

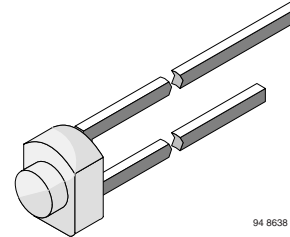
## GaAs Infrared Emitting Diode in Miniature (T-3/4) Package

### Description

CQY36N is a standard GaAs infrared emitting diode in a miniature top view plastic package.

Its flat window provides a wide aperture making it ideal for use with external optics.

The diode is case compatible to the BPW16N phototransistor, allowing the user to assemble his own optical interrupters.



### Features

- Suitable for pulse operation
- Standard T-3/4 flat miniature package
- Wide angle of half intensity  $\varphi = \pm 55^\circ$
- Peak wavelength  $\lambda_p = 950 \text{ nm}$
- Good spectral matching to Si photodetectors
- Lead (Pb)-free component
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC



### Applications

- Radiation source in near infrared range

### Absolute Maximum Ratings

$T_{\text{amb}} = 25^\circ\text{C}$ , unless otherwise specified

Parameter	Test condition	Symbol	Value	Unit
Reverse Voltage		$V_R$	5	V
Forward current		$I_F$	100	mA
Surge Forward Current	$t_p \leq 100 \mu\text{s}$	$I_{\text{FSM}}$	2	A
Power Dissipation		$P_V$	170	mW
Junction Temperature		$T_j$	100	$^\circ\text{C}$
Storage Temperature Range		$T_{\text{stg}}$	- 25 to + 100	$^\circ\text{C}$
Soldering Temperature	$t \leq 3 \text{ s}$	$T_{\text{sd}}$	245	$^\circ\text{C}$
Thermal Resistance Junction/ Ambient		$R_{\text{thJA}}$	450	K/W

### Electrical Characteristics

$T_{\text{amb}} = 25^\circ\text{C}$ , 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
Breakdown Voltage	$I_R = 100 \mu\text{A}$	$V_{(\text{BR})}$	5			V
Junction capacitance	$V_R = 0 \text{ V}$ , $f = 1 \text{ MHz}$ , $E = 0$	$C_j$		50		pF

## Optical Characteristics

$T_{amb} = 25\text{ }^{\circ}\text{C}$ , unless otherwise specified

Parameter	Test condition	Symbol	Min	Typ.	Max	Unit
Radiant Intensity	$I_F = 50\text{ mA}$ , $t_p \leq 20\text{ ms}$	$I_e$	0.7	1.5	7.5	mW/sr
Radiant Power	$I_F = 50\text{ mA}$ , $t_p \leq 20\text{ ms}$	$\phi_e$		10		mW
Temp. Coefficient of $\phi_e$	$I_F = 50\text{ mA}$	$TK\phi_e$		- 0.8		%/K
Angle of Half Intensity		$\varphi$		$\pm 55$		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	$I_F = 1.5\text{ A}$ , $t_p/T = 0.01$ , $t_p \leq 10\text{ }\mu\text{s}$	$t_r$		400		ns
Fall Time	$I_F = 1.5\text{ A}$ , $t_p/T = 0.01$ , $t_p \leq 10\text{ }\mu\text{s}$	$t_f$		450		ns
Virtual Source Diameter		$\emptyset$		1.2		mm

## Typical Characteristics

$T_{amb} = 25\text{ }^{\circ}\text{C}$  unless otherwise specified

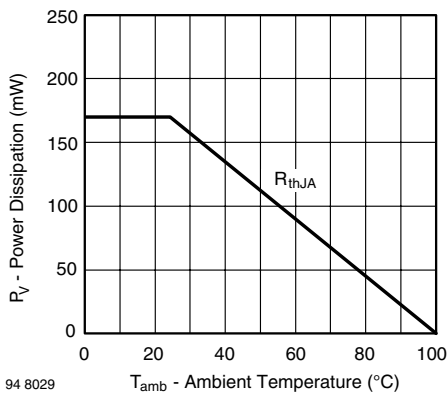


Figure 1. Power Dissipation vs. Ambient Temperature

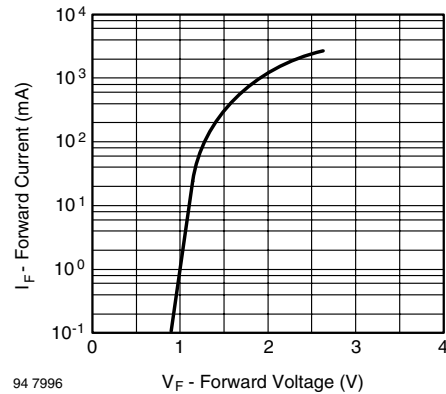


Figure 3. Forward Current vs. Forward Voltage

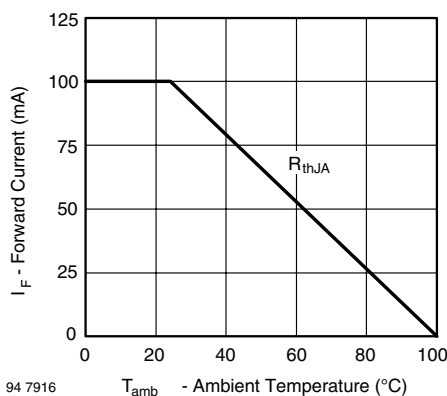


Figure 2. Forward Current vs. Ambient Temperature

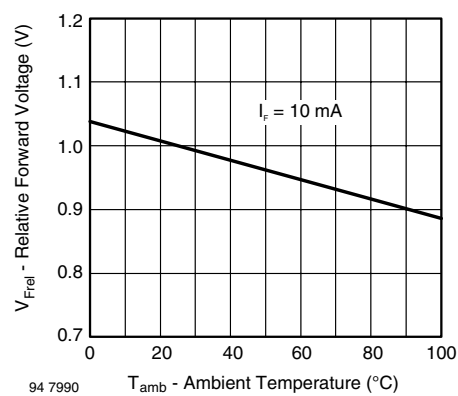


Figure 4. Relative Forward Voltage vs. Ambient Temperature

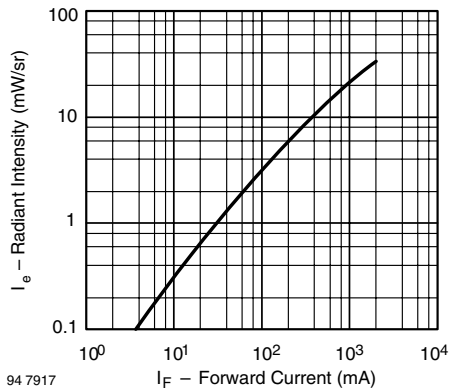


Figure 5. Radiant Intensity vs. Forward Current

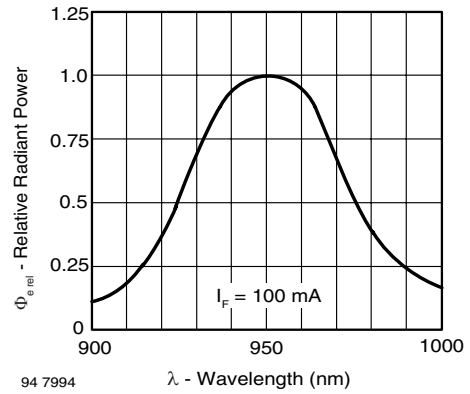


Figure 8. Relative Radiant Power vs. Wavelength

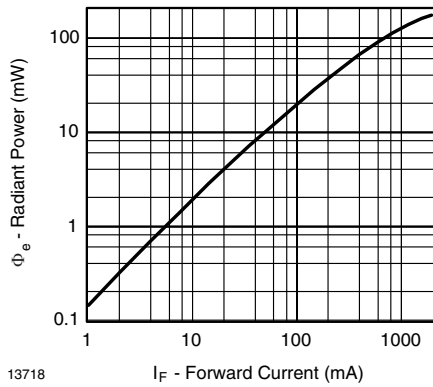


Figure 6. Radiant Power vs. Forward Current

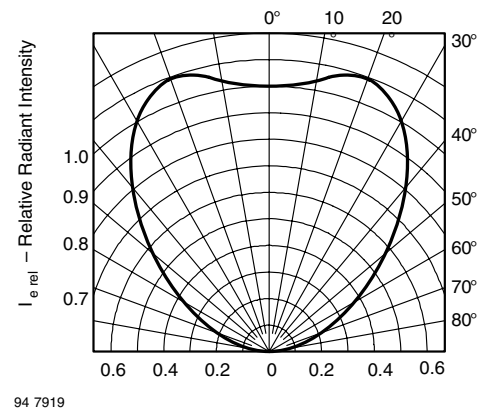


Figure 9. Relative Radiant Intensity vs. Angular Displacement

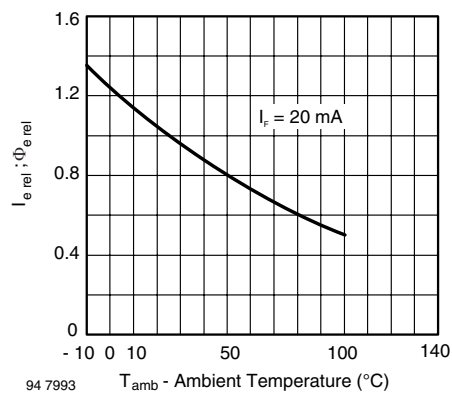
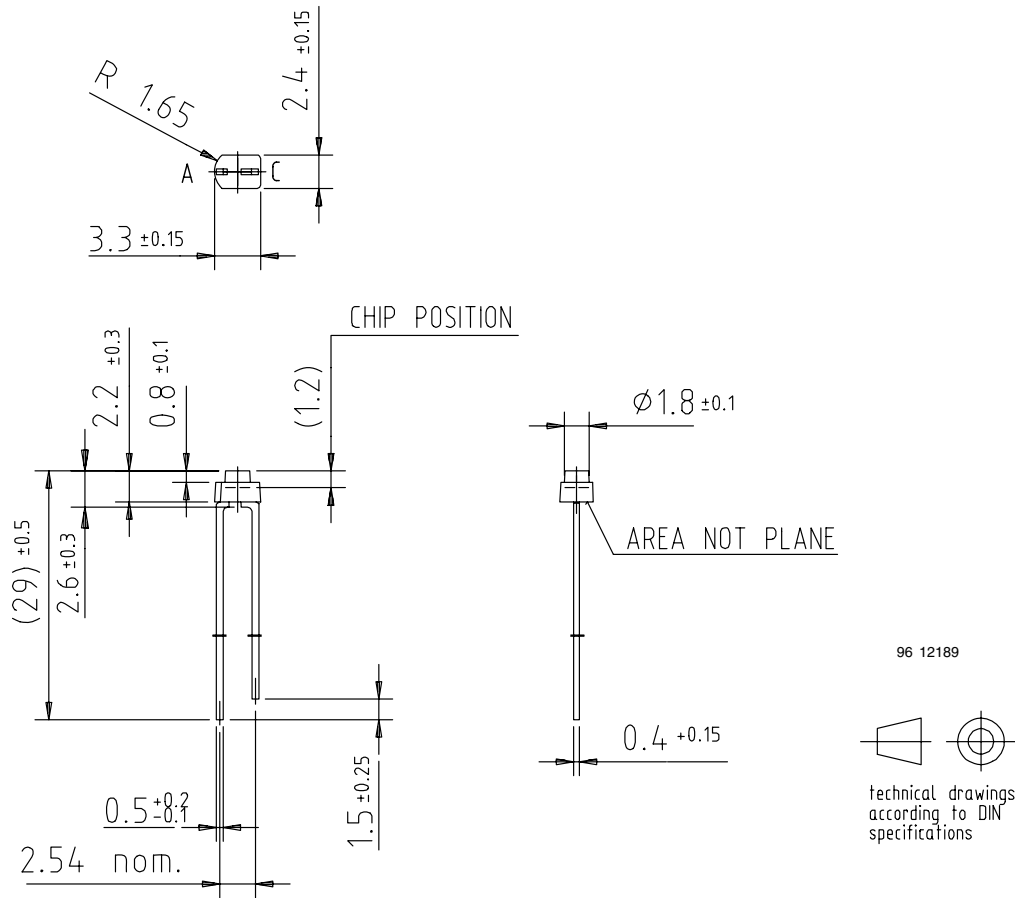


Figure 7. Rel. Radiant Intensity/Power vs. Ambient Temperature

## Package Dimensions in mm



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It is the policy of Vishay Semiconductor GmbH to

1. Meet all present and future national and international statutory requirements.
2. Regularly and continuously improve the performance of our products, processes, distribution and operating systems with respect to their impact on the health and safety of our employees and the public, as well as their impact on the environment.

It is particular concern to control or eliminate releases of those substances into the atmosphere which are known as ozone depleting substances (ODSs).

The Montreal Protocol (1987) and its London Amendments (1990) intend to severely restrict the use of ODSs and forbid their use within the next ten years. Various national and international initiatives are pressing for an earlier ban on these substances.

Vishay Semiconductor GmbH has been able to use its policy of continuous improvements to eliminate the use of ODSs listed in the following documents.

1. Annex A, B and list of transitional substances of the Montreal Protocol and the London Amendments respectively
2. Class I and II ozone depleting substances in the Clean Air Act Amendments of 1990 by the Environmental Protection Agency (EPA) in the USA
3. Council Decision 88/540/EEC and 91/690/EEC Annex A, B and C (transitional substances) respectively.

Vishay Semiconductor GmbH can certify that our semiconductors are not manufactured with ozone depleting substances and do not contain such substances.

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