Flat heating elements

Basic values:

Parameter	Value
Dimensions	55 x 35(16) x 4.0 mm
Heated area	25 x 35 x 4.0 mm
T_{max}	1 000 °C

Details of with sensor hole Ø1.0 mm:

Description

With a maximum temperature of 1 000 °C and a heated zone of 35 mm x 25 mm, the type RDB is a very universally applicable heating element: It can be used both as a contact heating element and for radiator-type heating. In addition, this heating element type is also available in many different configurations for different operating voltages and outputs as well as with and without drilling holes for an optional temperature sensor. The type RDB finds application, for example, as a heating element for sample heating in R&D applications, as a radiator heater for welding of plastics and as a high-temperature heater for coating applications.

The heating element has a blind hole, into which a temperature sensor with Ø1,0 mm, for example a mantle thermocouple, can be inserted.
* The actual power depends on resistance, temperature and voltage.

Parameter	Value	
Article no.	FLE 100 640	FLE 100 679
Resistance @ 20 °C	58,7 Ω ±25 %	16 Ω ±25 %
Nominal voltage	230 V	110 V
Nominal power @ 20 °C	900 W*	756 W*

Basic Material

Parameter	Scale unit	Si_3N_4
max. temperature (T_{max})	°C	1 000
thermal conductivity (l)	W/mK	40
temperature shock resistance (ΔT)	K	500
emissivity (1 100 °C) (ε)	-	0.96
Young's modulus (E)	GPa	320
bending strength (δ_{BB})	MPa	400
compressive strength (δ_D)	MPa	2 000
coefficient of thermal expansion (α)	10^{-6} K^{-1}	3
density (g)	g/cm³	3.21
specific heat (c_p)	J/kgK	750
porosity (100 - % t.D.)	%	0
critical stress intensity factor (K_{Ic})	MPa $m^{½}$	6
Weibull – modulus (m)	-	7.9

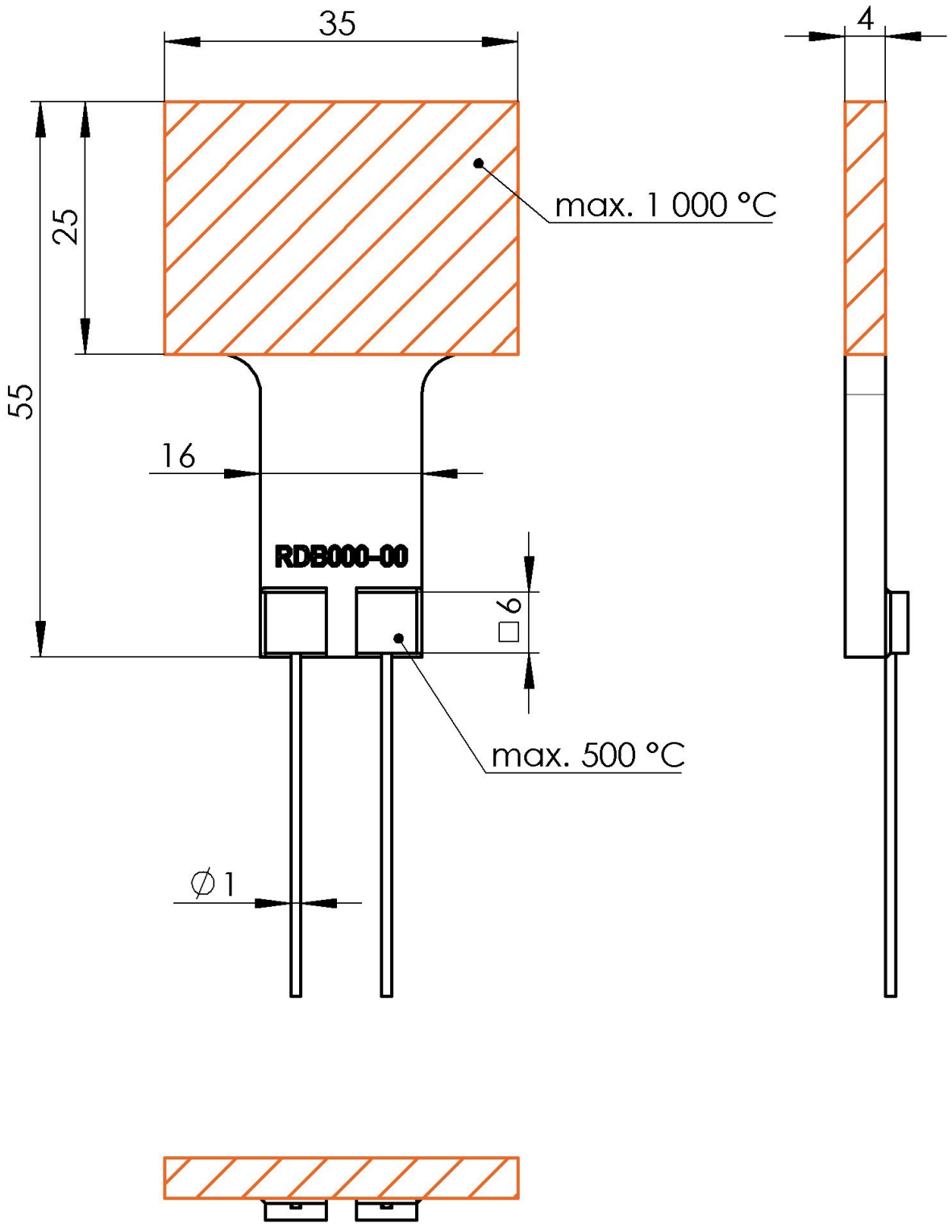
The thermal shock resistance depends on the geometric shape of the heater.

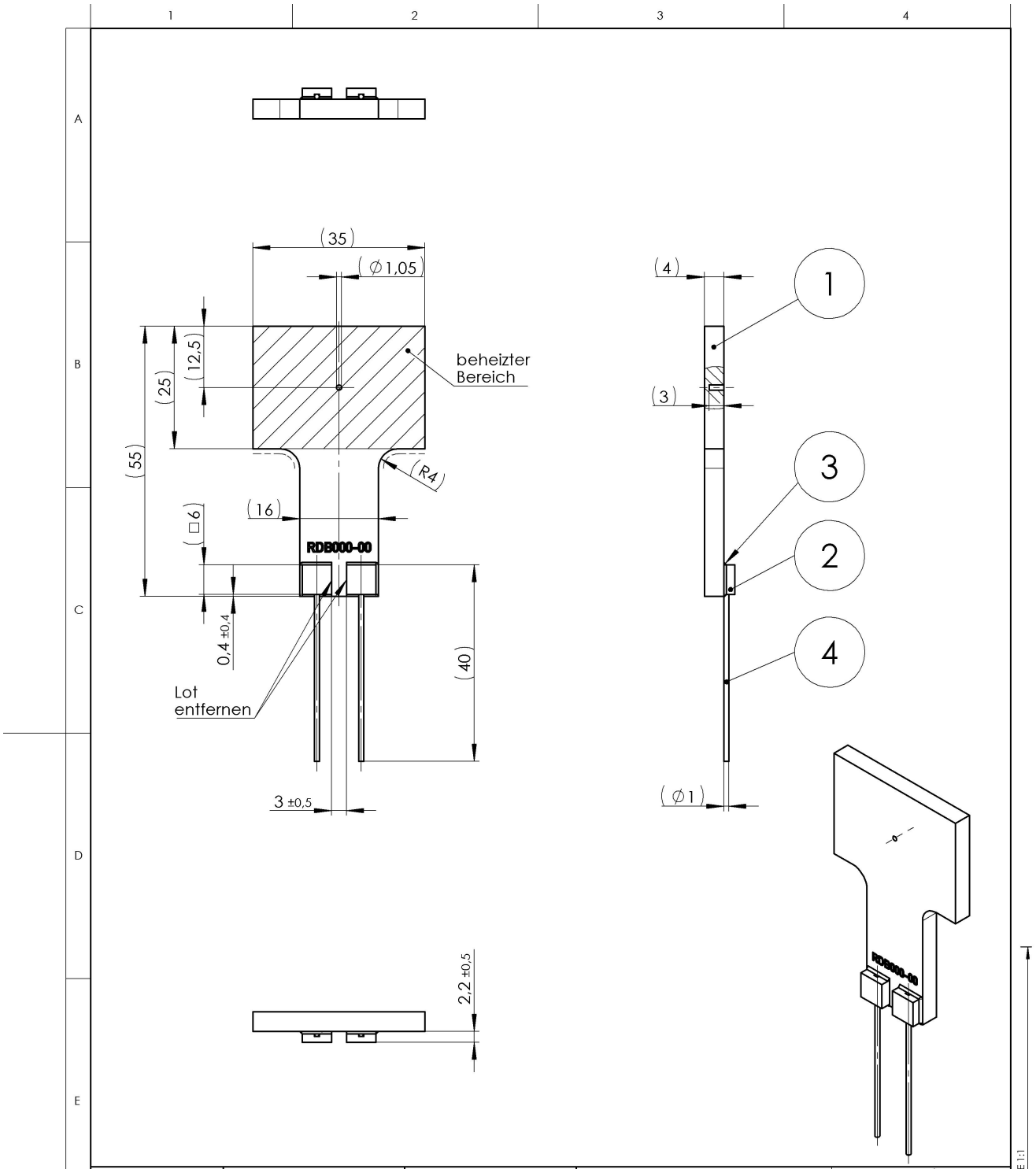
Electrical parameters

Parameter	Scale unit	Si_3N_4
resistivity	Ω cm	$5 \cdot 10^{-3}$ - $5 \cdot 10^{-1}$
isolation resistivity	Ω mm (20 °C)	10^{13}
dielectric strength	kV/mm	25

Emission spectrum

Fully ceramic heating elements are long-wave infrared heaters with a maximum emission of 5 to 10 µm and a radiation coefficient of ε > 0.9.


35
4
25
55
max. 1 000 °C
16
RDB000-00
□6
max. 500 °C
∅1



TOLERANCES: siehe Einzelteil	FINISH:	DEBUR AND BREAK SHARP EDGES	DO NOT SCALE DRAWING
			MATERIAL: siehe Stueckliste

REV.	REVISION NO.	DATE	NAME
1.0	-	06.02.2017	

	NAME	DATE
DESIGNED	A. Staatz	06.02.2017
DRAWN	A. Staatz	06.02.2017
APPV'D		

TITLE: Heizelement-LB

Bach Resistor Ceramics GmbH

DWG NO. 7E-10000-17-13 | A4

WEIGHT: 18.53 g | SCALE: 1:1 | SAP NO. | SHEET 1 OF 3

100 mm SCALE 1:1