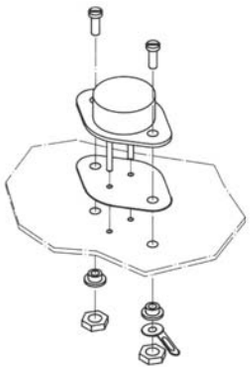
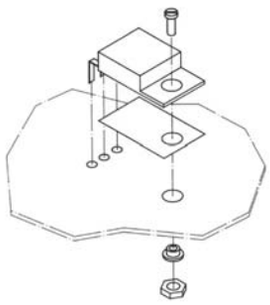
# Mounting kits for insulation of power transistors



**MST 3**
**MSTS 3**



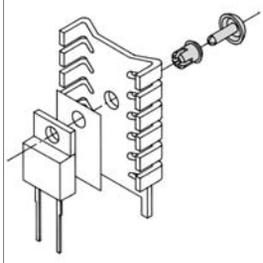
**MST 220**
**MSTS 220**

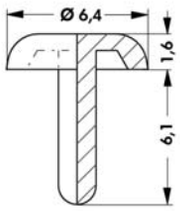


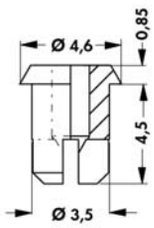
| art. no. | for transistor | version | contents of delivery |
|---|---|---|---|
| **MST 3** | TO 3 | with mica wafer GS 3 | 1 mica wafer, 2 insulator sleeves, 1 tin-plated solder lug, 2 cheese head screws, nickel-plated, 2 screw nuts M 3 nickel-plated |
| **MSTS 3** | TO 3 | with silicone wafer WS 3 | 1 silicone wafer, 2 insulator sleeves, 1 tin-plated solder lug, 2 cheese head screws, nickel-plated, 2 screw nuts M 3 nickel-plated |
| **MST 220** | TO 220 | with mica wafer GS 220 | 1 mica wafer, 1 tin-plated solder lug, 1 cheese head screw, nickel-plated, 1 screw nut M 3 nickel-plated |
| **MSTS 220** | TO 220 | with silicone wafer WS 220 | 1 silicone wafer, 1 insulator sleeve, 1 tin-plated solder lug, 1 cheese head screw, nickel-plated, 1 screw nut M 3 nickel-plated |

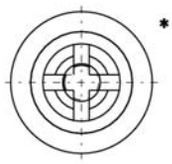
## Snap rivet for quick fastening of TO 220

– detachable plastic snap rivet for quick fastening of transistors onto heatsinks and cooling plates (e.g. FK 212-CB, FK 216-CB, FK 222-220, FK 232, FK 233, FK 235-L 1)
– suitable for material thickness: 1.0 – 1.5 mm
– suitable for hole diameter: 3.5 – 4.0 mm






| art. no. | for transistor |
|---|---|
| **EPN 1** | TO 220 |

***** = bottom view. Pin not inserted

| | |
|---|---|
| **material** | polysulphone, GF reinforced |
| **temperature range** | -70 °C ... +180 ° (5 sec. +260 °C) |
| **flammability** | UL 94 V-0 |

**Distance sleeves for PCB´s in HP grid → E ?**
**Spacers → E ? – ?**
**Guide rails for PCBs → E ? – ?**
**Clamp fixing for DIN-rail → E ?**
**Mounting parts for heatsinks → E 7 – 8**
**Thermal conductive material → E ? – ?**
**Profiles for PCB mounting → A ? – ?**
**Profiles for PCB components → A ?**

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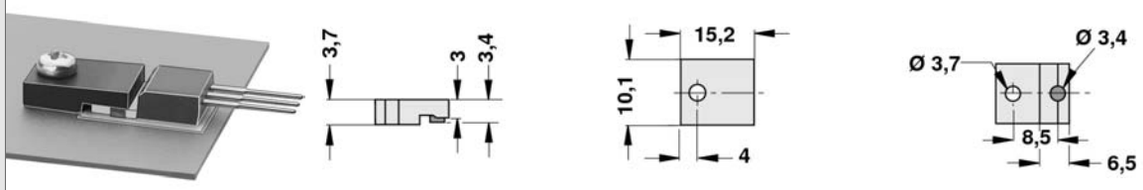
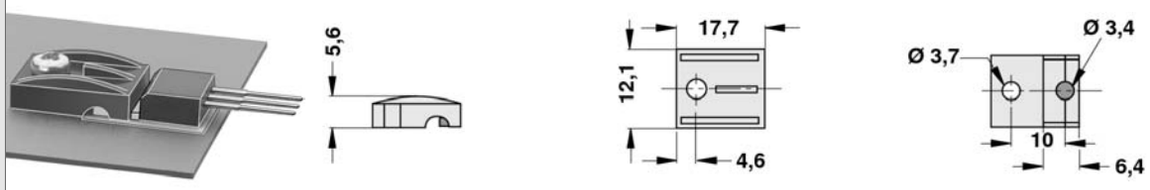
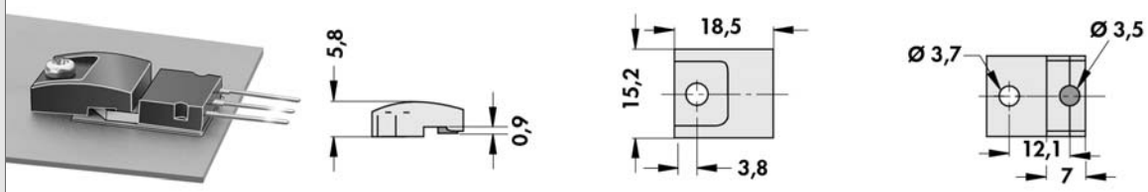
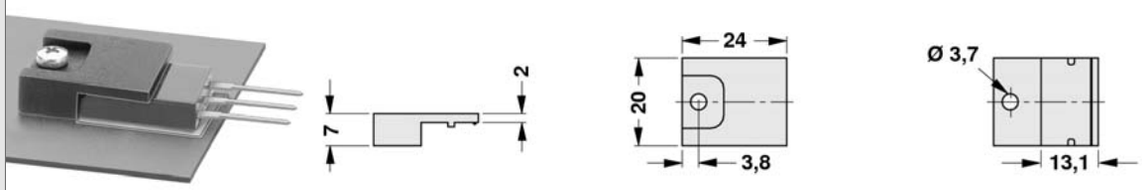
# Insulating clamping parts for power transistors

**Plastic insulating clamping parts for mounting transistors in cases TO 220, TO 218 and TO 247 for enhanced dielectric stengths**

– electrically insulating assembly of the transistor by means of a plastic clamping part
– pin with a reaching into the hole of the transistor plate
– fastening of clamping part onto the mounting plate by screws, no electroinsulating connection to the transistor
– dielectric strength only determined by the insulating washer between transistor and mounting surface
– no insulating bush necessary, thus no dielectric breakdown

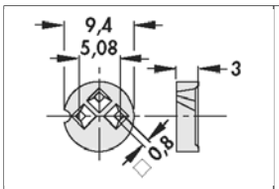
| art. no. | |
|---|---|
| **ISP 220** |  |
| **art. no.** | |
| **ISP 220 V** |  |
| **art. no.** | |
| **ISP 218** |  |
| **art. no.** | |
| **ISP 247** |  |

| | |
|---|---|
| **material** | polyamide, GF reinforced |
| **heat distortion** | 205(1,8 MPa)135(8 MPa) |
| **dielectric strength** | >27 KV/mm |
| **dielectric constant** | 8 [100 Hz] 4,5 [1 MHz] |
| **dielectric loss factor** | 1300 [100 Hz] 450 [1 MHz] |
| **specific volume resistance** | $>10^{13}$ Ω/cm |
| **colour** | black |
| **flammability** | UL 94 V-0 |

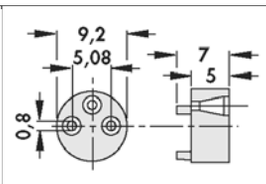


**Profiles for PCB components** → **A ?**
**Heatsinks for PCB** → **A ?**
**Profiles for PCB mounting** → **A ? – ?**
**Thermal conductive material** → **E ? – ?**
**Insulating distance sleeves** → **E ? – ?**
**Vibration dampers** → **E ?**
**Aluminium oxide wafers** → **E ? – ?**
**Snap rivet** → **E 2**

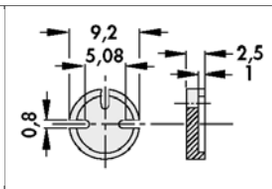
# Mounts



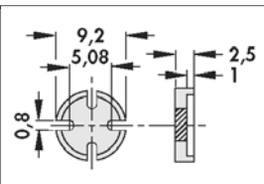

**art. no.**
**MS 53 3**
TO 5



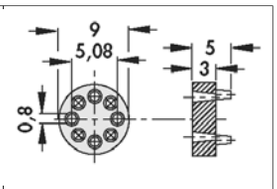

**art. no.**
**MS 53 7**
TO 5



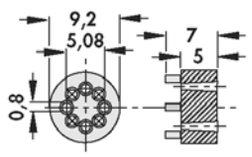

**art. no.**
**MS 53 25**
TO 5



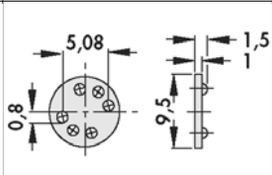

**art. no.**
**MS 54 25**
TO 5



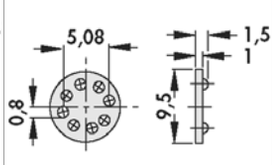

**art. no.**
**MS 58 5**
TO 5-8 p.



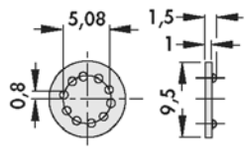

**art. no.**
**MS 58 7**
TO 5-8 p.



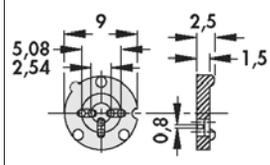

**art. no.**
**MS 56 15**
TO 5-6 p.



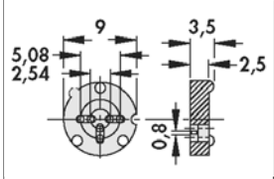

**art. no.**
**MS 58 15**
TO 5-8 p.



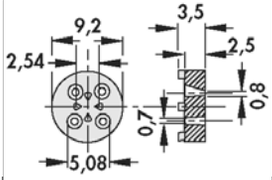

**art. no.**
**MS 510 15**
TO 5-10 p.



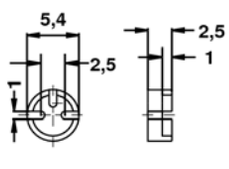

**art. no.**
**MS 3518 25**
TO 5/ TO 18



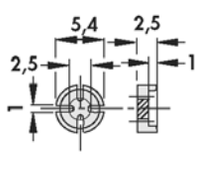

**art. no.**
**MS 3518 35**
TO 5/ TO 18




**art. no.**
**MS 34 518**
TO 5 / TO 18




**art. no.**
**MS 183 25**
TO 18




**art. no.**
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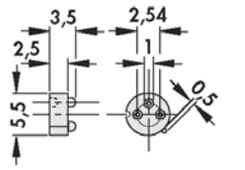
TO 18

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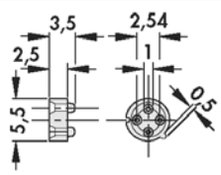
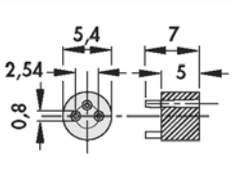
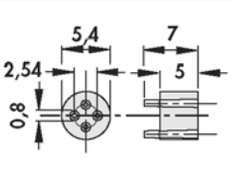
TO 18



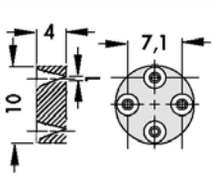

**art. no.**
**MS 184 35**
TO 18



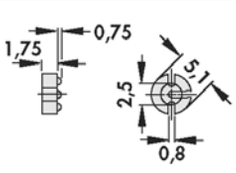

**art. no.**
**MS 183 7**
TO 18



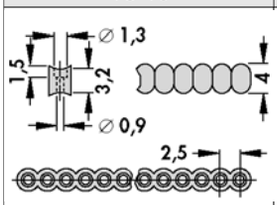

**art. no.**
**MS 184 7**
TO 18



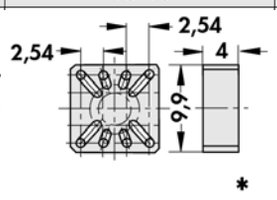

**art. no.**
**MS 84 4**
TO 8



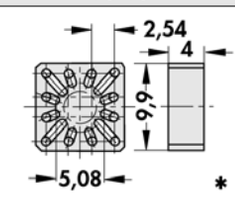

**art. no.**
**MS 923 25**
TO 92




**art. no.**
**MS 4016**
max. 16 contacts




**art. no.**
**US 58 4**
TO 5




**art. no.**
**US 512 4**
TO 5

***** = **mounting pads**: the US-pads convent the TO 5 pin circle to a pitch of .1".

| | |
|---|---|
| **material** | polyamide 6, GF reinforced |
| **temperature range** | -40 °C ... +205 °C |
| **flammability** | UL 94 V-0 (at thickness ≥ 3 mm), UL 94 V-1 |


**Profiles for PCB components** → **A ?**
**Heatsinks for PCB** → **A ?**
**Profiles for PCB mounting** → **A ? – ?**
**Thermal conductive material** → **E ? – ?**
**Insulating distance sleeves** → **E ? – ?**
**Vibration dampers** → **E ?**
**Aluminium oxide wafers** → **E ? – ?**
**Snap rivet** → **E 2**

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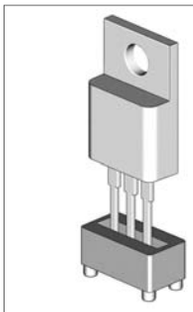
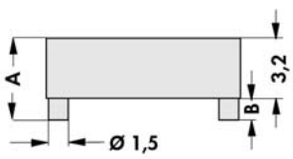
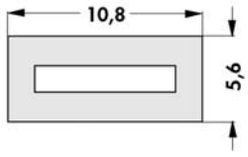
# Mounts

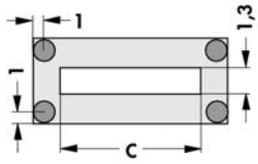
## Mounts for power transistors

for TO 220, TO 219, TO 202 and similar; **for vertical and horizontal mounting;** also suitable as mounting bracket for angled connections





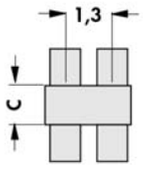



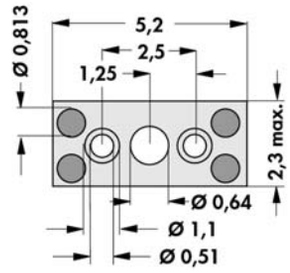

| art. no. | colour | dim. [mm] | | |
|---|---|---|---|---|
| | | A | B | C |
| **MLW 32** | white | 3.2 | – | 7.1 |
| **MLW 38** | white | 3.8 | 0.64 | 7.1 |
| **MLW 44** | white | 4.4 | 1.30 | 7.1 |
| **MLW 51** | white | 5.1 | 1.90 | 7.1 |
| **MLB 32** | black | 3.2 | – | 6.5 |
| **MLB 38** | black | 3.8 | 0.64 | 6.5 |
| **MLB 44** | black | 4.4 | 1.30 | 6.5 |
| **MLB 51** | black | 5.1 | 1.90 | 6.5 |

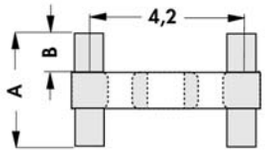
| | |
|---|---|
| **material** | polyamide 6 (nylon) |
| **temperature range** | -40 ... +120 |
| **flammability** | UL 94 V-2 |

## Mounts for rectangular LEDs

for LED 2x4 mm oder 2x5 mm; **symmetric version for easy assembly;** self-adhesive




| art. no. | dim. [mm] | | |
|---|---|---|---|
| | A | B | C |
| **MRL 20** | 2.0 | 0.5 | 1.0 |
| **MRL 30** | 3.0 | 1.0 | 1.0 |
| **MRL 41** | 4.1 | 1.5 | 1.0 |
| **MRL 51** | 5.1 | 2.0 | 1.0 |
| **MRL 61** | 6.1 | 1.1 | 3.8 |
| **MRL 71** | 7.1 | 1.7 | 3.8 |
| **MRL 81** | 8.1 | 2.2 | 3.8 |
| **MRL 89** | 8.9 | 2.5 | 3.8 |

| | |
|---|---|
| **material** | polyamide 6 (nylon), white |
| **temperature range** | -40 ... +120 |
| **flammability** | UL 94 V-2 |

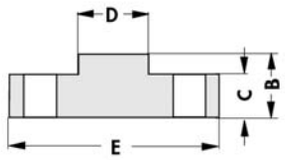


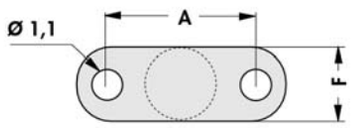

**Profiles for PCB components** → **A ?**
**Heatsinks for PCB** → **A ?**
**Profiles for PCB mounting** → **A ? – ?**
**Thermal conductive material** → **E ? – ?**
**Insulating distance sleeves** → **E ? – ?**
**Vibration dampers** → **E ?**
**Aluminium oxide wafers** → **E ? – ?**
**Snap rivet** → **E 2**

# Mounts

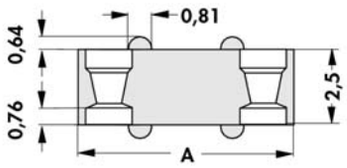
## Mounts for discrete components

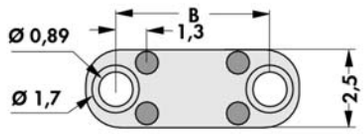
suitable for various components e.g. resistors, capacitors etc.



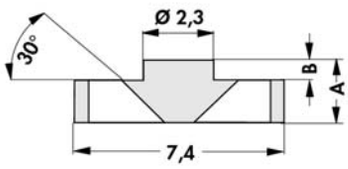



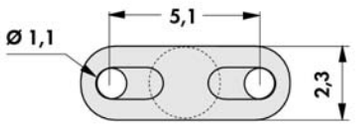

| art. no. | dim. [mm] | | | | | |
|---|---|---|---|---|---|---|
| | A | B | C | D | E | F |
| **MD A 04** | 2.5 | 1.1 | 0.55 | 1.3 | 4.6 | 2.3 |
| **MD A 06** | 3.8 | 1.1 | 0.55 | 2.3 | 6.9 | 3.2 |
| **MD A 07** | 5.1 | 1.1 | 0.55 | 2.3 | 7.4 | 2.3 |
| **MD A 08** | 6.4 | 1.1 | 0.66 | 2.3 | 8.6 | 2.3 |
| **MD A 09** | 7.6 | 1.1 | 0.66 | 3.6 | 9.9 | 2.3 |
| **MD A 12** | 10.2 | 1.1 | 0.76 | 4.8 | 12.4 | 2.3 |




| art. no. | dim. [mm] | |
|---|---|---|
| | A | B |
| **MD B 07** | 7.6 | 5.1 |
| **MD B 08** | 8.9 | 6.4 |
| **MD B 10** | 10.2 | 7.6 |
| **MD B 11** | 11.4 | 8.9 |
| **MD B 12** | 12.7 | 10.2 |
| **MD B 15** | 15.2 | 12.7 |




| art. no. | dim. [mm] | |
|---|---|---|
| | A | B |
| **MD C 13** | 1.3 | – |
| **MD C 18** | 1.8 | 0.56 |
| **MD C 22** | 2.2 | 0.89 |

| | |
|---|---|
| **material** | polyamide 6 (nylon) |
| **temperature range** | -30 ... +110 |
| **flammability** | UL 94 V-2 |

**Profiles for PCB components** → **A ?**
**Heatsinks for PCB** → **A ?**
**Profiles for PCB mounting** → **A ? – ?**
**Thermal conductive material** → **E ? – ?**
**Insulating distance sleeves** → **E ? – ?**
**Vibration dampers** → **E ?**
**Aluminium oxide wafers** → **E ? – ?**
**Snap rivet** → **E 2**

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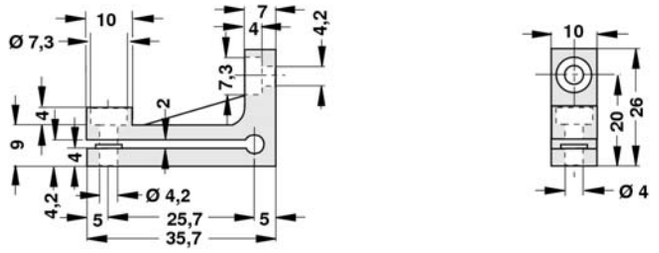
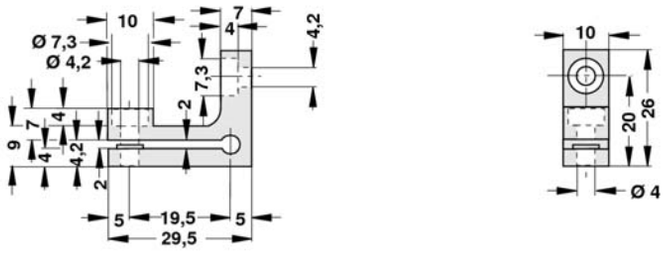
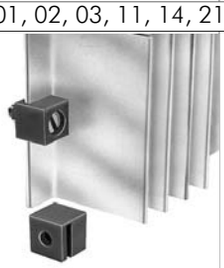
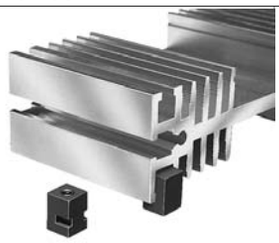
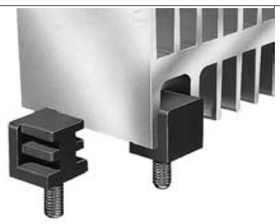
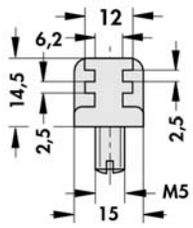
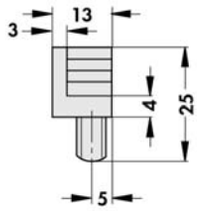
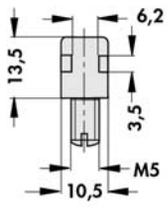
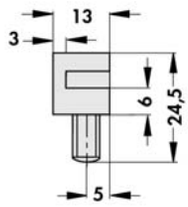
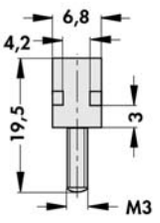
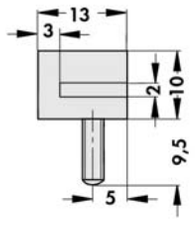
# Mounting parts for heatsinks

| art. no. | | |
|---|---|---|
| |  |  |
| **IS 1** | for SK 01, 02, 03, 11, 14, 21, 30, 34, 36, 39, 46, 69; heatsink length: 50 mm | |
| **art. no.** | | |
| |  |  |
| **IS 2** | for SK 01, 02, 03, 11, 14, 21, 30, 34, 36, 39, 46, 69; heatsink length: 37,5 75 100 mm | |
| **art. no.** | | |
| |  |  |
| **IS 3** | for SK 01, 02, 03, 11, 14, 21, 30, 34, 36, 39, 46, 69 | |
| **art. no.** | | |
| |  |  |
| **IS 4** | for SK 06 | |
| **art. no.** | | |
| |  |  |
| **IS 5** | for SK 20 | |

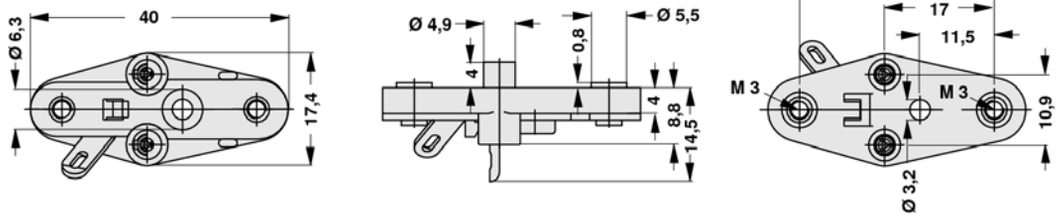
| | |
|---|---|
| **material** | polyamide 6, GF reinforced |
| **flammability** | UL 94 V-0 |

# Mounting parts for heatsinks

| art. no. | | |
|---|---|---|
| |  |   |
| **IS 6** | for SK 67 | |
| **art. no.** | | |
| |  |   |
| **IS 7** | for SK 70 | |
| **art. no.** | | |
| |  |   |
| **IS 8** | for SK 20 | |

| | |
|---|---|
| **material** | polyamide 6, GF reinforced |
| **flammability** | UL 94 V-0 |

## Sockets for power transistors TO 3

| | |
|---|---|
|  |  |
| **art. no.** | dim. [mm]<br>number of contacts |
| **TF 3 2** | 3 |

| | |
|---|---|
| **insulator** | PCT, glassfibre filled |
| **contact** | beryllium copper; 4 ... 6 µm Sn |
| **current rating** | 15 A max. |
| **contact resistance** | <10 mΩ |
| **temperature range** | -65 °C ... +290 °C |
| **insulation resistance** | $>10^{10}$ Ω/cm |
| **capacity** | 1 pF |
| **test voltage** | 1650 V |


**Heatsink profile-overview** → **A 13 - 16**
**Profiles for PCB mounting** → **A ? – ?**
**Heatsinks for PCB** → **A ?**
**Insulating distance sleeves** → **E ? – ?**
**Insulting clamping parts** → **E 3**
**Mounting pads for transistors** → **E 5**
**Mounting pads for single components** → **E 6**
**Mounting material for semiconduct.** → **E 2 – 6**

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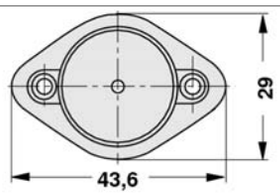
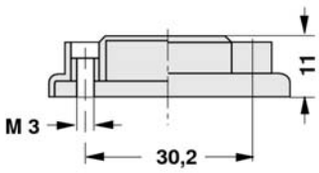
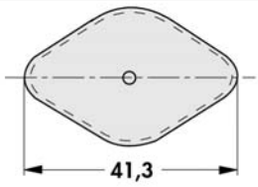
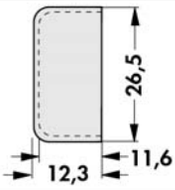
# Insulating caps and insolater sleeves

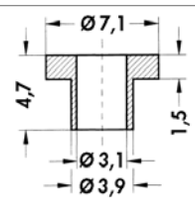
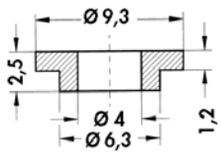
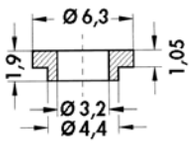
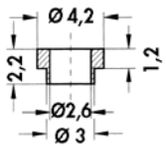
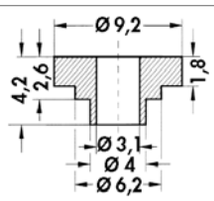
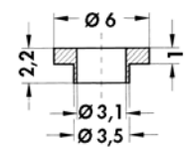
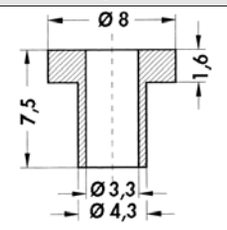
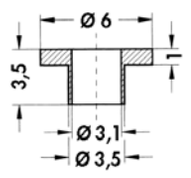
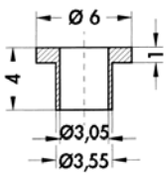
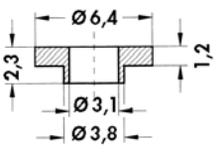
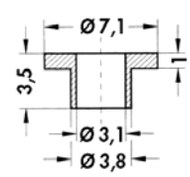
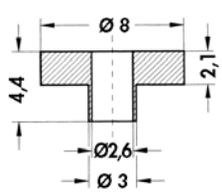
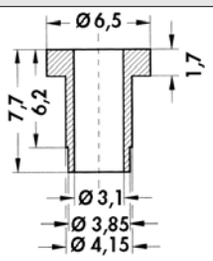
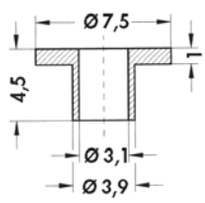
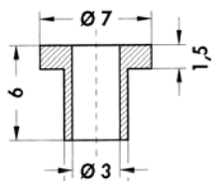
## Insulating caps

different transistor flange levels will be compensated by the impressed sleeves

| art. no. | | | |
|---|---|---|---|
| IK 341 3 |  |  |  |
| art. no. | | | |
| IK 3 |  |  |  |

| | |
|---|---|
| **material** | polyamide, GF reinforced (caps) |
| **pressed-in sleeves** | brass, nickel-plated |
| **flammability** | UL 94 V-0 |

## Insolater sleeves

| | | | | |
|---|---|---|---|---|
|  |  |  |  |  |
| **art. no.** | **art. no.** | **art. no.** | **art. no.** | **art. no.** |
| **IB 1 / IBT 1** | **IB 2 / IBT 2** | **IB 3 / IBT 3** | **IB 4 / IBT 4** | **IB 5 / IBT 5** |
|  |  |  |  |  |
| **art. no.** | **art. no.** | **art. no.** | **art. no.** | **art. no.** |
| **IB 6 / IBT 6** | **IB 7 / IBT 7** | **IB 8 / IBT 8** | **IB 9 / IBT 9** | **IB 10 / IBT 10** |
|  |  |  |  |  |
| **art. no.** | **art. no.** | **art. no.** | **art. no.** | **art. no.** |
| **IB 11 / IBT 11** | **IB 12 / IBT 12** | **IB 13 / IBT 13** | **IB 14 / IBT 14** | **IB 15 / IBT 15** |

| | **IB 1 - IB 7** | **IB 8 - IB 15** | **IBT 1 - IBT 15** |
|---|---|---|---|
| **material** | polyamide 4.6, GF reinforced | thermoplastic resin | PTFE (teflon) |
| **form stability** | -40 °C ... +163 °C | -10 °C ... +200 °C | -260 °C ... +250 °C |
| **dielectric strength** | >30 KV/mm | >38 KV/mm | >40 KV/mm |
| **flammability** | UL 94 V-0 | accordant UL 94 V-0 | UL 94 V-0 |




**Mica wafers** → **E ?**
**Thermal conductive material** → **E ? – ?**
**Mounting for TO 3 angle** → **A ?**
**Kapton insulator washers** → **E ?**
**Aluminium oxide wafers** → **E ? – ?**
**Thermal conductive paste** → **E ?**
**Thermal conductive glue** → **E ?**
**Distance sleeves** → **E ? – ?**