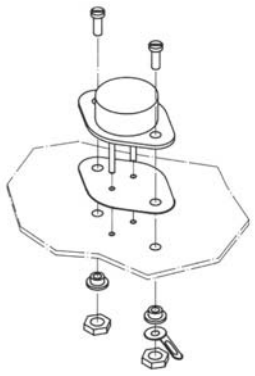
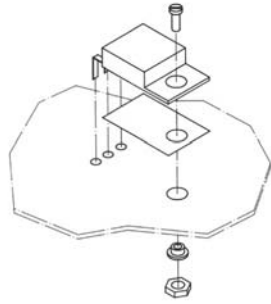
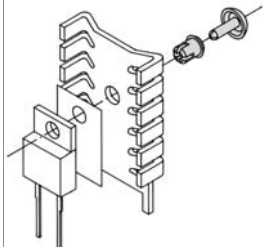
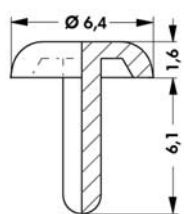
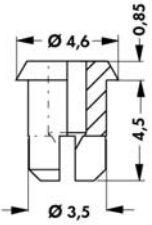
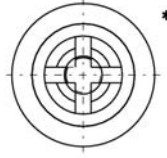


## Mounting kits for insulation of power transistors

MST 3 MSTS 3		MST 220 MSTS 220	
			
art. no.	for transistor	version	contents of delivery
<b>MST 3</b>	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
<b>MSTS 3</b>	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
<b>MST 220</b>	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
<b>MSTS 220</b>	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		
<b>EPN 1</b>	TO 220		

\* = bottom view. Pin not inserted

<b>material</b>	polysulphone, GF reinforced
<b>temperature range</b>	-70 °C ... +180 ° (5 sec. +260 °C)
<b>flammability</b>	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 ?

**E 2**

# 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 strengths

- 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				
ISP 220 V				
ISP 218				
ISP 247				

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

E 3

Profiles for PCB components  
Heatsinks for PCB  
Profiles for PCB mounting  
Thermal conductive material

→ A ?  
→ A ?  
→ A ? - ?  
→ E ? - ?

Insulating distance sleeves  
Vibration dampers  
Aluminium oxide wafers  
Snap rivet

→ E ? - ?  
→ E ?  
→ E ? - ?  
→ E 2

## Mounts

<b>art. no.</b> <b>MS 53 3</b> TO 5	<b>art. no.</b> <b>MS 53 7</b> TO 5	<b>art. no.</b> <b>MS 53 25</b> TO 5	<b>art. no.</b> <b>MS 54 25</b> TO 5	<b>art. no.</b> <b>MS 58 5</b> TO 5-8 p.
<b>art. no.</b> <b>MS 58 7</b> TO 5-8 p.	<b>art. no.</b> <b>MS 56 15</b> TO 5-6 p.	<b>art. no.</b> <b>MS 58 15</b> TO 5-8 p.	<b>art. no.</b> <b>MS 510 15</b> TO 5-10 p.	<b>art. no.</b> <b>MS 3518 25</b> TO 5/ TO 18
<b>art. no.</b> <b>MS 3518 35</b> TO 5/ TO 18	<b>art. no.</b> <b>MS 34 518</b> TO 5 / TO 18	<b>art. no.</b> <b>MS 183 25</b> TO 18	<b>art. no.</b> <b>MS 184 25</b> TO 18	<b>art. no.</b> <b>MS 183 35</b> TO 18
<b>art. no.</b> <b>MS 184 35</b> TO 18	<b>art. no.</b> <b>MS 183 7</b> TO 18	<b>art. no.</b> <b>MS 184 7</b> TO 18	<b>art. no.</b> <b>MS 84 4</b> TO 8	<b>art. no.</b> <b>MS 923 25</b> TO 92
<b>art. no.</b> <b>MS 4016</b> max. 16 contacts	<b>art. no.</b> <b>US 58 4</b> TO 5	<b>art. no.</b> <b>US 512 4</b> TO 5		

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

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

Profiles for PCB components  
Heatsinks for PCB  
Profiles for PCB mounting  
Thermal conductive material

→ A ?  
→ A ?  
→ A ? - ?  
→ E ? - ?

Insulating distance sleeves  
Vibration dampers  
Aluminium oxide wafers  
Snap rivet

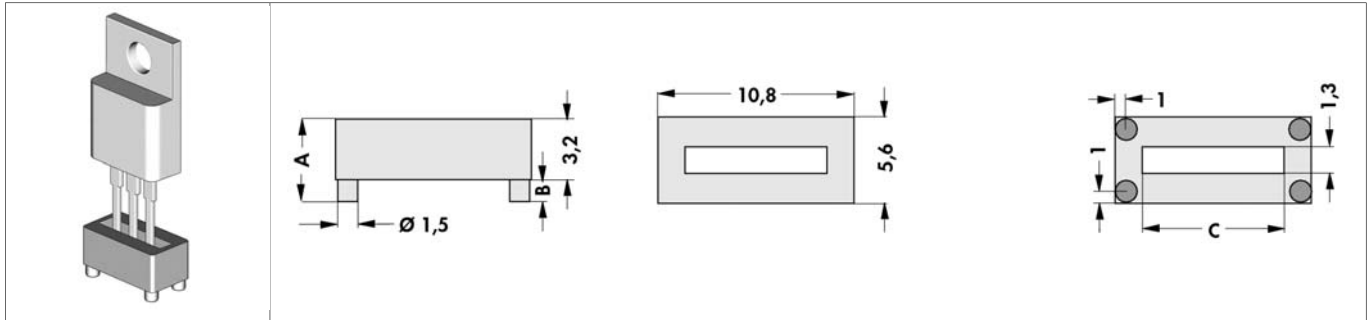
→ E ? - ?  
→ E ?  
→ E ? - ?  
→ E 2

**E 4**

## 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

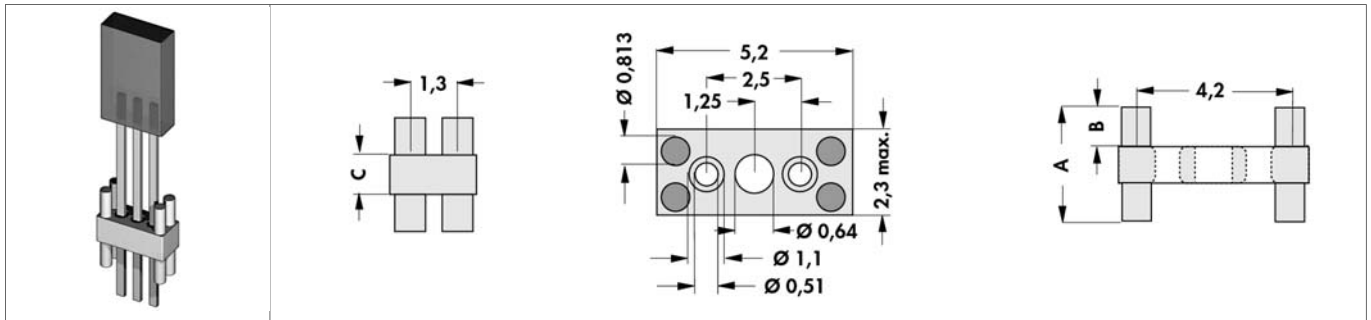


art. no.	colour	dim. [mm]		
		A	B	C
<b>MLW 32</b>	white	3.2	–	7.1
<b>MLW 38</b>	white	3.8	0.64	7.1
<b>MLW 44</b>	white	4.4	1.30	7.1
<b>MLW 51</b>	white	5.1	1.90	7.1
<b>MLB 32</b>	black	3.2	–	6.5
<b>MLB 38</b>	black	3.8	0.64	6.5
<b>MLB 44</b>	black	4.4	1.30	6.5
<b>MLB 51</b>	black	5.1	1.90	6.5

<b>material</b>	polyamide 6 (nylon)
<b>temperature range</b>	-40 ... +120
<b>flammability</b>	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
<b>MRL 20</b>	2.0	0.5	1.0
<b>MRL 30</b>	3.0	1.0	1.0
<b>MRL 41</b>	4.1	1.5	1.0
<b>MRL 51</b>	5.1	2.0	1.0
<b>MRL 61</b>	6.1	1.1	3.8
<b>MRL 71</b>	7.1	1.7	3.8
<b>MRL 81</b>	8.1	2.2	3.8
<b>MRL 89</b>	8.9	2.5	3.8

<b>material</b>	polyamide 6 (nylon), white
<b>temperature range</b>	-40 ... +120
<b>flammability</b>	UL 94 V-2

**E 5**

Profiles for PCB components  
Heatsinks for PCB  
Profiles for PCB mounting  
Thermal conductive material

→ A ?  
→ A ?  
→ A ? - ?  
→ E ? - ?


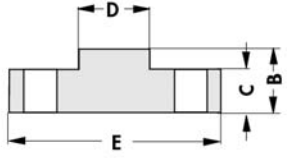
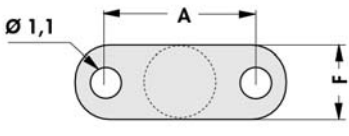
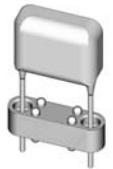
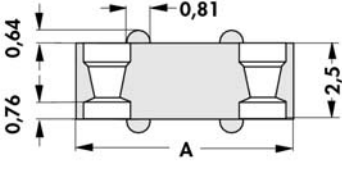
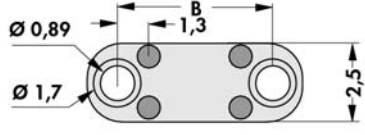

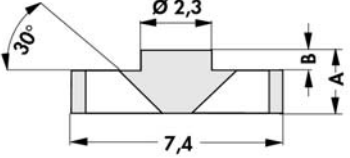
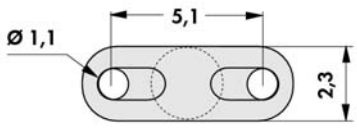
Insulating distance sleeves  
Vibration dampers  
Aluminium oxide wafers  
Snap rivet

→ E ? - ?  
→ E ?  
→ E ? - ?  
→ E 2

## Mounts

### Mounts for discrete components

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

						
<b>art. no.</b>	dim. [mm]					
	A	B	C	D	E	F
<b>MD A 04</b>	2.5	1.1	0.55	1.3	4.6	2.3
<b>MD A 06</b>	3.8	1.1	0.55	2.3	6.9	3.2
<b>MD A 07</b>	5.1	1.1	0.55	2.3	7.4	2.3
<b>MD A 08</b>	6.4	1.1	0.66	2.3	8.6	2.3
<b>MD A 09</b>	7.6	1.1	0.66	3.6	9.9	2.3
<b>MD A 12</b>	10.2	1.1	0.76	4.8	12.4	2.3
						
<b>art. no.</b>	dim. [mm]					
	A			B		
<b>MD B 07</b>	7.6			5.1		
<b>MD B 08</b>	8.9			6.4		
<b>MD B 10</b>	10.2			7.6		
<b>MD B 11</b>	11.4			8.9		
<b>MD B 12</b>	12.7			10.2		
<b>MD B 15</b>	15.2			12.7		
						
<b>art. no.</b>	dim. [mm]					
	A			B		
<b>MD C 13</b>	1.3			-		
<b>MD C 18</b>	1.8			0.56		
<b>MD C 22</b>	2.2			0.89		

<b>material</b>	polyamide 6 (nylon)
<b>temperature range</b>	-30 ... +110
<b>flammability</b>	UL 94 V-2

Profiles for PCB components  
Heatsinks for PCB  
Profiles for PCB mounting  
Thermal conductive material


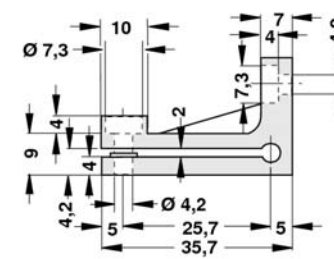
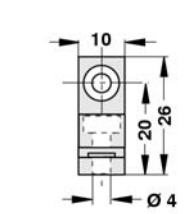

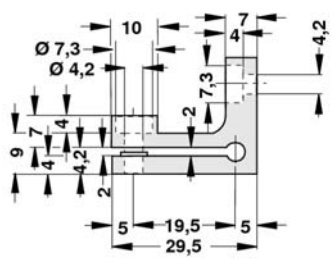
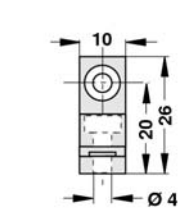

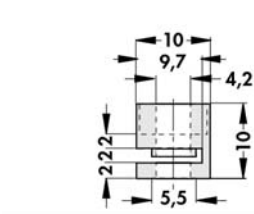
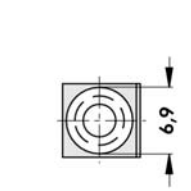

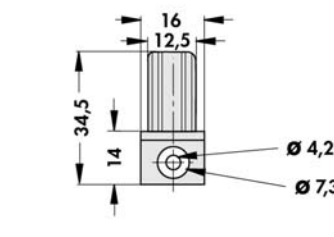
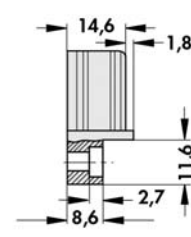

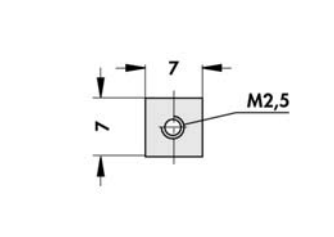
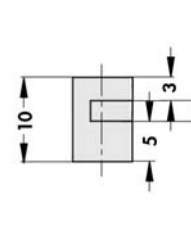
→ A ?  
→ A ?  
→ A ? - ?  
→ E ? - ?

Insulating distance sleeves  
Vibration dampers  
Aluminium oxide wafers  
Snap rivet

→ E ? - ?  
→ E ?  
→ E ? - ?  
→ E 2

**E 6**

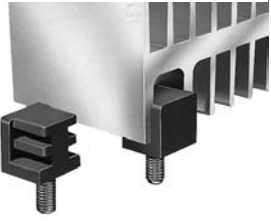
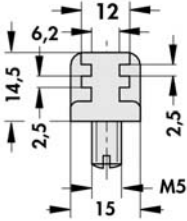
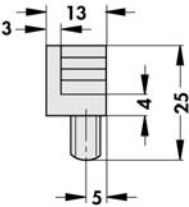

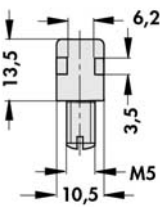
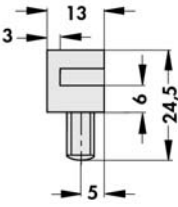

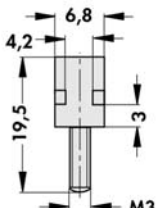
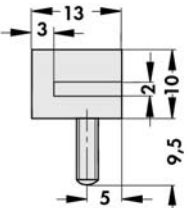
Mounting parts for heatsinks

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

<p>material</p>	<p>polyamide 6, GF reinforced</p>
<p>flammability</p>	<p>UL 94 V-0</p>


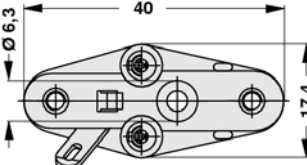
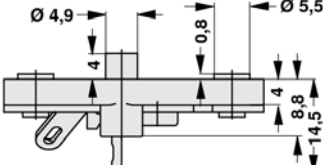
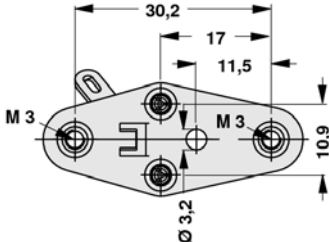
<p><b>E 7</b></p>	<p>Heatsink profile-overview Profiles for PCB mounting Heatsinks for PCB Insulating distance sleeves</p>	<p>→ A 13 - 16 → A ? - ? → A ? → E ? - ?</p>	<p>Insulating clamping parts Mounting pads for transistors Mounting pads for single components Mounting material for semiconduct.</p>	<p>→ E 3 → E 5 → E 6 → E 2 - 6</p>
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## Mounting parts for heatsinks

<b>art. no.</b>			
<b>IS 6</b>	for SK 67		
<b>art. no.</b>			
<b>IS 7</b>	for SK 70		
<b>art. no.</b>			
<b>IS 8</b>	for SK 20		

<b>material</b>	polyamide 6, GF reinforced
<b>flammability</b>	UL 94 V-0

## Sockets for power transistors TO 3

			
<b>art. no.</b>	dim. [mm] number of contacts		
<b>TF 3 2</b>	3		

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

Heatsink profile-overview  
Profiles for PCB mounting  
Heatsinks for PCB  
Insulating distance sleeves

→ A 13 - 16  
→ A ? - ?  
→ A ?  
→ E ? - ?


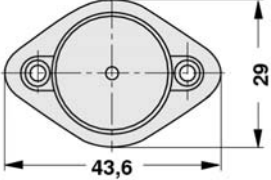
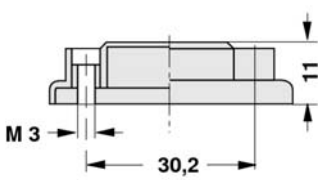

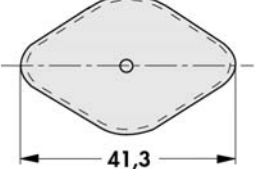
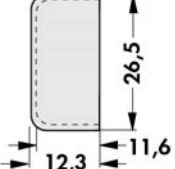
Insulating clamping parts → E 3  
Mounting pads for transistors → E 5  
Mounting pads for single components → E 6  
Mounting material for semiconduct. → E 2 - 6

**E 8**

# Insulating caps and insulator sleeves

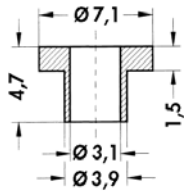
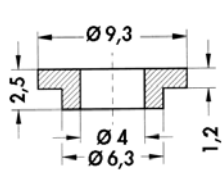
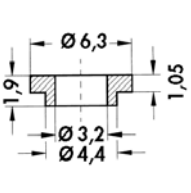
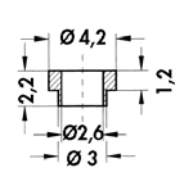
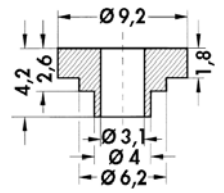
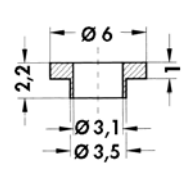
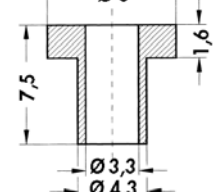
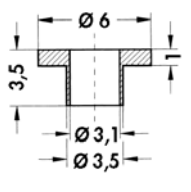
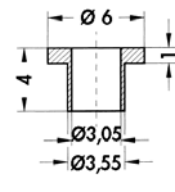
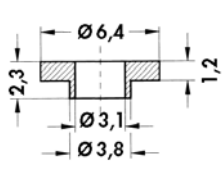
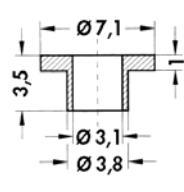
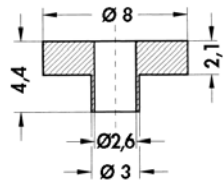
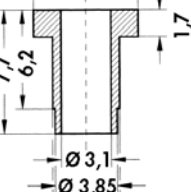
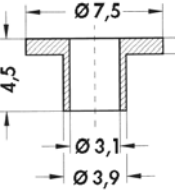
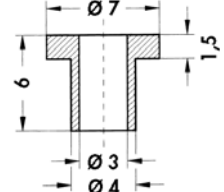
## Insulating caps

different transistor flange levels will be compensated by the impressed sleeves

<b>art. no.</b>			
<b>IK 341 3</b>			
<b>art. no.</b>			
<b>IK 3</b>			

<b>material</b>	polyamide, GF reinforced (caps)
<b>pressed-in sleeves</b>	brass, nickel-plated
<b>flammability</b>	UL 94 V-0

## Insulator sleeves

				
<b>art. no.</b> <b>IB 1 / IBT 1</b>	<b>art. no.</b> <b>IB 2 / IBT 2</b>	<b>art. no.</b> <b>IB 3 / IBT 3</b>	<b>art. no.</b> <b>IB 4 / IBT 4</b>	<b>art. no.</b> <b>IB 5 / IBT 5</b>
				
<b>art. no.</b> <b>IB 6 / IBT 6</b>	<b>art. no.</b> <b>IB 7 / IBT 7</b>	<b>art. no.</b> <b>IB 8 / IBT 8</b>	<b>art. no.</b> <b>IB 9 / IBT 9</b>	<b>art. no.</b> <b>IB 10 / IBT 10</b>
				
<b>art. no.</b> <b>IB 11 / IBT 11</b>	<b>art. no.</b> <b>IB 12 / IBT 12</b>	<b>art. no.</b> <b>IB 13 / IBT 13</b>	<b>art. no.</b> <b>IB 14 / IBT 14</b>	<b>art. no.</b> <b>IB 15 / IBT 15</b>

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

<b>E 9</b>	Mica wafers	→ E ?	Aluminium oxide wafers	→ E ? - ?
	Thermal conductive material	→ E ? - ?	Thermal conductive paste	→ E ?
	Mounting for TO 3 angle	→ A ?	Thermal conductive glue	→ E ?
	Kapton insulator washers	→ E ?	Distance sleeves	→ E ? - ?