iC-SD85 oLGA SD2C3

Infrared LED

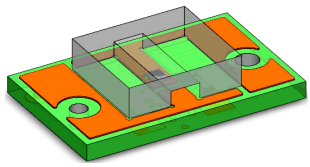
FEATURES

- Emission peak at 850 nm matched to silicon sensors
- Broad irradiance pattern (lambertian profile)
- High temperature range -40 to 125 °C
- High optical output power
- Fast switching speed
- Packages suitable for SMT mounting

APPLICATIONS

- Illumination for high resolution optical encoder
- Modulated light barriers

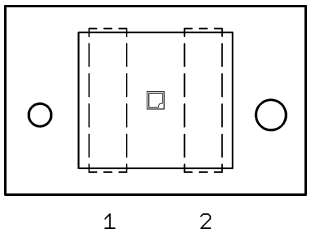
PACKAGES



7.75 mm x 5.0 mm
RoHS compliant

PACKAGING INFORMATION (top view)

PIN CONFIGURATION SD2C



PIN FUNCTIONS

No.	Name	Function
1	C	Cathode
2	A	Anode

ABSOLUTE MAXIMUM RATINGS

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

Item No.	Symbol	Parameter	Conditions	Min.	Max.	Unit
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

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.

THERMAL DATA

Item No.	Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
T01	Ta	Operating Ambient Temperature Range		-40		125	°C
T02	Ts	Storage Temperature Range		-40		125	°C
T03	Tpk	Reflow Soldering Peak Temperature for SD2C Package	tpk < 20 s, convection reflow tpk < 20 s, vapour phase TOL (time on label) 8h: please refer to customer information file No. 7 for details.			245 230	°C °C
T04	Rthja	Thermal resistance junction to ambient			600		K/W
T05	Tj	Junction Temperature		-40		125	°C

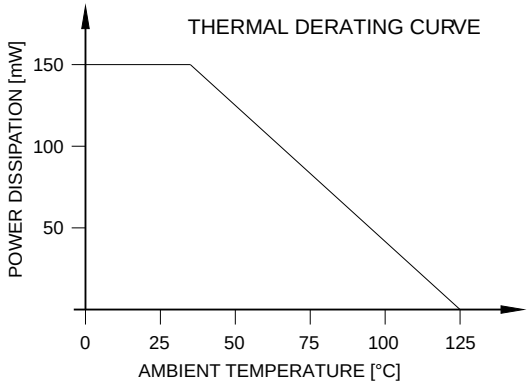


Figure 1: Maximum power dissipation with respect to temperature

ELECTRICAL CHARACTERISTICS

Tamb = 25°C, unless otherwise noted

Item No.	Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
Electrical and Optical Characteristics							
001	VF	Forward voltage	IF = 20 mA		1.4	1.8	V
002	VR	Reverse voltage	IR = 5 µA	5			V
003	Φ_e	Radiant power, SD2C package	IF = 20 mA; only radiation emitted from surface C1*C2 is evaluated	3.1	6		mW
004	TK(Φ_e)	Temperature coefficient of radiant power	IF = 20 mA, Tj = 25°C...125°C		-0.6		%/K
005	λ_p	Peak wavelength	IF = 20 mA	840	850	860	nm
006	$\Delta\lambda$	Spectral half width	IF = 20 mA		30		nm
008	tr, tf	Switching time	IF = 100 mA, RL = 50 Ω		12		ns

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

PACKAGE DIMENSIONS

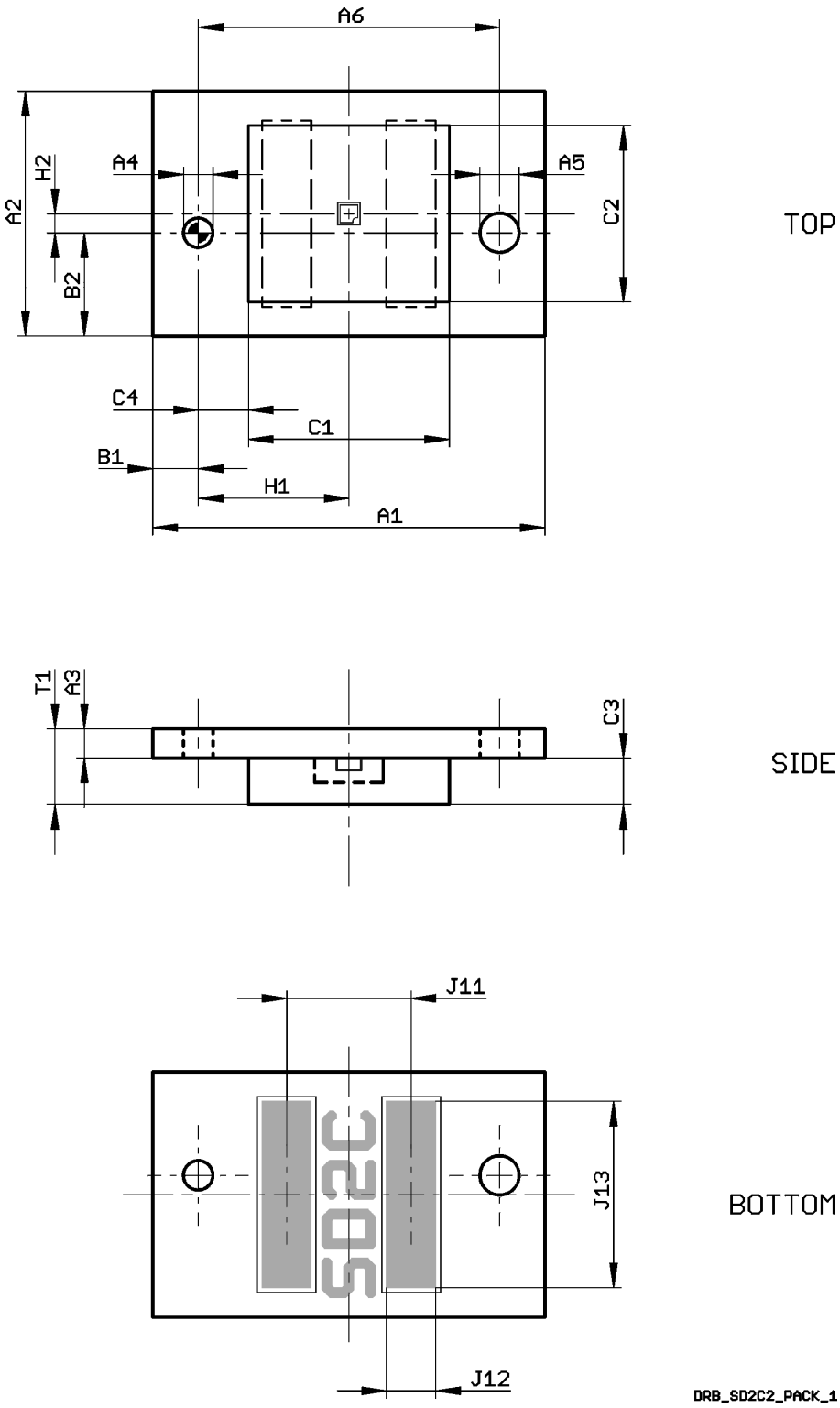


Figure 2: Package view

Item	Parameter	Comments	Min.	Typ.	Max.	Tolerance	Unit
	Substrate and Alignment Holes						
A1	Outline X			7.75		±0.1	mm
A2	Outline Y			5.0		±0.1	mm
A4	Hole Diameter			0.6		+0.05	mm
A5	Hole Diameter 2			0.8		+0.05	mm
A6	Hole Distance			6.15		±0.05	mm
	Reference						
B1	Outline vs. Reference X			0.925		±0.15	mm
B2	Outline vs. Reference Y			2.11		±0.15	mm
	Cover Size and Shape						
C1	Cover Size X				4.2		mm
C2	Cover Size Y				3.7		mm
C3	Cover Thickness	metal-top to cover-surface	0.6		1.15		mm
C4	Distance Hole vs. Glass Edge		0.825				mm
	Chip Placement						
H1	Chip Position vs. Reference X			3.075		±0.125	mm
H2	Chip Position vs. Reference Y			0.39		±0.125	mm
	Bottom Metal Pattern						
J11	Lead Pitch X			2.54		±0.03	mm
J12	Lead Size X			1.0		±0.03	mm
J13	Lead Size Y			3.8		±0.03	mm
	Thickness Specifications						
T1	Overall Thickness		1.15		1.85		mm
A3	Substrate Thickness	bottom package to metal-top (snap-fit area)	0.55		0.7		mm

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.

DESIGN REVIEW: Notes on chip characteristics

iC-SD85 / iC-SD85 Z			
No.	Chip Design	Function, Parameter/Code	Description and Application Hints
1	iC-SD85	initial chip release	see datasheet revision A1
2	iC-SD85 Z	LED chip TL85 Z: Maximum Ratings G002 Electrical Characteristics 003	changed to 1.0 A min. / typ. values increased to 3.1 / 6.0 mW
3	iC-SD85 Y	equivalent LED chip TL85 Y (to TL85 Z)	

Table 4: Notes on chip functions regarding iC-SD85 / iC-SD85 Z / iC-SD85 Y

ORDERING INFORMATION

Type	Package	Order Designation
iC-SD85	SD2C3	iC-SD85 oLGA SD2C3

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

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Appointed local distributors: http://www.ichaus.com/sales_partners