

# iC-SG85 BLCC SG1C

Infrared LED



Rev B4, Page 1/6

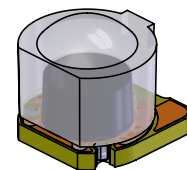
## FEATURES

- ◆ Emission peak at 850 nm matched to silicon sensors
- ◆ Optimized irradiance pattern
- ◆ High temperature range -40 to 125 °C
- ◆ High optical output power
- ◆ Fast switching speed

## APPLICATIONS

- ◆ Illumination for high resolution optical encoder
- ◆ Modulated light barriers

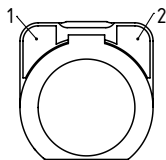
## PACKAGES



SG1C

## PACKAGING INFORMATION (top view)

### PIN CONFIGURATION SG1C



dr\_sg1c\_pack\_3\_21

### PIN FUNCTIONS

| No. | Name | Function |
|-----|------|----------|
|-----|------|----------|

- |   |   |             |
|---|---|-------------|
| 1 | C | Cathode (-) |
| 2 | A | Anode (+)   |

# iC-SG85 BLCC SG1C

## Infrared LED



Rev B4, Page 2/6

### ABSOLUTE MAXIMUM RATINGS

Beyond these values damage may occur (Ta = 25°C, unless otherwise noted)

| Item No. | Symbol | Parameter             | Conditions                        | Limits |      | Unit |
|----------|--------|-----------------------|-----------------------------------|--------|------|------|
|          |        |                       |                                   | Min.   | Max. |      |
| G001     | IF     | Forward current (DC)  |                                   |        | 100  | mA   |
| G002     | IFSM   | Surge forward current | tp ≤ 10 μs, 5 % duty cycle        |        | 1000 | mA   |
| G003     | VR     | Reverse voltage       |                                   |        | 5    | V    |
| G004     | P      | Power dissipation     | temperature dependence see fig. 1 |        | 150  | mW   |

### THERMAL DATA

| Item No. | Symbol | Parameter                              | Conditions  | Limits |      |      | Unit |
|----------|--------|--|---|--------|------|------|------|
|          |        |  |   | Min.   | Typ. | Max. |      |
| T01      | Ta     | Operating Ambient Temperature Range    |   | -40    |      | 125  | °C   |
| T02      | Ts     | Storage Temperature Range              |   | -40    |      | 125  | °C   |
| T03      | Tpk    | Soldering Temperature                  | tpk < 5 s, manual soldering;<br>Not suitable for reflow or vapor phase soldering. |        |      | 260  | °C   |
| T04      | Rthja  | Thermal resistance junction to ambient |   |        | 300  |      | K/W  |
| T05      | Tj     | Junction Temperature                   |   | -40    |      | 125  | °C   |

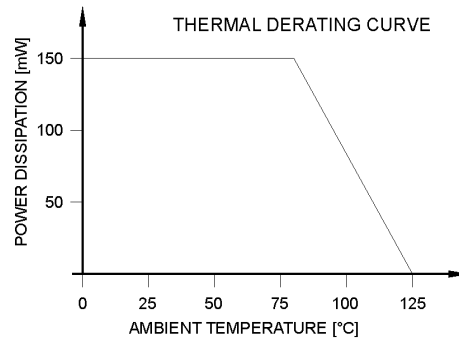


Figure 1: Maximum power dissipation with respect to temperature

All voltages are referenced to ground unless otherwise stated.

All currents flowing into the device pins are positive; all currents flowing out of the device pins are negative.

# iC-SG85 BLCC SG1C

Infrared LED



Rev B4, Page 3/6

## ELECTRICAL CHARACTERISTICS

Tamb = 25°C, unless otherwise noted

| Item No.                                      | Symbol                          | Parameter                                | Conditions  |      |      |      | Unit |
|---|---------------------------------|--|---|------|------|------|------|
|   |                                 |  |   | Min. | Typ. | Max. |      |
| <b>Electrical and Optical Characteristics</b> |                                 |  |   |      |      |      |      |
| 001   | V <sub>F</sub>                  | Forward voltage                          | I <sub>F</sub> = 20 mA                                |      | 1.4  | 1.8  | V    |
| 002   | V <sub>R</sub>                  | Reverse voltage                          | I <sub>R</sub> = 5 μA                                 | 5    |      |      | V    |
| 003   | φ <sub>e</sub>                  | Radiant power                            | I <sub>F</sub> = 20 mA                                |      | 4.0  |      | mW   |
| 004   | TK(φ <sub>e</sub> )             | Temperature coefficient of radiant power | I <sub>F</sub> = 20 mA, T <sub>j</sub> = 25°C...125°C |      | -0.6 |      | %/K  |
| 005   | λ <sub>p</sub>                  | Peak wavelength                          | I <sub>F</sub> = 20 mA                                | 840  | 850  | 860  | nm   |
| 006   | Δλ                              | Spectral half width                      | I <sub>F</sub> = 20 mA                                |      | 30   |      | nm   |
| 008   | t <sub>r</sub> , t <sub>f</sub> | Switching time                           | I <sub>F</sub> = 100 mA, R <sub>L</sub> = 50 Ω        |      | 12   |      | ns   |

Remarks: Measured optical characteristics may depend on conditions and equipment and thus differ in its given typical values.

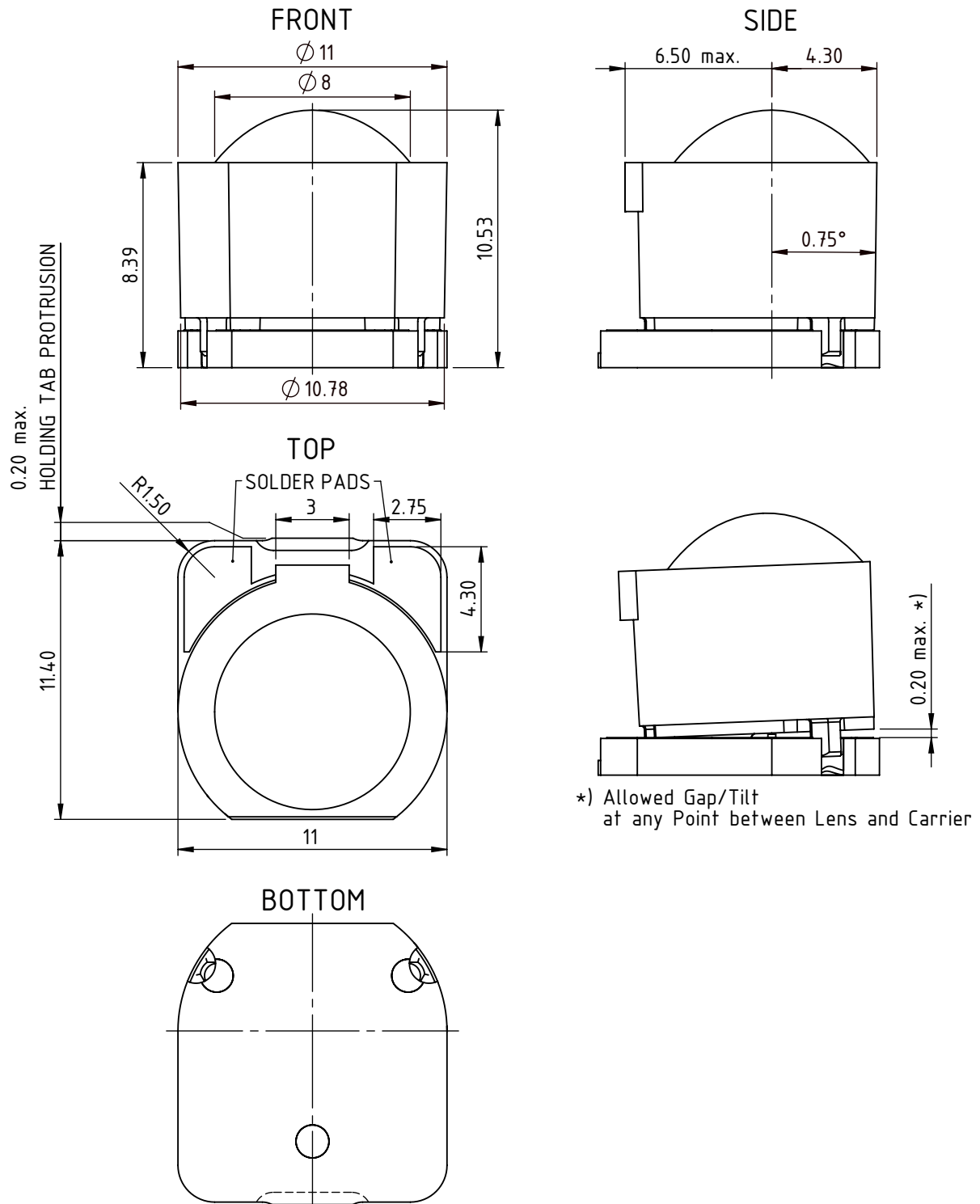
# iC-SG85 BLCC SG1C

Infrared LED



Rev B4, Page 4/6

## PACKAGE DIMENSIONS



drd\_sg1c\_pack\_1, 4:1

Figure 2: Package view

# iC-SG85 BLCC SG1C

Infrared LED



Rev B4, Page 5/6

## SAFETY ADVICES

Depending on the mode of operation, these devices emit highly concentrated non visible infrared light which can be hazardous to the human eye.

Products which incorporate these devices have to follow the safety precautions given in IEC 60825-1 and IEC 62471.

## HANDLING ADVICES

Because of the specific housing materials and geometries used, these LED devices are sensitive to rough handling or assembly and can thus be easily damaged

or may fail in regard to their electro-optical operation. Excessive mechanical stress or load on the lens surface or to the glued cap must be avoided.

## DESIGN REVIEW: Notes on chip characteristics

| iC-SG85 / iC-SG85 Z |             |  |   |
|---------------------|-------------|--|---|
| No.                 | Chip Design | Function, Parameter/Code                               | Description and Application Hints                   |
| 1                   | iC-SG85     | initial chip release                                   | see datasheet revision A1                           |
| 2                   | iC-SG85 Z   | Maximum Ratings G002<br>Electrical Characteristics 003 | changed to 1.0 A<br>typ. values increased to 4.0 mW |
| 3                   | iC-SG85 Z   | Update Package View<br>Handling Advices                | Allowed Gap/Tilt                                    |
| 4                   | iC-SG85 Z   | Update Package View                                    | Holding Tab   |

Table 4: Notes on chip functions regarding iC-SG85 / iC-SG85 Z

iC-Haus expressly reserves the right to change its products and/or specifications. An Infoletter gives details as to any amendments and additions made to the relevant current specifications on our internet website [www.ichaus.com/infoletter](http://www.ichaus.com/infoletter) and is automatically generated and shall be sent to registered users by email. Copying – even as an excerpt – is only permitted with iC-Haus' approval in writing and precise reference to source.

The data specified is intended solely for the purpose of product description and shall represent the usual quality of the product. In case the specifications contain obvious mistakes e.g. in writing or calculation, iC-Haus reserves the right to correct the specification and no liability arises insofar that the specification was from a third party view obviously not reliable. There shall be no claims based on defects as to quality in cases of insignificant deviations from the specifications or in case of only minor impairment of usability.

No representations or warranties, either expressed or implied, of merchantability, fitness for a particular purpose or of any other nature are made hereunder with respect to information/specification or the products to which information refers and no guarantee with respect to compliance to the intended use is given. In particular, this also applies to the stated possible applications or areas of applications of the product.

iC-Haus products are not designed for and must not be used in connection with any applications where the failure of such products would reasonably be expected to result in significant personal injury or death (*Safety-Critical Applications*) without iC-Haus' specific written consent. Safety-Critical Applications include, without limitation, life support devices and systems. iC-Haus products are not designed nor intended for use in military or aerospace applications or environments or in automotive applications unless specifically designated for such use by iC-Haus.

iC-Haus conveys no patent, copyright, mask work right or other trade mark right to this product. iC-Haus assumes no liability for any patent and/or other trade mark rights of a third party resulting from processing or handling of the product and/or any other use of the product.

Software and its documentation is provided by iC-Haus GmbH or contributors "AS IS" and is subject to the ZVEI General Conditions for the Supply of Products and Services with iC-Haus amendments and the ZVEI Software clause with iC-Haus amendments ([www.ichaus.com/EULA](http://www.ichaus.com/EULA)).

# iC-SG85 BLCC SG1C

Infrared LED



Rev B4, Page 6/6

## ORDERING INFORMATION

| Type    | Package | Order Designation |
|---------|---------|-------------------|
| iC-SG85 | SG1C    | iC-SG85 BLCC SG1C |

Please send your purchase orders to our order handling team:

**Fax: +49 (0) 61 35 - 92 92 - 692**

**E-Mail: [dispo@ichaus.com](mailto:dispo@ichaus.com)**

For technical support, information about prices and terms of delivery please contact:

**iC-Haus GmbH**  
**Am Kuemmerling 18**  
**D-55294 Bodenheim**  
**GERMANY**

**Tel.: +49 (0) 61 35 - 92 92 - 0**

**Fax: +49 (0) 61 35 - 92 92 - 192**

**Web: <http://www.ichaus.com>**

**E-Mail: [sales@ichaus.com](mailto:sales@ichaus.com)**

**Appointed local distributors: [http://www.ichaus.com/sales\\_partners](http://www.ichaus.com/sales_partners)**