

Thermal pad

Thermal pad

5TH21000

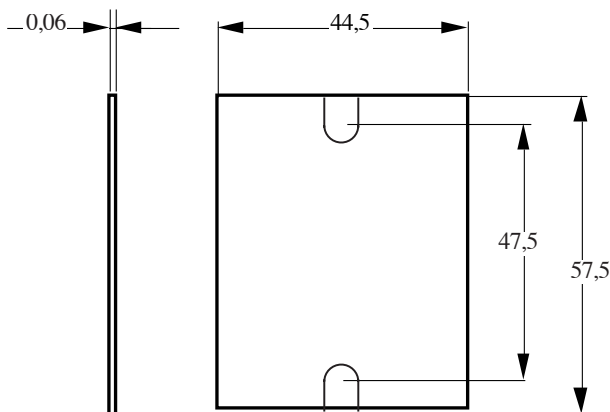
for SC and SV relays

Low thermal resistance

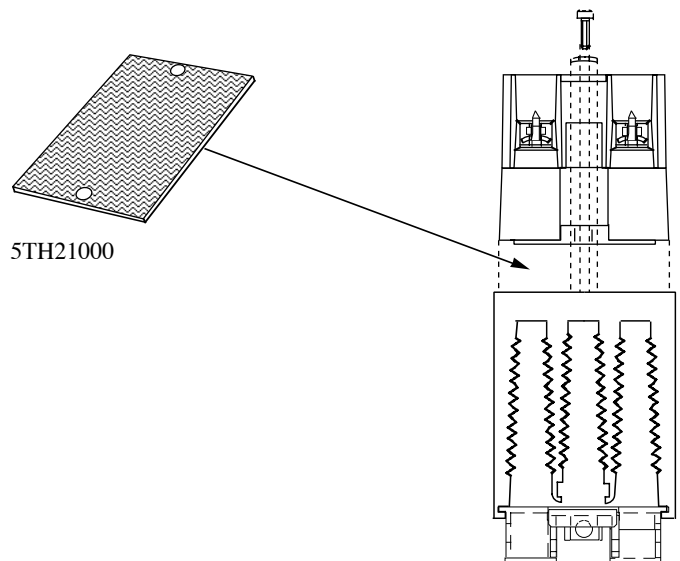
Easy to use

For an efficient cooling of power components , it is usual to apply a thermally conducting media , such as thermal grease , between the power element and the heatsink . Thermal grease is considered problematic due to difficulties in applying it to the heat dissipating surface . As a replacement , **celduc** tested a range of products and compared their thermal resistance characteristics (R_{th} c/h) .

As a replacement to thermal grease and for efficient cooling, **celduc** recommend thermal pads with aluminium materials : 5TH21000



Thermal resistance : $< 0,05K/W$
for SC/SV package .



Proud to serve you

All technical characteristics are subject to change without previous notice.
Caractéristiques sujettes à modifications sans préavis.

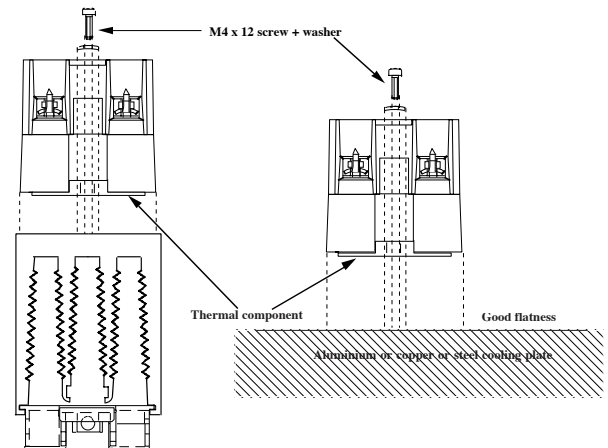
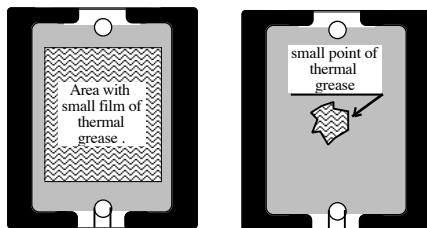
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Fixing of solid state device on its heatsink or on a cooling plate

For an efficient cooling of power components , it is usual to apply a thermally conducting media , such as thermal grease , between the power element and the heatsink .

There are two main techniques :

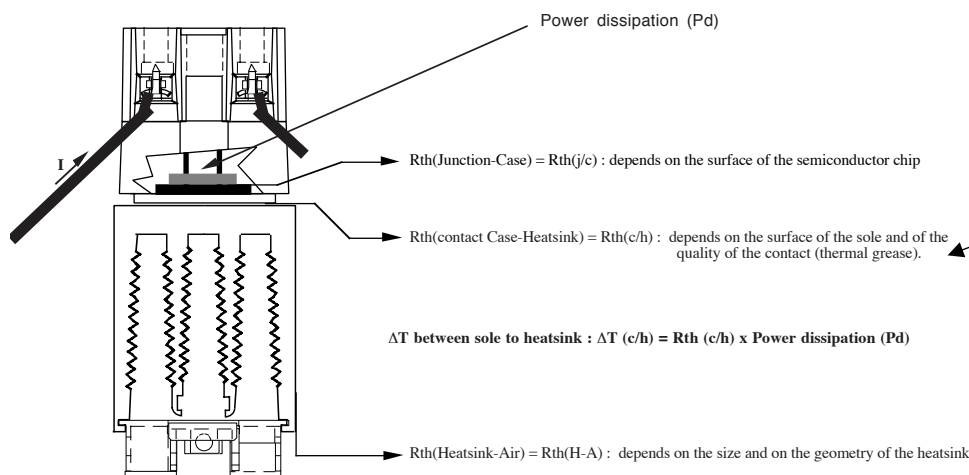
- a small film of thermal grease applied over an area .
- a point of thermal grease at the centre of the power element



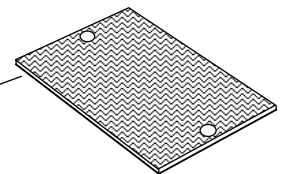
Thermal grease is considered problematic due to difficulties in applying it to the heat dissipating surface . As a replacement , a new range of components , thermal pads , are now readily available on the market .

To qualify the different technologies , **celduc** tested a range of products and compared their thermal resistance characteristics ($R_{th} \text{ c/h}$) . The thermal pads have been divided into three categories :

1- thermal pads with insulation . 2- thermal pads with carbon materials . 3- thermal pads with aluminium materials .



test method and results:



Thermal pad
or grease

	with anything	with grease and a small film	with grease and a point of grease	with "thermalpads" with insulation .	with "thermalpads" with carbon materials .	with "thermalpads" with aluminium materials .
$R_{th} \text{ c/h}$ for a hockey puck SSR	0,2K/W	0,03K/W	0,02K/W	0,3K/W	0,15K/W	0,05K/W

The difference in temperature between the SSR case and the heatsink is dependant upon the thermal resistance of the heat conducting media ($R_{th} \text{ c/h}$) and the power dissipation of the SSR (P_d) and is defined by the following equation :

$$\Delta T_{\text{case / heatsink}} = R_{thc/h} \times P_d$$

In conclusion :

For low power (under 10 watts) , the temperature difference ΔT is $< 3^\circ\text{C}$ for all solutions .

For higher power dissipations , it is important to use an efficient heat conducting material .

celduc recommend thermal grease or thermal pads with aluminium materials .



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