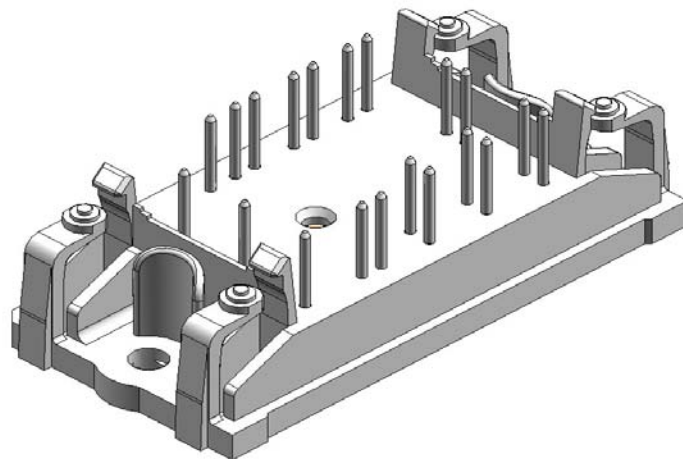


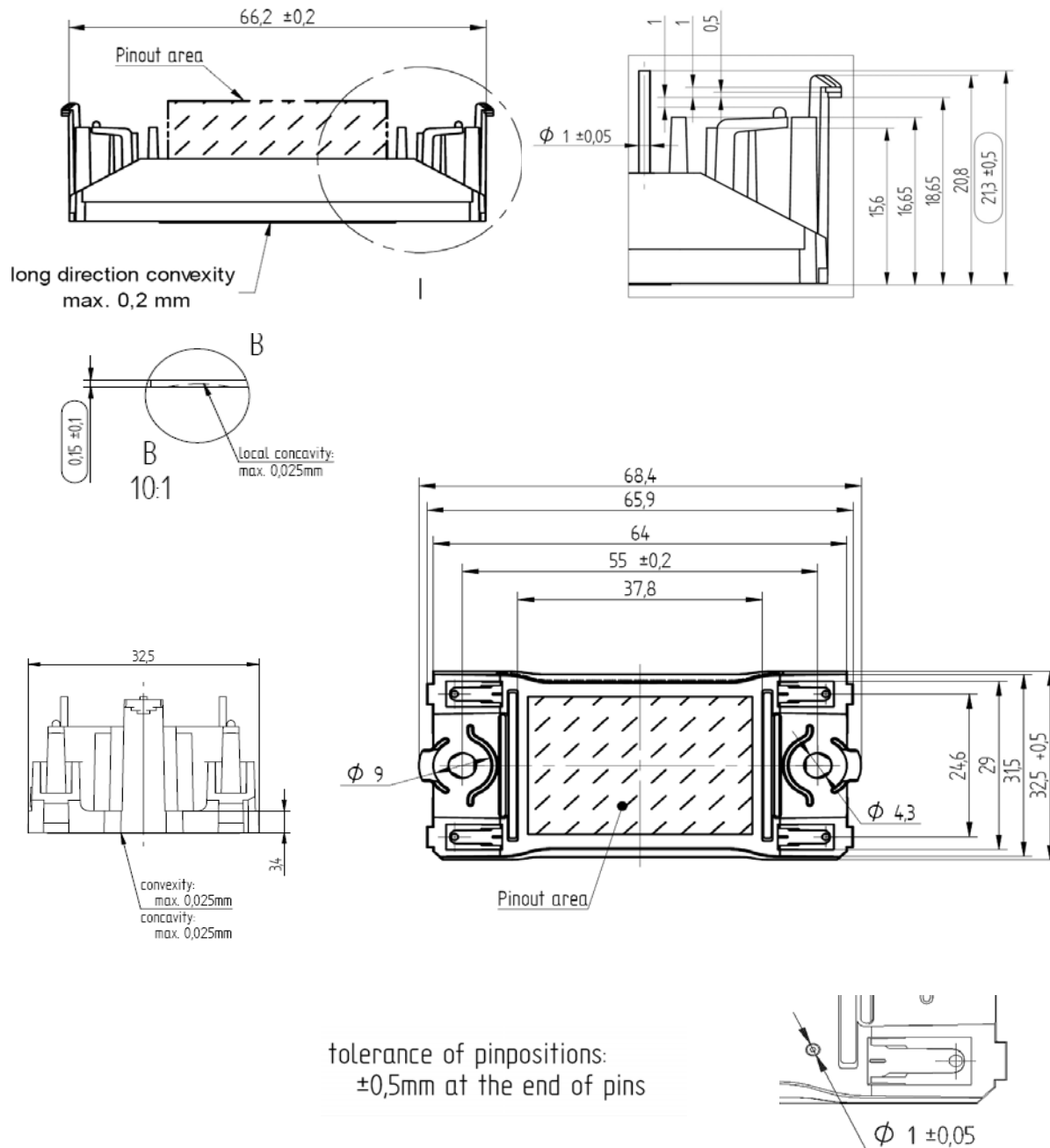
2-clip



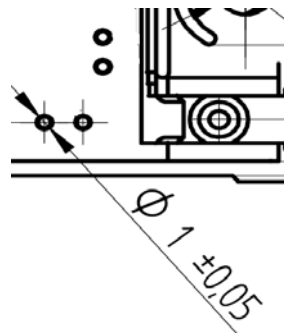
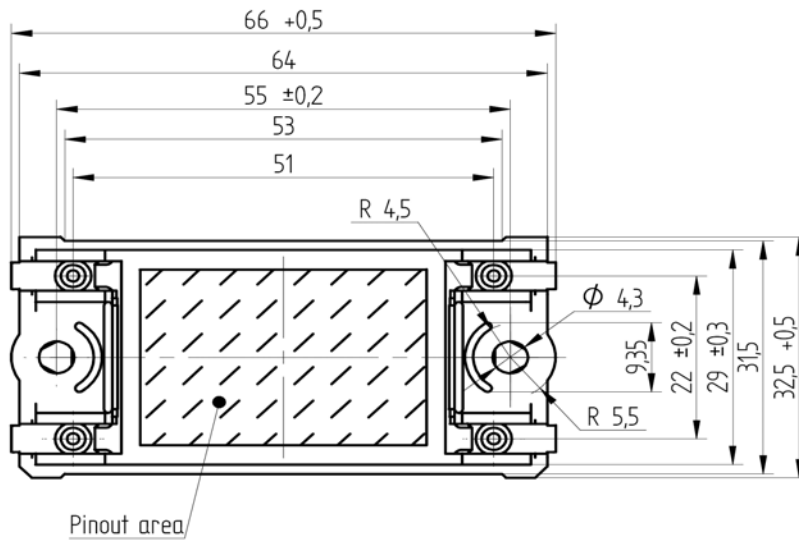
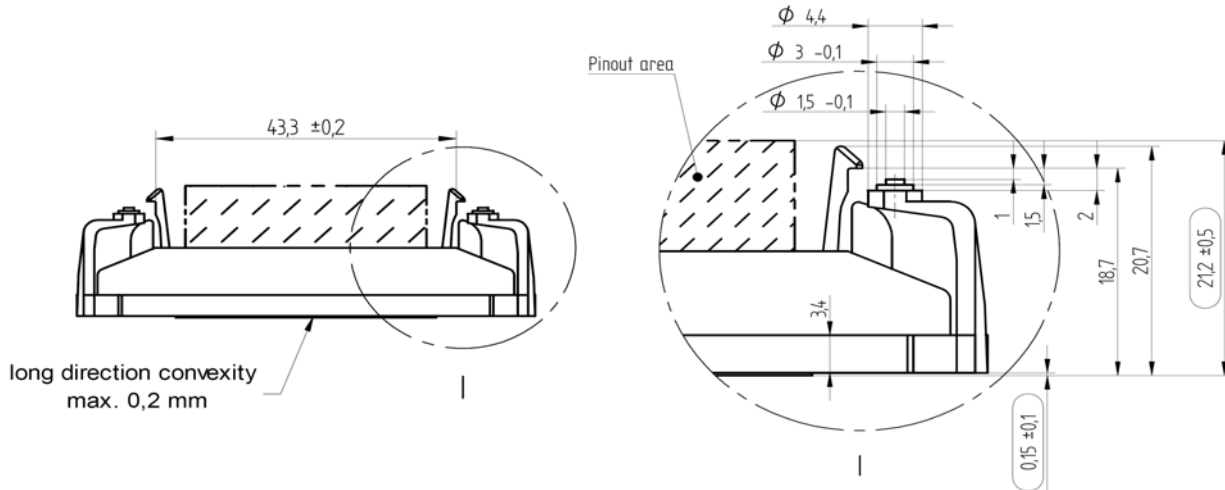
4-clip

flow0

Package Dimensions 2-clip



Package Dimensions 4-clip

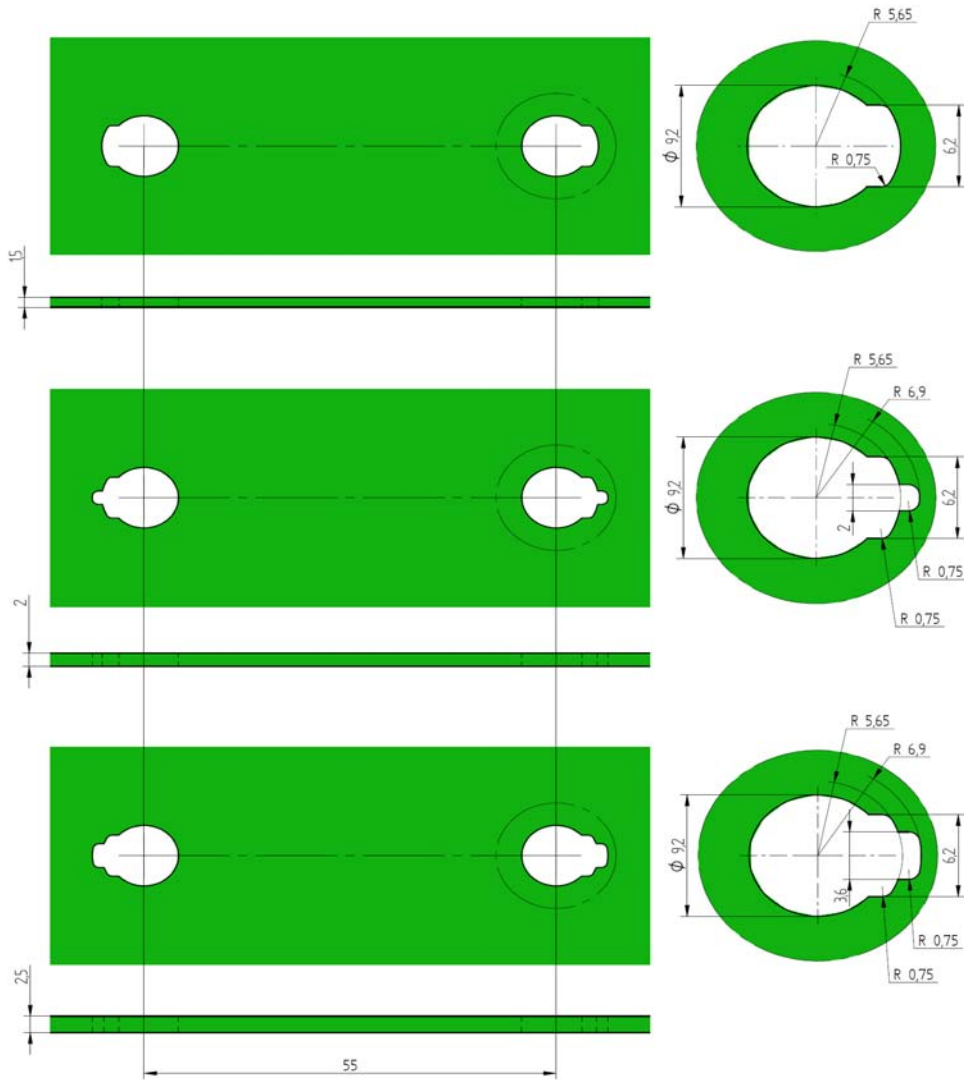


Pin

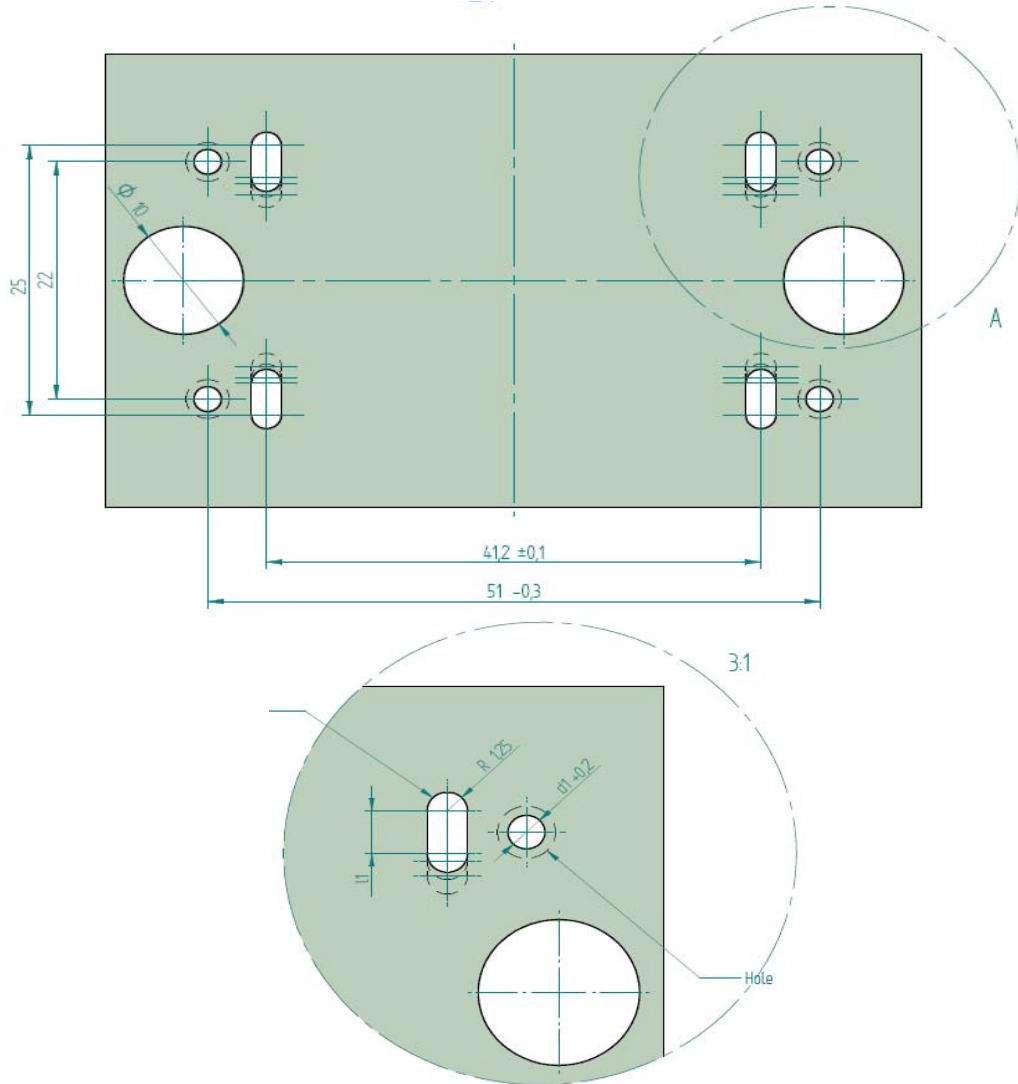
tolerance of pinpositions:
 $\pm 0,5$ mm at the end of pins

PCB Holes

2-clip alone



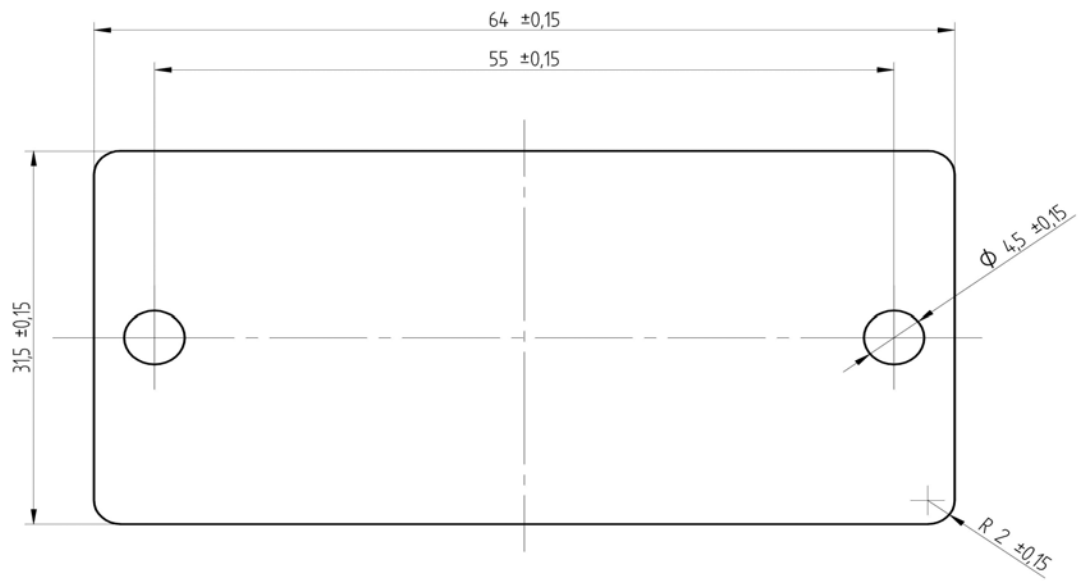
PCB Holes



PCB thickness	d1	l1
1,5 mm	without holes	3 mm
2 mm	2,3 mm	3,5 mm
2,5 mm	3,6 mm	4,5 mm

Thermal Foil Dimensions

Both 2-clip and 4-clip



Handling Instructions

with respect to the PCB

- The module is to be fixed to the PCB by clipping it into the appropriate holes before pin soldering
For details see unit 'PCB Holes' on pages 4 - 6
- After fixing, all pins are to be soldered into the PCB. For a solder profile, see page 9
Proposed dwell time: 3 ± 0.5 s
Proposed peak temperature: 255 ± 5 °C
- During assembly, the pins are not to be drawn or pushed more than ± 0.2 mm
or loaded with a force greater than 35N
- The load of the pin is not to exceed ± 5 N at a maximum substrate temperature of 100°C
- Vibration stress on the pins is to be avoided

with respect to the heatsink

- The heatsink surface must be clean and free of particles
- The flatness is to stay below 0.05mm in 100mm
- The surface roughness is not to exceed an R_z of 0.01mm

with respect to the thermal conduction material

using thermal paste

- The thermal paste is to be applied to the entire module plate with a thickness of max. 0.05mm
- Thicker thermal paste can potentially raise the value of R_{th}

using thermal foil (strongly recommended for modules with AlN substrate)

- Recommended is a thermal foil with an aluminium core layer and two outer layers made of phase change material
- The total thickness of the foil is to stay below 0,08mm; thicker foils could cause the ceramic substrate to break and will increase the thermal resistance
- Recommended are the types KU-ALC5 and KU-ALF5 from the company Kunze-Folien
- For recommended foil dimensions see unit 'Thermal Foil Dimensions' on page 7

using pre-applied thermal conduction material

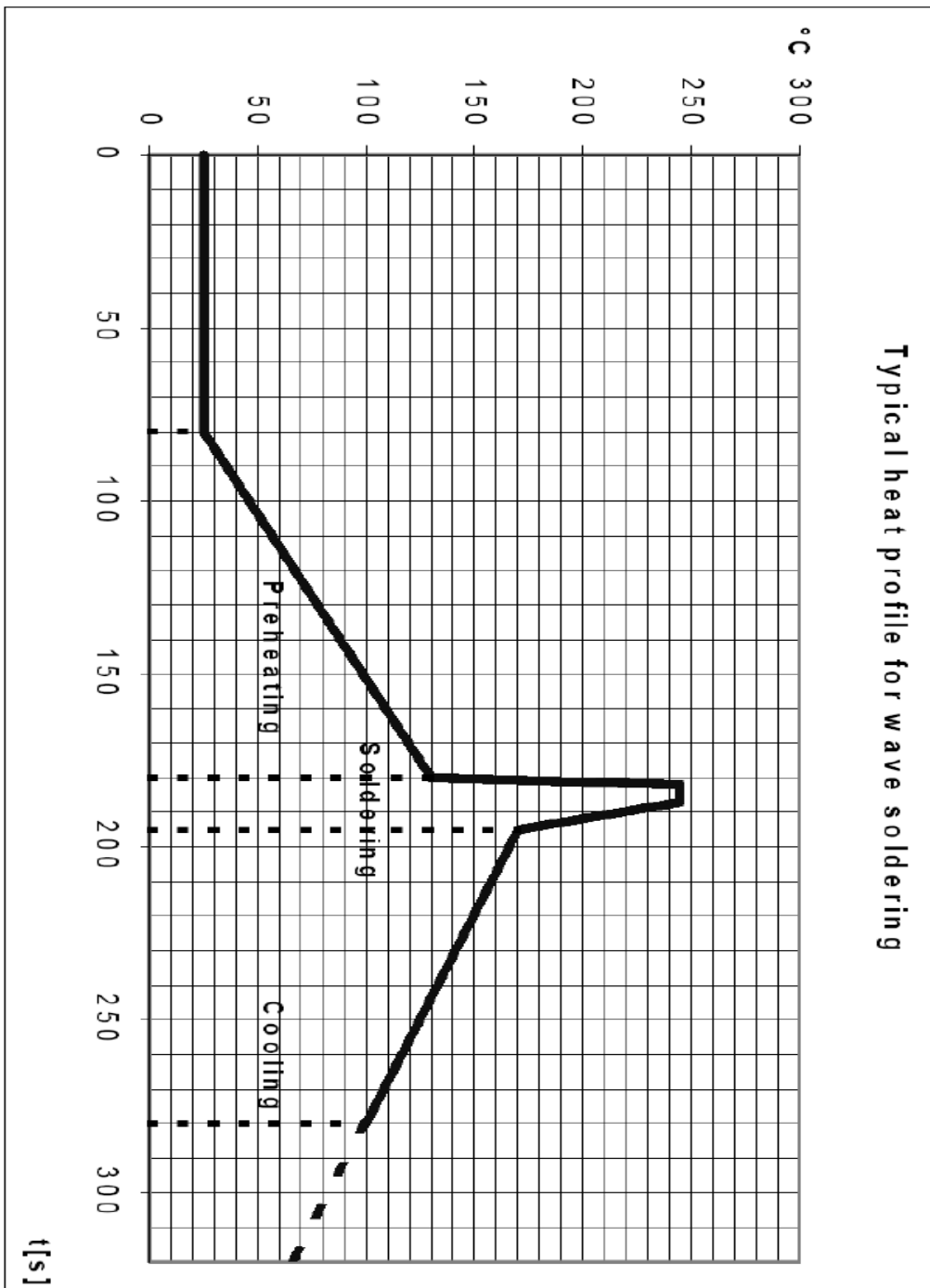
- modules are shipped with pre-applied thermal conduction material (e.g. Phase-change material)
- no further action needed

with respect to the fastening screws to the heatsink

using a plain washer with a spring lock washer

- The screws are to be tightened using maximum torque
- To be used is an ISO 7092 (DIN 433) flat washer
- To be used is a DIN 127 or DIN128 spring washer
- To be used is an M4 ISO 7092 (DIN 7985) screw, property class ≥ 4.8
- To be applied is a mounting torque of $2.0\text{Nm} \leq M_a \leq 2.2\text{Nm}$

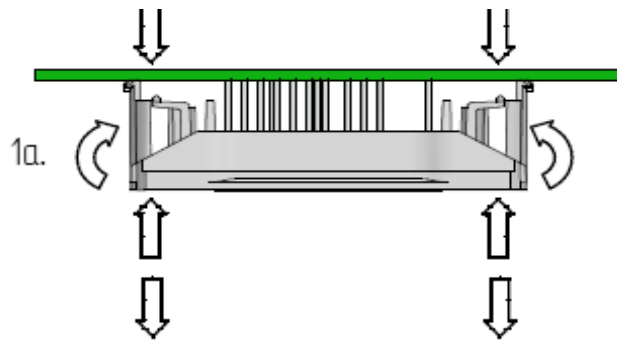
Soldering Profile



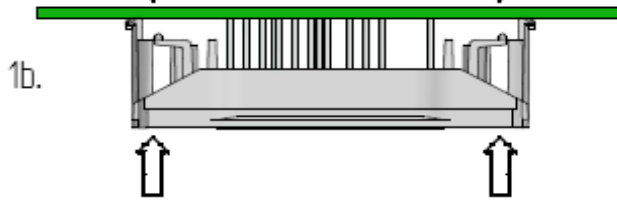
Mounting Instructions

2-clip

1.
a) Choice1 (recommended): insert the module pins to the PCB, press the clips to each other and press the module into the PCB as shown on figure 1a. until the clips are locked



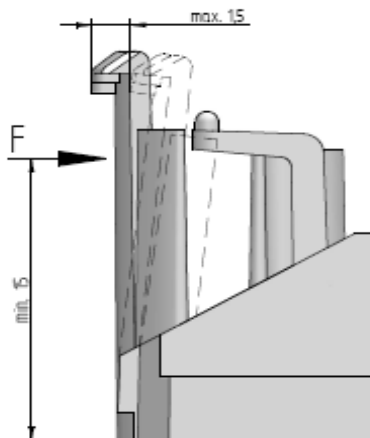
b) Choice2: insert the module like in choice1, but without pressing the clips to each other (figure 1b.). It needs bigger force and more precision on PCB-cutouts (burrs not allowed). {03}



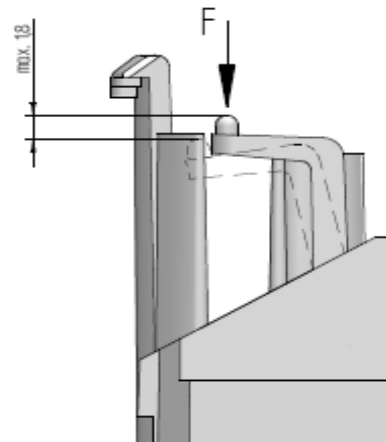
2. Module in place on PCB (figure 2.)



Allowable deformation of clip

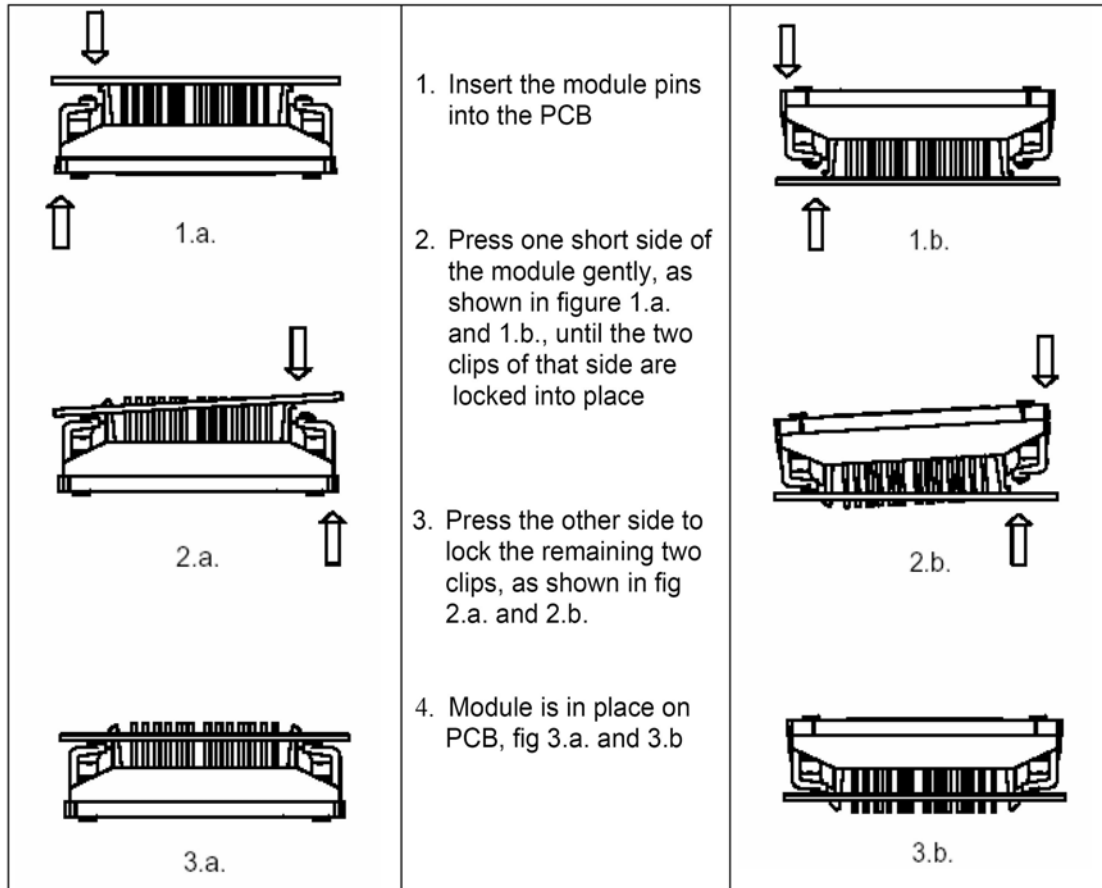


Allowable deformation of spring



Mounting Instructions

4-clip



PRODUCT STATUS DEFINITIONS

Datasheet Status	Product Status	Definition
Target	Formative or In Design	This datasheet contains the design specifications for product development. Specifications may change in any manner without notice. The data contained is exclusively intended for technically trained staff.
Preliminary	First Production	This datasheet contains preliminary data, and supplementary data may be published at a later date. Tyco Electronics reserves the right to make changes at any time without notice in order to improve design. The data contained is exclusively intended for technically trained staff.
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