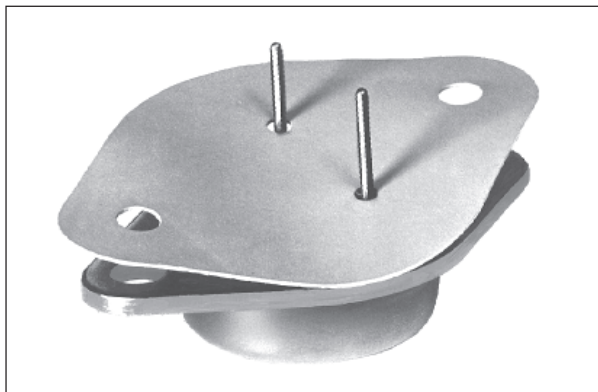


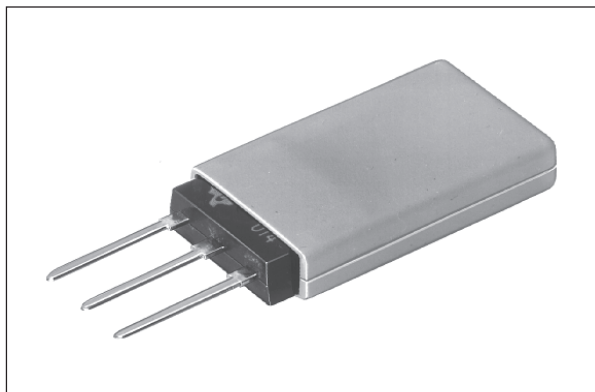
## Silikongummierte Unterlegscheiben für Halbleiter

## Silicone Rubber Washers for Semiconductors

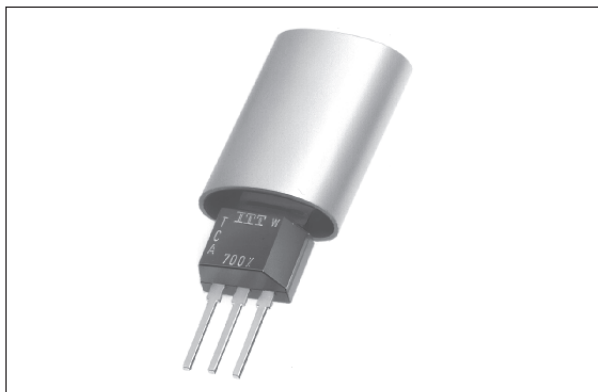
## Rondelles gommées au caoutchouc silicone pour semiconducteurs



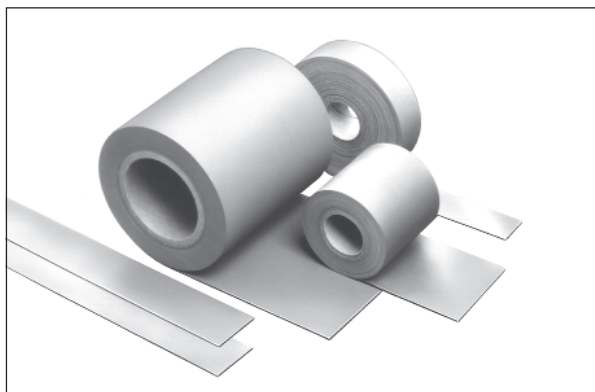
Scheibe/Washer/Rondelle



Isolierkappe/Insulator cap/Capot isolant



Isolierschlauch/Insulating Tube/Tuyau isolant



Bandmaterial/Tape material/En bande

Unsere Wärmeleitscheiben aus Silikonfolie bieten folgende Vorteile:

- guter Oberflächenkontakt, da flexibles Material
- Montage ohne Wärmeleitpaste (sauber und schnell), dadurch verringerte Produktionskosten
- Federeffekt des elastischen Materials schützt Transistoren vor Beschädigung
- frei von toxischen Substanzen

Auf Anfrage lieferbar:

- Sonderausführungen, Plattenmaterial und Zuschnitte.

Our new silicone rubber washers offer the following advantages:

- high conformability provides excellent surface contact
- quick, clean mounting without using thermal transfer compound reduces production costs
- elasticity and resilience of material protect semiconductors from shock damage
- non toxic

Available on request:

- special versions, plates and cuttings.

Nos rondelles conducteurs en caoutchouc silicone offrent les avantages suivants:

- bon contact de surface grâce à la flexibilité du matériau
- montage sans pâte conductrice de chaleur (rapide et propre), d'où coûts de production moindres
- l'effet de ressort du matériau élastique protège les transistors contre les détériorations dues aux chocs et vibrations
- ne contiennent pas de substances toxiques

Livable sur demande:

- usinages spéciaux, plaques et découpes.

**Silikongummiertes Isoliermaterial  
für Halbleiter**
**Silicone Rubber Insulating Material  
for Semiconductors**
**Matière isolante gommée au caout-  
chouc silicone pour semiconducteurs**

| Material/Technische Daten<br>Material/Technical Data<br>Matière/Spécifications Techniques | Folie WS ..<br>Foil WS ..<br>Feuille WS .. |                    | Folie WG ..<br>Foil WG ..<br>Feuille WG ..            | Folie WK ..<br>Foil WK ..<br>Feuille WK ..                                        | Folie WB ..<br>Foil WB ..<br>Feuille WB ..             |
|-------------------------------------------------------------------------------------------|--------------------------------------------|--------------------|-------------------------------------------------------|-----------------------------------------------------------------------------------|--------------------------------------------------------|
| Material:                                                                                 | Silikonfolie,<br>standard                  |                    | Silikonfolie,<br>glasfaserverstärkt                   | Silikonfolie, glasfaser-<br>verstärkt, einseitig<br>selbstklebend                 | Silikonfolie,<br>glasfaserverstärkt                    |
| Material:                                                                                 | Silicone rubber,<br>standard               |                    | Silicone rubber,<br>glass fibre reinforced            | Silicone rubber, glass<br>fibre reinforced, self<br>adhesive (one side only)      | Silicone rubber,<br>glass fibre reinforced             |
| Matière:                                                                                  | Caoutchouc silicone,<br>standard           |                    | Caoutchouc silicone, ren-<br>forcé de fibres de verre | Caoutchouc silicone,<br>renforcé de fibres de verre,<br>autocollant de l'une côté | Caoutchouc silicone,<br>renforcé de fibres<br>de verre |
| Materialstärke:<br>Thickness:<br>Epaisseur:                                               | 0,3 mm                                     | WSI<br>0,9 mm      | 0,2 mm                                                | 0,2 mm                                                                            | 0,15 mm                                                |
| Materialhärte:<br>Hardness:<br>Trempe:                                                    | 75 Shore A                                 |                    | 87 Shore A                                            | 87 Shore A                                                                        | 90 Shore A                                             |
| Durchschlagsfestigkeit:<br>Breakdown voltage:<br>Résistance de transition:                | 10 kV                                      | WSI<br>15 kV       | 6,5 kV                                                | 6,5 kV                                                                            | 3 kV                                                   |
| Isolationswiderstand:<br>Insulation resistance:<br>Résistance d'isolement:                | $2,9 \cdot 10^{15} \Omega \text{ cm}$      |                    | $5,7 \cdot 10^{15} \Omega \text{ cm}$                 | $5,7 \cdot 10^{15} \Omega \text{ cm}$                                             | $1,6 \cdot 10^{15} \Omega \text{ cm}$                  |
| Dehnbarkeit:<br>Elasticity:<br>Extensibilité:                                             | 100%                                       |                    | $\leq 2\%$                                            | $\leq 2\%$                                                                        | 4%                                                     |
| Wärmeleitfähigkeit:<br>Thermal conductivity:<br>Conductivité de la chaleur:               | 1,22 W/m•K                                 |                    | 1,13 W/m•K                                            | 0,92 W/m•K                                                                        | 1,43 W/m•K                                             |
| Wärmewiderstand:<br>Thermal resistance:<br>Résistance thermique:                          | 0,4<br>K/W                                 | WSI<br>0,96<br>K/W | 0,42 K/W                                              | 0,45 K/W                                                                          | 0,34 K/W                                               |
| Temperaturbereich:<br>Temperature range:<br>Gamme de température:                         | - 60 °C ... + 180 °C                       |                    | - 60 °C ... + 180 °C                                  | - 60 °C ... + 180 °C                                                              | - 60 °C ... + 180 °C                                   |
| Brennbarkeit:<br>Flammability:<br>Inflammabilité:                                         | UL 94 V-0                                  |                    | UL 94 V-0                                             | UL 94 V-0                                                                         | UL 94 V-0                                              |

Aluminiumoxydscheiben  
Kapton-Unterlegscheiben  
Glimmerscheiben  
Wärmeleitpaste

Aluminium Oxide Wafers  
Kapton Rubber Washers  
Mica Wafers  
Thermal Transfer Compound

Entretoises en oxyde d'aluminium  
Rondelles kapton pour semiconducteurs  
Intercalaires mica  
Pâte thermique

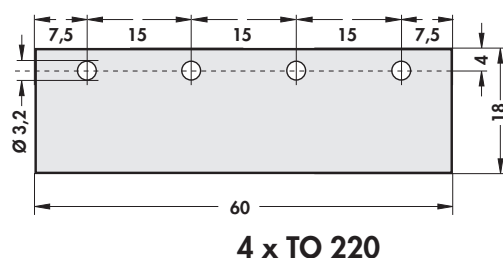
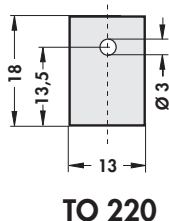
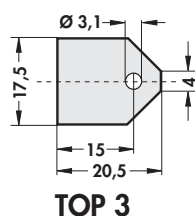
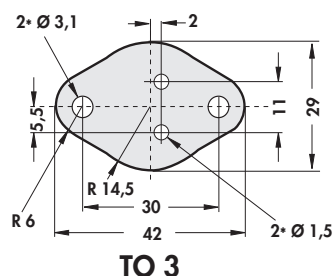
→ F 13 - 14  
→ I 12  
→ I 15  
→ I 17

**Silikongummiertes Isoliermaterial  
für Halbleiter**

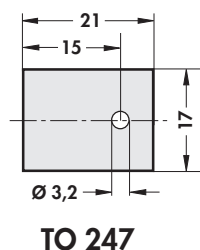
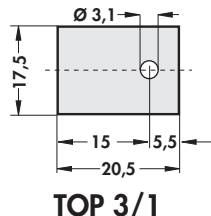
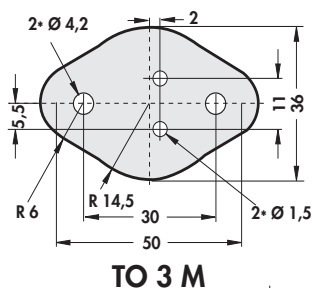
**Silicone Rubber Insulating Material  
for Semiconductors**

**Matière isolante gommée au caout-  
chouc silicone pour semiconducteurs**

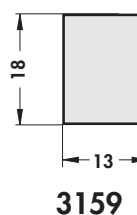
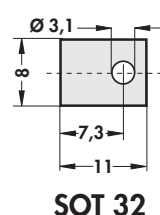
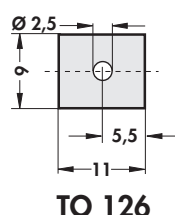
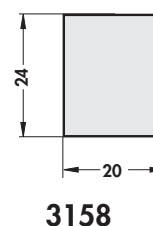
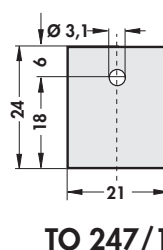
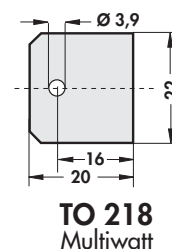
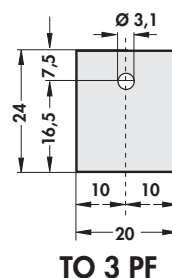
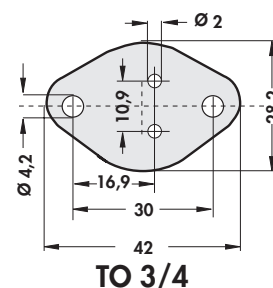
## Typen



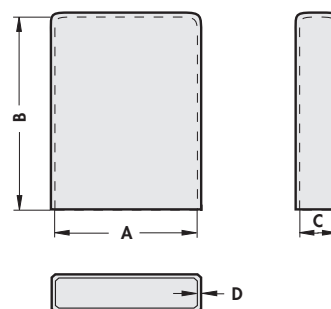
## Types



## Versions



| Art. Nr.<br>Art. No.<br>Art. n° | Typen<br>Types<br>Versions | Maße / Dimensions<br>[mm] |      |     |     |
|---------------------------------|----------------------------|---------------------------|------|-----|-----|
|                                 |                            | A                         | B    | C   | D   |
| WSI 220 210                     | TO 220                     | 11,0                      | 21,0 | 5,0 | 0,9 |
| WSI 220 225                     | TO 220                     | 11,0                      | 22,5 | 5,0 | 0,3 |
| WSI TOP 3 235                   | TOP 3                      | 18,0                      | 23,5 | 5,0 | 0,9 |
| WSI TOP 3 280                   | TOP 3                      | 16,0                      | 28,0 | 5,0 | 0,3 |
| WSI TOP 3 250                   | TOP 3                      | 16,5                      | 25,0 | 4,5 | 0,3 |
| WSI TO 3 PL                     | TO 3 PL / TO 247           | 22,0                      | 34,0 | 5,5 | 0,9 |



**Silikongummiertes Isoliermaterial  
für Halbleiter**
**Silicone Rubber Insulating Material  
for Semiconductors**
**Matière isolant gommée au caout-  
chouc silicone pour semiconducteurs**

|                                                                                                          | Art. Nr. / Art. No. / Art. n°                                                                 |                                                                                                                                          |                                                                                                                                                                                                                                   |                                                                                                                                          |
|----------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|
| Typ<br>Type<br>Version                                                                                   | Folie WS<br>Foil WS<br>Feuille WS                                                             | Folie WG<br>Foil WG<br>Feuille WG                                                                                                        | Folie WK<br>Foil WK<br>Feuille WK                                                                                                                                                                                                 | Folie WB<br>Foil WB<br>Feuille WB                                                                                                        |
| Material:<br>Material:<br>Matière:                                                                       | Silikonfolie,<br>standard<br>Silicone rubber,<br>standard<br>Caoutchouc silicone,<br>standard | Silikonfolie,<br>glasfaserverstärkt<br>Silicone rubber,<br>glass fibre reinforced<br>Caoutchouc silicone,<br>renforcé de fibres de verre | Silikonfolie, glasfaserverstärkt,<br>einseitig selbstklebend<br>Silicone rubber, glass fibre<br>reinforced, self adhesive<br>(one side only)<br>Caoutchouc silicone,<br>renforcé de fibres de verre,<br>autocollant de l'une côté | Silikonfolie,<br>glasfaserverstärkt<br>Silicone rubber,<br>glass fibre reinforced<br>Caoutchouc silicone,<br>renforcé de fibres de verre |
| <b>Unterlegscheiben / Rubber washers / Rondelles</b>                                                     |                                                                                               |                                                                                                                                          |                                                                                                                                                                                                                                   |                                                                                                                                          |
| TO-3                                                                                                     | <b>WS 3</b>                                                                                   | <b>WG 3</b>                                                                                                                              | <b>WK 3</b>                                                                                                                                                                                                                       | <b>WB 3</b>                                                                                                                              |
| TO-3 M                                                                                                   | <b>WS 3 M</b>                                                                                 |                                                                                                                                          | <b>WK 3 M</b>                                                                                                                                                                                                                     |                                                                                                                                          |
| TO-3/4                                                                                                   | <b>WS 3/4</b>                                                                                 |                                                                                                                                          | <b>WK 3/4</b>                                                                                                                                                                                                                     |                                                                                                                                          |
| TO-3 PF                                                                                                  | <b>WS 3 P</b>                                                                                 | <b>WG 3 P</b>                                                                                                                            | <b>WK 3 P</b>                                                                                                                                                                                                                     | <b>WB 3 P</b>                                                                                                                            |
| 3158                                                                                                     | <b>WS 3158</b>                                                                                |                                                                                                                                          | <b>WK 3158</b>                                                                                                                                                                                                                    | <b>WB 3158</b>                                                                                                                           |
| TOP 3                                                                                                    | <b>WS TOP 3</b>                                                                               |                                                                                                                                          | <b>WK TOP 3</b>                                                                                                                                                                                                                   |                                                                                                                                          |
| TOP 3/1                                                                                                  | <b>WS TOP 3/1</b>                                                                             |                                                                                                                                          | <b>WK TOP 3/1</b>                                                                                                                                                                                                                 |                                                                                                                                          |
| TO 218                                                                                                   |                                                                                               | <b>WG 218</b>                                                                                                                            |                                                                                                                                                                                                                                   |                                                                                                                                          |
| TO 247                                                                                                   | <b>WS 247 / WS 247 1</b>                                                                      |                                                                                                                                          | <b>WK 247</b>                                                                                                                                                                                                                     |                                                                                                                                          |
| TO 220                                                                                                   | <b>WS 220</b>                                                                                 | <b>WG 220</b>                                                                                                                            | <b>WK 220</b>                                                                                                                                                                                                                     | <b>WB 220</b>                                                                                                                            |
| 4 x TO 220                                                                                               | <b>WS 4 220</b>                                                                               |                                                                                                                                          |                                                                                                                                                                                                                                   |                                                                                                                                          |
| 3159                                                                                                     | <b>WS 3159</b>                                                                                |                                                                                                                                          | <b>WK 3159</b>                                                                                                                                                                                                                    | <b>WB 3159</b>                                                                                                                           |
| TO 126                                                                                                   |                                                                                               |                                                                                                                                          | <b>WK 126</b>                                                                                                                                                                                                                     |                                                                                                                                          |
| SOT 32                                                                                                   |                                                                                               |                                                                                                                                          | <b>WK 32</b>                                                                                                                                                                                                                      |                                                                                                                                          |
| <b>Isolierschlauch / Insulating Tube / Tuyau isolant</b>                                                 |                                                                                               |                                                                                                                                          |                                                                                                                                                                                                                                   |                                                                                                                                          |
| TO-220 Ø 11 mm $\leftrightarrow$ 25 mm                                                                   | <b>WSC-220</b>                                                                                |                                                                                                                                          |                                                                                                                                                                                                                                   |                                                                                                                                          |
| TO-3 PF Ø 13,5 mm $\leftrightarrow$ 25 mm                                                                | <b>WSC-3 P</b>                                                                                |                                                                                                                                          |                                                                                                                                                                                                                                   |                                                                                                                                          |
| <b>Isolierschlauch als Meterstück / Insulating tube one meter long / Tuyau isolant, un mètre de long</b> |                                                                                               |                                                                                                                                          |                                                                                                                                                                                                                                   |                                                                                                                                          |
| TO-220 Ø 11 mm                                                                                           | <b>WSM-220</b>                                                                                |                                                                                                                                          |                                                                                                                                                                                                                                   |                                                                                                                                          |
| TO-3 PF Ø 13,5 mm                                                                                        | <b>WSM-3 P</b>                                                                                |                                                                                                                                          |                                                                                                                                                                                                                                   |                                                                                                                                          |
| <b>Bandmaterial (Breite) / Tape material (width) / En bande (largeur)</b>                                |                                                                                               |                                                                                                                                          |                                                                                                                                                                                                                                   |                                                                                                                                          |
| 30 mm                                                                                                    | <b>WST 30</b>                                                                                 |                                                                                                                                          |                                                                                                                                                                                                                                   | <b>WBT 30</b>                                                                                                                            |
| 36 mm                                                                                                    | <b>WST 36</b>                                                                                 |                                                                                                                                          |                                                                                                                                                                                                                                   |                                                                                                                                          |
| 85 mm                                                                                                    | <b>WST 85</b>                                                                                 |                                                                                                                                          |                                                                                                                                                                                                                                   |                                                                                                                                          |
| 300 mm                                                                                                   |                                                                                               | <b>WGT 300</b>                                                                                                                           | <b>WKT 300</b>                                                                                                                                                                                                                    | <b>WBT 300</b>                                                                                                                           |
| 500 mm                                                                                                   |                                                                                               | <b>WGT 500</b>                                                                                                                           | <b>WKT 500</b>                                                                                                                                                                                                                    |                                                                                                                                          |
| Andere Bandbreiten auf Anfrage / other tape widths on request / d'autres largeurs de bande sur demande   |                                                                                               |                                                                                                                                          |                                                                                                                                                                                                                                   |                                                                                                                                          |
| <b>Isolierkappe / Insulator cap / Capot isolant</b>                                                      |                                                                                               |                                                                                                                                          |                                                                                                                                                                                                                                   |                                                                                                                                          |
| TO-220                                                                                                   | <b>WSI 220 210</b>                                                                            |                                                                                                                                          |                                                                                                                                                                                                                                   |                                                                                                                                          |
| TO-220                                                                                                   | <b>WSI 220 225</b>                                                                            |                                                                                                                                          |                                                                                                                                                                                                                                   |                                                                                                                                          |
| TOP 3                                                                                                    | <b>WSI TOP 3 235</b>                                                                          |                                                                                                                                          |                                                                                                                                                                                                                                   |                                                                                                                                          |
| TOP 3                                                                                                    | <b>WSI TOP 3 280</b>                                                                          |                                                                                                                                          |                                                                                                                                                                                                                                   |                                                                                                                                          |
| TO 3 PL / TO 247                                                                                         | <b>WSI TO 3 PL</b>                                                                            |                                                                                                                                          |                                                                                                                                                                                                                                   |                                                                                                                                          |

Aluminiumoxydscheiben  
Kapton-Unterlegscheiben  
Glimmerscheiben  
Technische Daten

Aluminium Oxide Wafers  
Kapton Rubber Washers  
Mica Wafers  
Technical data

Entretoises en oxyde d'aluminium  
Rondelles kaptone pour semiconducteurs  
Intercalaires mica  
Caractéristiques techniques

→ I 13 - 14  
→ I 12  
→ I 15  
→ I 6