub>	100	°C	
Operating temperature range		T <sub>amb</sub>	- 25 to + 85	°C	
Storage temperature range		T <sub>stg</sub>	- 25 to + 100	°C	
Soldering temperature	t ≤ 3 s	T <sub>sd</sub>	245	°C	
Thermal resistance junction/ambient	Leads not soldered	R <sub>thJA</sub>	450	K/W	

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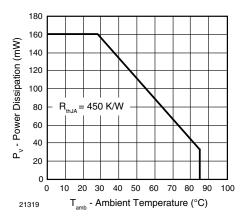


Fig. 1 - Power Dissipation Limit vs. Ambient Temperature

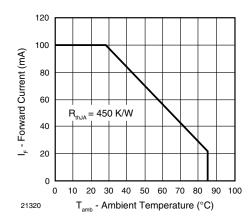


Fig. 2 - Forward Current Limit vs. Ambient Temperature

<b>BASIC CHARACTERISTICS</b> (T <sub>amb</sub> = 25 °C, unless otherwise specified)						
PARAMETER	TEST CONDITION	SYMBOL	MIN.	TYP.	MAX.	UNIT
Forward voltage	$I_F = 50 \text{ mA}, t_p \le 20 \text{ ms}$	$V_{F}$		1.3	1.6	V
Temperature coefficient of V <sub>F</sub>	I <sub>F</sub> = 100 mA	TK <sub>VF</sub>		- 1.3		mV/K
Breakdown voltage	I <sub>R</sub> = 100 μA	V <sub>(BR)</sub>	5			μΑ
Junction capacitance	$V_R = 0 V, f = 1 MHz, E = 0$	C <sub>j</sub>		50		pF
Radiant intensity	$I_F = 50 \text{ mA}, t_p \le 20 \text{ ms}$	l <sub>e</sub>	2.2	5	11	mW/sr
Radiant power	$I_F = 50 \text{ mA}, t_p \le 20 \text{ ms}$	фe	4.8	10	17.8	mW
Temperature coefficient of $\phi_e$	I <sub>F</sub> = 50 mA	TKφ <sub>e</sub>		- 0.8		%/K
Angle of half intensity		φ		± 12		deg
Peak wavelength	I <sub>F</sub> = 50 mA	$\lambda_{p}$		950		nm
Spectral bandwidth	I <sub>F</sub> = 50 mA	Δλ		50		nm
Dies tiese	I <sub>F</sub> = 100 mA	t <sub>r</sub>		800		ns
Rise time	$I_F = 1.5 \text{ A}, t_p/T = 0.01, t_p \le 10 \mu\text{s}$	t <sub>r</sub>		400		ns
Virtual source diameter		d		1.2		mm

#### **BASIC CHARACTERISTICS** (T<sub>amb</sub> = 25 °C, unless otherwise specified)

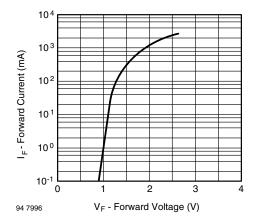


Fig. 3 - Forward Current vs. Forward Voltage

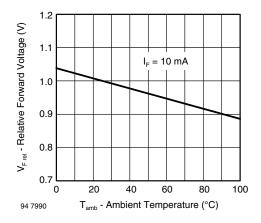


Fig. 4 - Relative Forward Voltage vs. Ambient Temperature



# Infrared Emitting Diode, 950 nm, Vishay Semiconductors GaAs

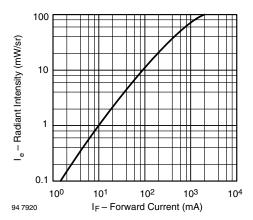


Fig. 5 - Radiant Intensity vs. Forward Current

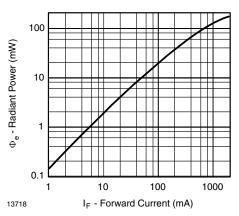


Fig. 6 - Radiant Power vs. Forward Current

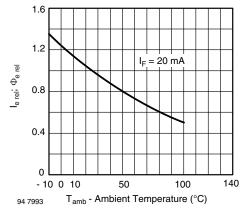


Fig. 7 - Relative Radiant Intensity/Power vs. Ambient Temperature

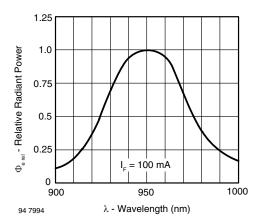


Fig. 8 - Relative Radiant Power vs. Wavelength

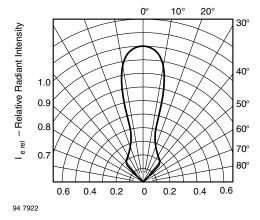


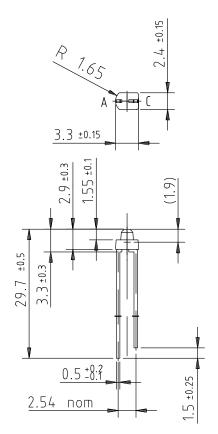
Fig. 9 - Relative Radiant Intensity vs. Angular Displacement

# Vishay Semiconductors

# Infrared Emitting Diode, 950 nm, GaAs



#### **PACKAGE DIMENSIONS** in millimeters



AREA NOT PLANE

Ø1.8 ±0.1

technical drawings according to DIN specifications

Drawing-No.: 6.544-5052.01-4

Issue: 1; 12.10.95

95 11262



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