

## Infrared Emitting Diode, 950 nm, GaAs



94 8638-2

**FEATURES**

- Package type: leaded
- Package form: T-3/4
- Dimensions (in mm):  $\varnothing$  1.8
- Peak wavelength:  $\lambda_p = 950$  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


**RoHS**  
COMPLIANT

**DESCRIPTION**

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

**APPLICATIONS**

- Radiation source in near infrared range

**PRODUCT SUMMARY**

COMPONENT	$I_e$ (mW/sr)	$\varphi$ (deg)	$\lambda_p$ (nm)	$t_r$ (ns)
CQY37N	5	$\pm 12$	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-3/4

**Note**

- MOQ: minimum order quantity

**ABSOLUTE MAXIMUM RATINGS** ( $T_{amb} = 25^\circ\text{C}$ , unless otherwise specified)

PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT
Reverse voltage		$V_R$	5	V
Forward current		$I_F$	100	mA
Surge forward current	$t_p \leq 100 \mu\text{s}$	$I_{FSM}$	2	A
Power dissipation		$P_V$	160	mW
Junction temperature		$T_j$	100	$^\circ\text{C}$
Operating temperature range		$T_{amb}$	- 25 to + 85	$^\circ\text{C}$
Storage temperature range		$T_{stg}$	- 25 to + 100	$^\circ\text{C}$
Soldering temperature	$t \leq 3$ s	$T_{sd}$	245	$^\circ\text{C}$
Thermal resistance junction/ambient	Leads not soldered	$R_{thJA}$	450	K/W

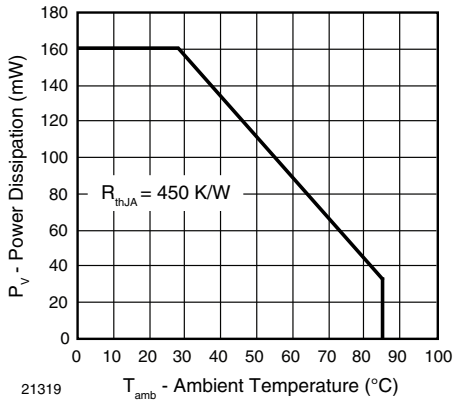


Fig. 1 - Power Dissipation Limit vs. Ambient Temperature

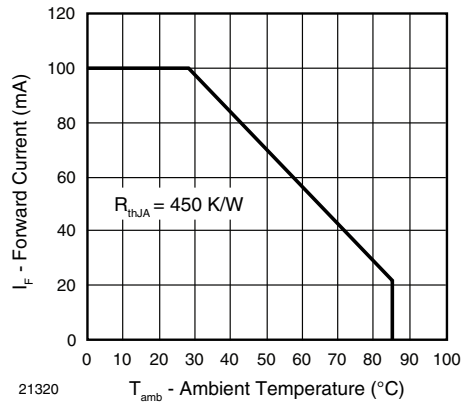


Fig. 2 - Forward Current Limit vs. Ambient Temperature

BASIC CHARACTERISTICS ( $T_{amb} = 25\text{ }^{\circ}\text{C}$ , unless otherwise specified)						
PARAMETER	TEST CONDITION	SYMBOL	MIN.	TYP.	MAX.	UNIT
Forward voltage	$I_F = 50\text{ mA}$ , $t_p \leq 20\text{ ms}$	$V_F$		1.3	1.6	V
Temperature coefficient of $V_F$	$I_F = 100\text{ mA}$	$TK_{V_F}$		- 1.3		mV/K
Breakdown voltage	$I_R = 100\text{ }\mu\text{A}$	$V_{(BR)}$	5			$\mu\text{A}$
Junction capacitance	$V_R = 0\text{ V}$ , $f = 1\text{ MHz}$ , $E = 0$	$C_j$		50		pF
Radiant intensity	$I_F = 50\text{ mA}$ , $t_p \leq 20\text{ ms}$	$I_e$	2.2	5	11	mW/sr
Radiant power	$I_F = 50\text{ mA}$ , $t_p \leq 20\text{ ms}$	$\phi_e$	4.8	10	17.8	mW
Temperature coefficient of $\phi_e$	$I_F = 50\text{ mA}$	$TK_{\phi_e}$		- 0.8		%/K
Angle of half intensity		$\phi$		$\pm 12$		deg
Peak wavelength	$I_F = 50\text{ mA}$	$\lambda_p$		950		nm
Spectral bandwidth	$I_F = 50\text{ mA}$	$\Delta\lambda$		50		nm
Rise time	$I_F = 100\text{ mA}$	$t_r$		800		ns
	$I_F = 1.5\text{ A}$ , $t_p/T = 0.01$ , $t_p \leq 10\text{ }\mu\text{s}$	$t_r$		400		ns
Virtual source diameter		$d$		1.2		mm

**BASIC CHARACTERISTICS** ( $T_{amb} = 25\text{ }^{\circ}\text{C}$ , unless otherwise specified)



Fig. 3 - Forward Current vs. Forward Voltage

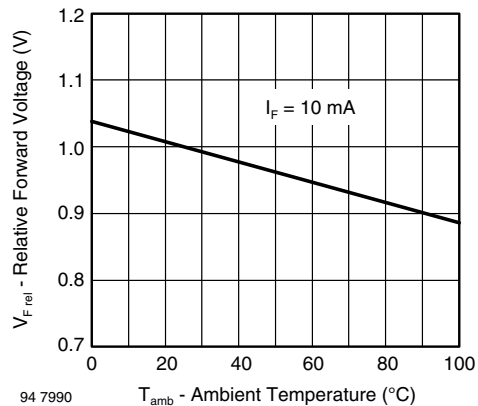


Fig. 4 - Relative Forward Voltage vs. Ambient Temperature

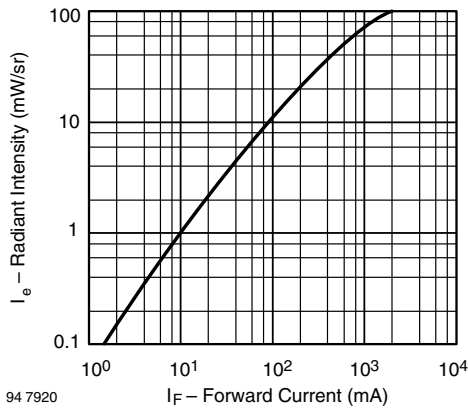


Fig. 5 - Radiant Intensity vs. Forward Current

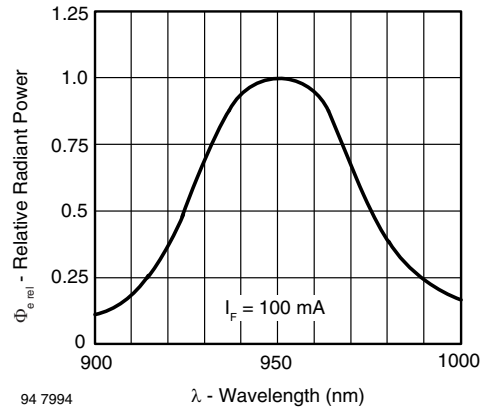


Fig. 8 - Relative Radiant Power vs. Wavelength



Fig. 6 - Radiant Power vs. Forward Current

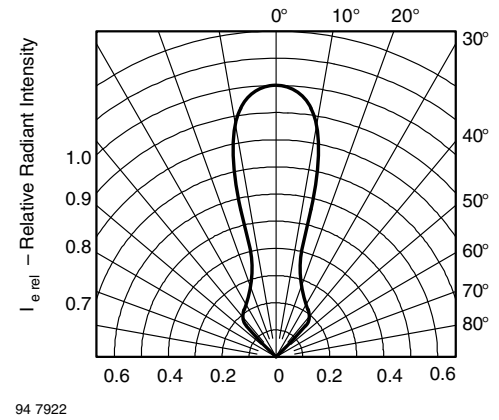


Fig. 9 - Relative Radiant Intensity vs. Angular Displacement

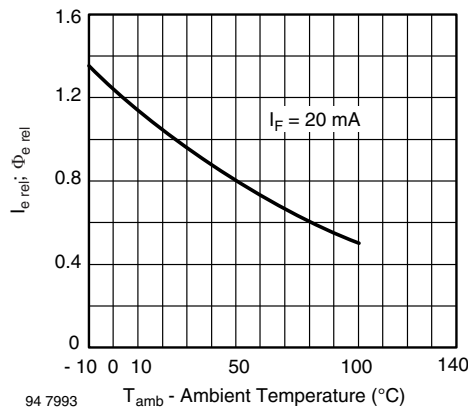


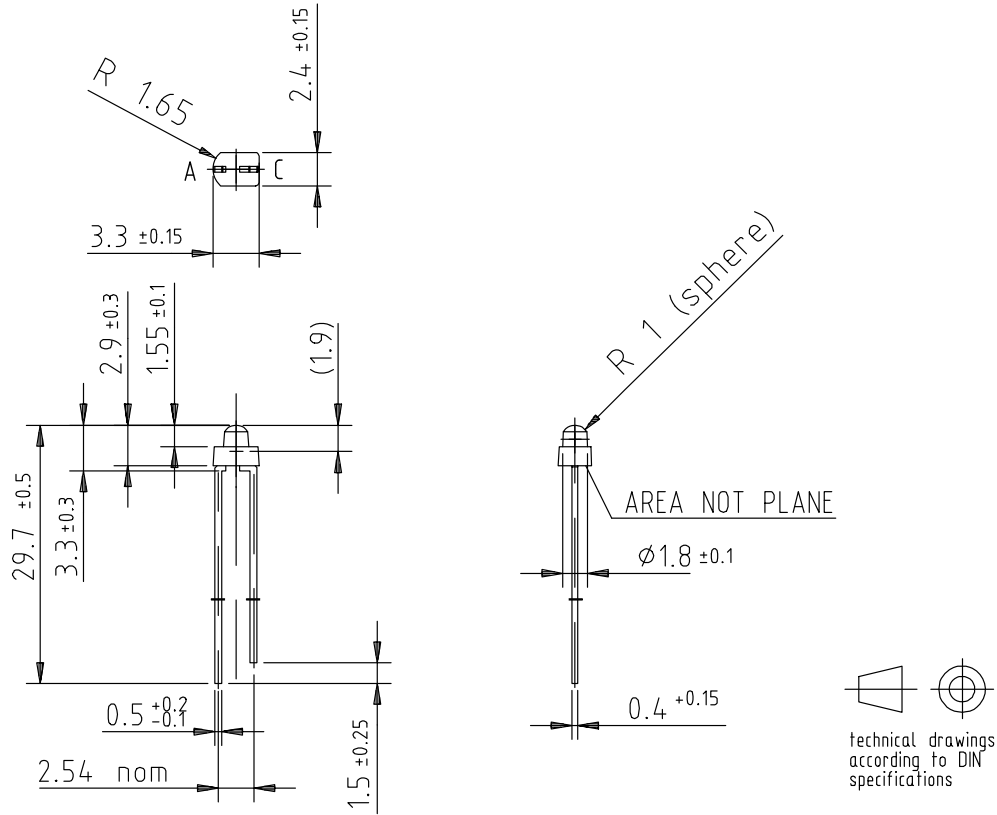
Fig. 7 - Relative Radiant Intensity/Power vs. Ambient Temperature

# CQY37N

Vishay Semiconductors Infrared Emitting Diode, 950 nm,  
GaAs



## PACKAGE DIMENSIONS in millimeters



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