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### Features

- Switching** Zero cross
- Output** Back to back SCR with internal snubber
- Input** DC with constant current control
- Applications** Resistive and inductive loads with  $\cos\phi > 0.85$

### Technical data

| WG 280 D...                               | 10 Z                  | 25 Z                  | 45 Z                  | 50 Z                  |
|---|-----------------------|-----------------------|-----------------------|-----------------------|
| <b>Input circuit</b>                      |                       |                       |                       |                       |
| Control voltage range                     | 3...32 VDC            |                       |                       |                       |
| Control current max.                      | 12 mA                 |                       |                       |                       |
| Turn-off voltage min.                     | 1 VDC                 |                       |                       |                       |
| Input resistance                          | constant current      |                       |                       |                       |
| <b>Output circuit</b>                     |                       |                       |                       |                       |
| Load voltage range                        | 24...280 VAC          |                       |                       |                       |
| Peak-off state voltage                    | 600 V <sub>drm</sub>  |                       |                       |                       |
| Off-state leakage current                 | 6 mA eff.             | 12 mA eff.            |                       |                       |
| Load current range                        | 0,1...10 A            | 0,2...25 A            | 0,4...45 A            | 0,4...50 A            |
| Surge current 1 half wave                 | 110 A <sub>peak</sub> | 230 A <sub>peak</sub> | 500 A <sub>peak</sub> | 570 A <sub>peak</sub> |
| I <sup>2</sup> t for fusing               | 60 A <sup>2</sup> s   | 260 A <sup>2</sup> s  | 1250 A <sup>2</sup> s | 1620 A <sup>2</sup> s |
| On-state voltage                          | 1,6 V <sub>peak</sub> |                       |                       |                       |
| Off-state (static) dV/dt                  | 500 V/μs              |                       |                       |                       |
| Snubber                                   | 47 Ω / 47 nF          | 47 Ω / 100 nF         |                       |                       |
| <b>General data</b>                       |                       |                       |                       |                       |
| Turn-on time max.                         | 11 ms                 |                       |                       |                       |
| Turn-off time max.                        | 11 ms                 |                       |                       |                       |
| Line frequency range                      | 47...63 Hz            |                       |                       |                       |
| Isolation volt. between input/output      | 4.000 V               |                       |                       |                       |
| Isolation volt. between input-output/base | 2.500 V               |                       |                       |                       |
| Isolation resistance                      | 50 MΩ                 |                       |                       |                       |
| Operation temperature                     | -20...+80 °C          |                       |                       |                       |
| Recommended varistor                      | SIOV-S20 K230         |                       |                       |                       |
| Approvals                                 | UL, VDE               |                       |                       |                       |

### Technical data

| WG 280 D...                               | 75 Z                  | 90 Z                   | 110 Z                  | 125 Z                  |
|---|-----------------------|------------------------|------------------------|------------------------|
| <b>Input circuit</b>                      |                       |                        |                        |                        |
| Control voltage range                     | 3...32 VDC            |                        |                        |                        |
| Control current max.                      | 12 mA                 |                        |                        |                        |
| Turn-off voltage min.                     | 1 VDC                 |                        |                        |                        |
| Input resistance                          | constant current      |                        |                        |                        |
| <b>Output circuit</b>                     |                       |                        |                        |                        |
| Load voltage range                        | 24...280 VAC          |                        |                        |                        |
| Peak-off state voltage                    | 600 V <sub>drm</sub>  |                        |                        |                        |
| Off-state leakage current                 | 12 mA eff.            |                        |                        |                        |
| Load current range                        | 0,4...75 A            | 0,4...90 A             | 0,4...110 A            | 0,4...125 A            |
| Surge current 1 half wave                 | 910 A <sub>peak</sub> | 1090 A <sub>peak</sub> | 1350 A <sub>peak</sub> | 1590 A <sub>peak</sub> |
| I <sup>2</sup> t for fusing               | 4150 A <sup>2</sup> s | 5980 A <sup>2</sup> s  | 9100 A <sup>2</sup> s  | 12650 A <sup>2</sup> s |
| On-state voltage                          | 1,6 V <sub>peak</sub> |                        |                        |                        |
| Off-state (static) dV/dt                  | 500 V/μs              |                        |                        |                        |
| Snubber                                   | 47 Ω / 100 nF         |                        |                        |                        |
| <b>General data</b>                       |                       |                        |                        |                        |
| Turn-on time max.                         | 11 ms                 |                        |                        |                        |
| Turn-off time max.                        | 11 ms                 |                        |                        |                        |
| Line frequency range                      | 47...63 Hz            |                        |                        |                        |
| Isolation volt. between input/output      | 4.000 V               |                        |                        |                        |
| Isolation volt. between input-output/base | 2.500 V               |                        |                        |                        |
| Isolation resistance                      | 50 MΩ                 |                        |                        |                        |
| Operation temperature                     | -20...+80 °C          |                        |                        |                        |
| Recommended varistor                      | SIOV-S20 K230         |                        |                        |                        |
| Approvals                                 | UL, VDE               |                        |                        |                        |



### Features

|                     |  |
|---------------------|--|
| <b>Switching</b>    | Random                                 |
| <b>Output</b>       | Back to back SCR with internal snubber |
| <b>Input</b>        | DC with constant current control       |
| <b>Applications</b> | Inductive loads                        |

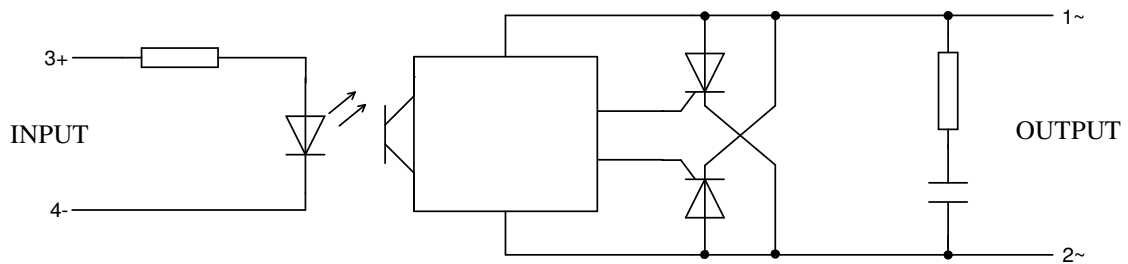
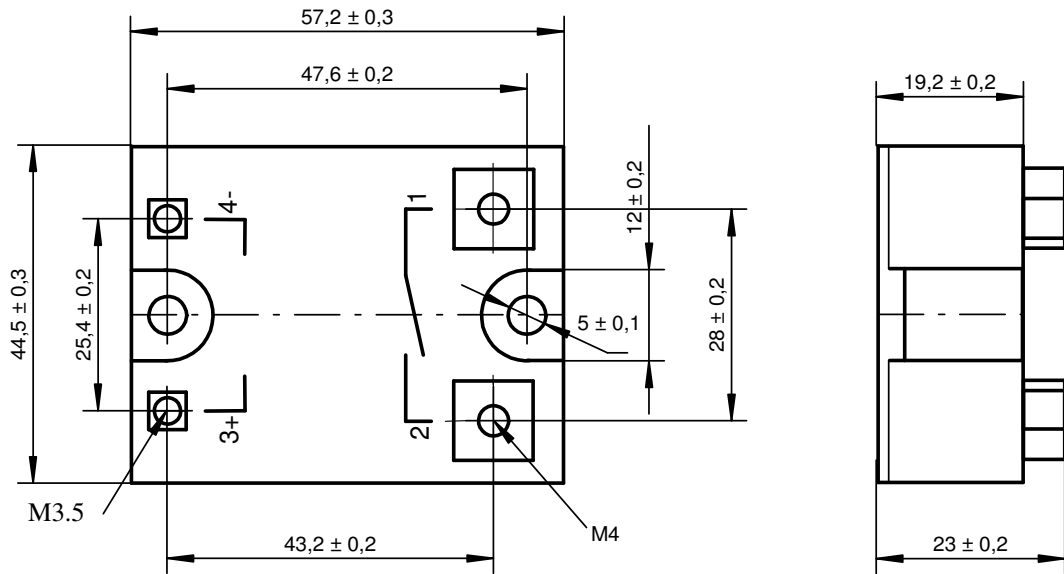
### Technical data

| WG 280 D...                               | 10 R                  | 25 R                  | 40 R                  | 50 R                  |
|---|-----------------------|-----------------------|-----------------------|-----------------------|
| <b>Input circuit</b>                      |                       |                       |                       |                       |
| Control voltage range                     | 3...32 VDC            |                       |                       |                       |
| Control current max.                      | 12 mA                 |                       |                       |                       |
| Turn-off voltage min.                     | 1 VDC                 |                       |                       |                       |
| Input resistance                          | constant current      |                       |                       |                       |
| <b>Output circuit</b>                     |                       |                       |                       |                       |
| Load voltage range                        | 24...280 VAC          |                       |                       |                       |
| Peak-off state voltage                    | 600 V <sub>drm</sub>  |                       |                       |                       |
| Off-state leakage current                 | 6 mA eff.             | 12 mA eff             |                       |                       |
| Load current range                        | 0,1...10 A            | 0,2...25 A            | 0,4...40 A            | 0,4...50 A            |
| Surge current 1 half wave                 | 110 A <sub>peak</sub> | 230 A <sub>peak</sub> | 500 A <sub>peak</sub> | 570 A <sub>peak</sub> |
| I <sup>2</sup> t for fusing               | 60 A <sup>2</sup> s   | 260 A <sup>2</sup> s  | 1250 A <sup>2</sup> s | 1620 A <sup>2</sup> s |
| On-state voltage                          | 1,6 V <sub>peak</sub> |                       |                       |                       |
| Off-state (static) dV/dt                  | 500 V/μs              |                       |                       |                       |
| Snubber                                   | 47 Ω / 47 nF          | 47 Ω / 100 nF         |                       |                       |
| <b>General data</b>                       |                       |                       |                       |                       |
| Turn-on time max.                         | 0,1 ms                |                       |                       |                       |
| Turn-off time max.                        | 11 ms                 |                       |                       |                       |
| Line frequency range                      | 47...63 Hz            |                       |                       |                       |
| Isolation volt. between input/output      | 4.000 V               |                       |                       |                       |
| Isolation volt. between input-output/base | 2.500 V               |                       |                       |                       |
| Isolation resistance                      | 50 MΩ                 |                       |                       |                       |
| Operation temperature                     | -20...+80 °C          |                       |                       |                       |
| Recommended varistor                      | SIOV-S20 K230         |                       |                       |                       |
| Approvals                                 | UL, VDE               |                       |                       |                       |

### Technical data

| WG 280 D...                               | 75 R                  | 90 R                   | 110 R                  | 125 R                  |
|---|-----------------------|------------------------|------------------------|------------------------|
| <b>Input circuit</b>                      |                       |                        |                        |                        |
| Control voltage range                     | 3...32 VDC            |                        |                        |                        |
| Control current max.                      | 12 mA                 |                        |                        |                        |
| Turn-off voltage min.                     | 1 VDC                 |                        |                        |                        |
| Input resistance                          | constant current      |                        |                        |                        |
| <b>Output circuit</b>                     |                       |                        |                        |                        |
| Load voltage range                        | 24...280 VAC          |                        |                        |                        |
| Peak-off state voltage                    | 600 V <sub>drm</sub>  |                        |                        |                        |
| Off-state leakage current                 | 12 mA eff.            |                        |                        |                        |
| Load current range                        | 0,4...75 A            | 0,4...90 A             | 0,4...110 A            | 0,4...125 A            |
| Surge current 1 half wave                 | 910 A <sub>peak</sub> | 1090 A <sub>peak</sub> | 1350 A <sub>peak</sub> | 1590 A <sub>peak</sub> |
| I <sup>2</sup> t for fusing               | 4150 A <sup>2</sup> s | 5980 A <sup>2</sup> s  | 9100 A <sup>2</sup> s  | 12650 A <sup>2</sup> s |
| On-state voltage                          | 1,6 V <sub>peak</sub> |                        |                        |                        |
| Off-state (static) dV/dt                  | 500 V/μs              |                        |                        |                        |
| Snubber                                   | 47 Ω / 100 nF         |                        |                        |                        |
| <b>General data</b>                       |                       |                        |                        |                        |
| Turn-on time max.                         | 0,1 ms                |                        |                        |                        |
| Turn-off time max.                        | 11 ms                 |                        |                        |                        |
| Line frequency range                      | 47...63 Hz            |                        |                        |                        |
| Isolation volt. between input/output      | 4.000 V               |                        |                        |                        |
| Isolation volt. between input-output/base | 2.500 V               |                        |                        |                        |
| Isolation resistance                      | 50 MΩ                 |                        |                        |                        |
| Operation temperature                     | -20...+80 °C          |                        |                        |                        |
| Recommended varistor                      | SIOV-S20 K230         |                        |                        |                        |
| Approvals                                 | UL, VDE               |                        |                        |                        |

### Dimensions in mm & circuit diagram

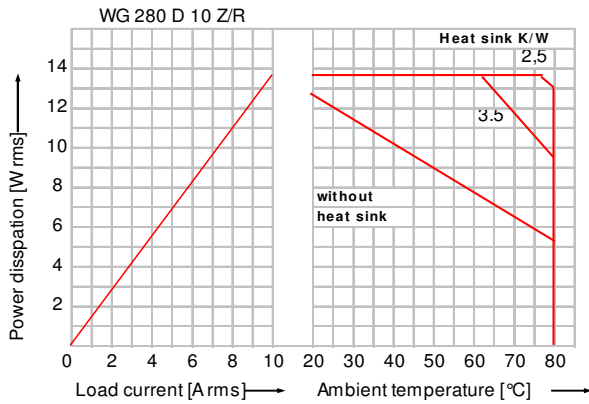


### Housing specification

|                             |  |
|-----------------------------|--|
| Weight                      | Approx. 80 gr unpotted , 100 gr potted (optional)                  |
| Housing material            | Glass filled polyester   |
| Potting compound (optional) | UL recognized Epoxy  |
| Base plate                  | 10 ... 45 A : Aluminium<br>50 ... 125A : Aluminium , nickel plated |
| Terminals                   | Input : M4-screws<br>Output : M3,5-screws                          |

### Derating-diagrams

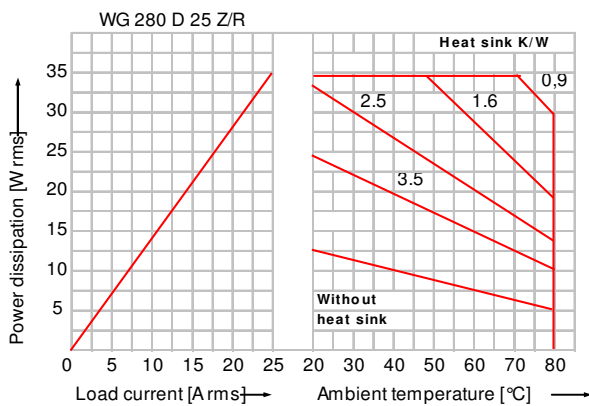
UL recognised components: suitable for a max. surrounding air temperature of 40°C.  
 For use at other ambient temperatures, check the derating diagrams.



**Number of SSR per heatsink/  
load current per SSR**

| Heat sink  | 1 SSR | 2 SSR | 3 SSR |
|------------|-------|-------|-------|
| WG K1/100  | 10 A  | 8 A   |       |
| WG K2/100  | 10 A  | 10 A  |       |
| WG K3/160  | 10 A  | 10 A  | 10 A  |
| WG K4/160L | 10 A  | 10 A  | 10 A  |
| WG K5/80   | 10 A  |       |       |

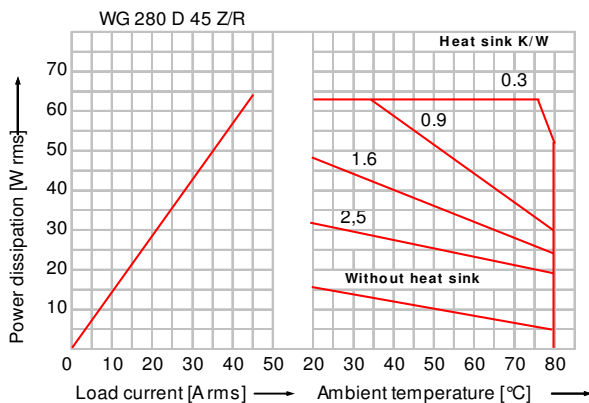
Values for 40°C enclosure-temperature and mounted with conduction paste between the SSR and the heat sink



**Number of SSR per heatsink/  
load current per SSR**

| Heat sink  | 1 SSR | 2 SSR | 3 SSR |
|------------|-------|-------|-------|
| WG K1/100  | 13 A  | 8 A   |       |
| WG K2/100  | 19 A  | 12 A  |       |
| WG K3/160  | 25 A  | 25 A  | 19 A  |
| WG K4/160L | 25 A  | 25 A  | 25 A  |
| WG K5/80   | 24 A  |       |       |

Values for 40°C enclosure-temperature and mounted with conduction paste between the SSR and the heat sink

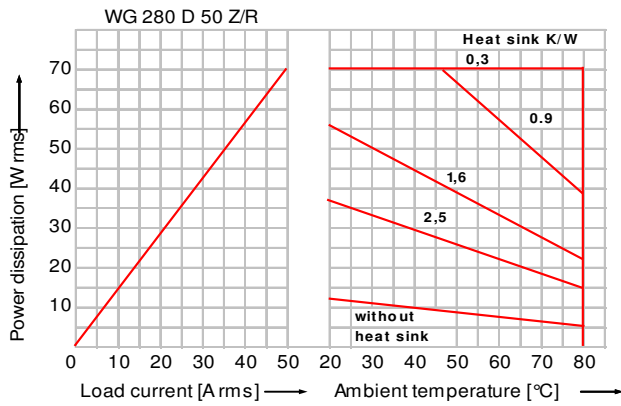


**Number of SSR per heatsink/  
load current per SSR**

| Heat sink  | 1 SSR | 2 SSR | 3 SSR |
|------------|-------|-------|-------|
| WG K1/100  | 13 A  | 8 A   |       |
| WG K2/100  | 19 A  | 12 A  |       |
| WG K3/160  | 42 A  | 26 A  | 19 A  |
| WG K4/160L | 45 A  | 45 A  | 40 A  |
| WG K5/80   | 24 A  |       |       |

Values for 40°C enclosure-temperature and mounted with conduction paste between the SSR and the heat sink

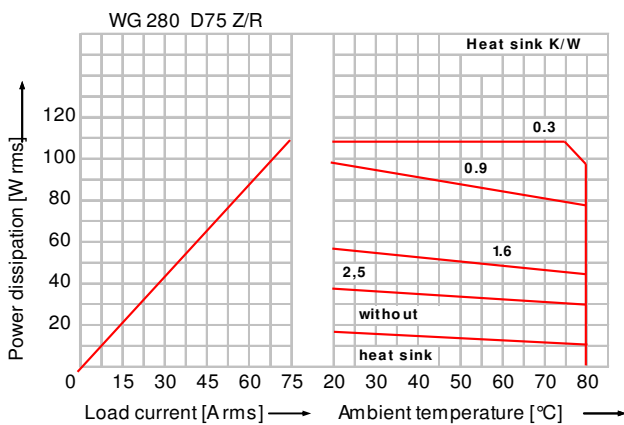
### Derating-diagrams



**Number of SSR per heatsink/  
load current per SSR**

| Heat sink  | 1 SSR | 2 SSR | 3 SSR |
|------------|-------|-------|-------|
| WG K1/100  | 13 A  | 8 A   |       |
| WG K2/100  | 20 A  | 12 A  |       |
| WG K3/160  | 50 A  | 31 A  | 20 A  |
| WG K4/160L | 50 A  | 50 A  | 50 A  |
| WG K5/80   | 25A   |       |       |

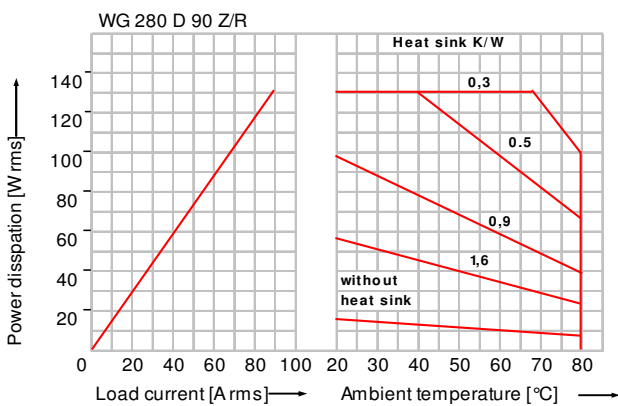
Values for 40°C enclosure-temperature and mounted with conduction paste between the SSR and the heat sink



**Number of SSR per heatsink/  
load current per SSR**

| Heat sink  | 1 SSR | 2 SSR | 3 SSR |
|------------|-------|-------|-------|
| WG K1/100  | 13 A  | 8 A   |       |
| WG K2/100  | 20 A  | 12 A  |       |
| WG K3/160  | 55 A  | 32 A  | 20 A  |
| WG K4/160L | 75 A  | 75 A  | 57 A  |
| WG K5/80   | 25 A  |       |       |

Values for 40°C enclosure-temperature and mounted with conduction paste between the SSR and the heat sink

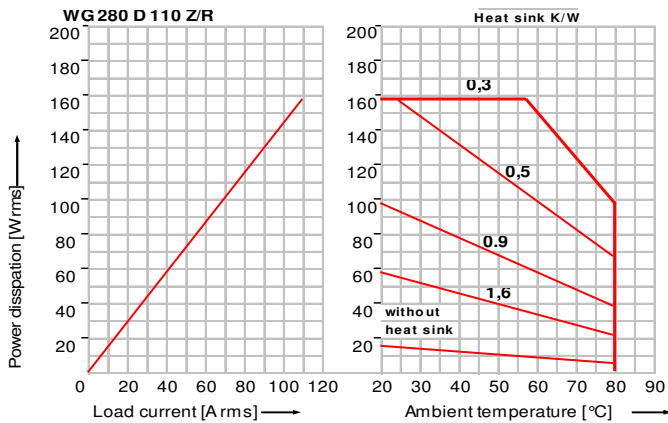


**Number of SSR per heatsink/  
load current per SSR**

| Heat sink  | 1 SSR | 2 SSR | 3 SSR |
|------------|-------|-------|-------|
| WG K1/100  | 13 A  | 8 A   |       |
| WG K2/100  | 20 A  | 12 A  |       |
| WG K3/160  | 55 A  | 32 A  | 20 A  |
| WG K4/160L | 90 A  | 90 A  | 57 A  |
| WG K5/80   | 25 A  |       |       |

Values for 40°C enclosure-temperature and mounted with conduction paste between the SSR and the heat sink

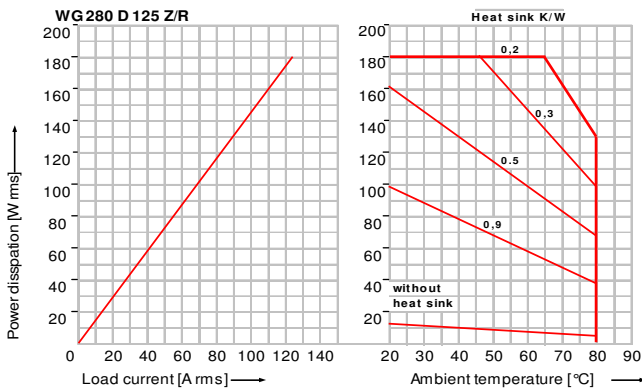




Number of SSR per heatsink/  
load current per SSR

| Heat sink  | 1 SSR | 2 SSR |
|------------|-------|-------|
| WG K1/100  | 13 A  | 8 A   |
| WG K2/100  | 21 A  | 12 A  |
| WG K3/160  | 58 A  | 33 A  |
| WG K4/160L | 110 A | 85 A  |
| WG K5/80   | 34 A  |       |

Values for 40°C enclosure-temperature and mounted with conduction paste between the SSR and the heat sink

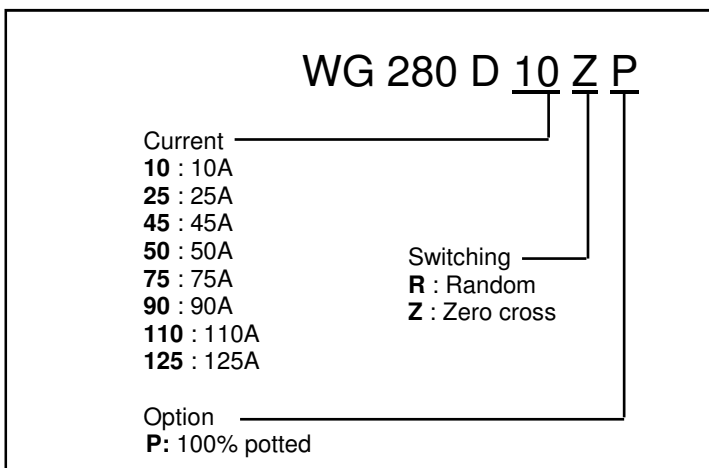


Number of SSR per heatsink/  
load current per SSR

| Heat sink  | 1 SSR | 2 SSR |
|------------|-------|-------|
| WG K1/100  | 13 A  | 8 A   |
| WG K2/100  | 21 A  | 12 A  |
| WG K3/160  | 58 A  | 33 A  |
| WG K4/160L | 125 A | 85 A  |
| WG K5/80   | 34 A  |       |

Values for 40°C enclosure-temperature and mounted with conduction paste between the SSR and the heat sink

### Ordering



| Description              | Part Number   |
|--------------------------|---------------|
| Protective case small    | 8440 5700 110 |
| Thermal Conducting paste | 8406 0180 020 |
| Heat sink WG K1/100      | 5981 5701 100 |
| Heat sink WG K2/100      | 5981 5701 110 |
| Heat sink WG K3/160      | 5981 5701 370 |
| Heat sink WG K4/160L     | 5981 5701 371 |
| Heat sink WG K5/80       | 5981 5701 372 |
| Mounting plate DIN rail  | 5981 5701 430 |



### Features

- Switching** Zero cross
- Output** Back to back SCR with internal snubber
- Input** DC with constant current control
- Applications** Resistive and inductive loads with  $\cos\phi > 0.85$

### Technical data

| WG 480 D...                               | 10 Z  | 25 Z                  | 40 Z                  | 50 Z                  |
|---|---|-----------------------|-----------------------|-----------------------|
| <b>Input circuit</b>                      |   |                       |                       |                       |
| Control voltage range                     | 3...32 VDC  |                       |                       |                       |
| Control current max.                      | 22 mA   |                       |                       |                       |
| Turn-off voltage min.                     | 1 VDC   |                       |                       |                       |
| Input resistance                          | constant current  |                       |                       |                       |
| <b>Output circuit</b>                     |   |                       |                       |                       |
| Load voltage range                        | 24...530 VAC  |                       |                       |                       |
| Peak-off state voltage                    | 1200 V <sub>drm</sub> (integrated overvoltage protection effective above 1000V) |                       |                       |                       |
| Off-state leakage current                 | 10 mA eff.  |                       |                       |                       |
| Load current range                        | 0,1...10 A  | 0,2...25 A            | 0,4...40 A            | 0,4...50 A            |
| Surge current 1 half wave                 | 110 A <sub>peak</sub>   | 230 A <sub>peak</sub> | 500 A <sub>peak</sub> | 570 A <sub>peak</sub> |
| I <sup>2</sup> t for fusing               | 60 A <sup>2</sup> s   | 260 A <sup>2</sup> s  | 1250 A <sup>2</sup> s | 1620 A <sup>2</sup> s |
| On-state voltage                          | 1,6 V <sub>peak</sub>   |                       |                       |                       |
| Off-state (static) dV/dt                  | 500 V/μs  |                       |                       |                       |
| Snubber                                   | 47 Ω / 22 nF  |                       |                       |                       |
| <b>General data</b>                       |   |                       |                       |                       |
| Turn-on time max.                         | 11 ms   |                       |                       |                       |
| Turn-off time max.                        | 11 ms   |                       |                       |                       |
| Line frequency range                      | 47...63 Hz  |                       |                       |                       |
| Isolation volt. between input/output      | 4.000 V   |                       |                       |                       |
| Isolation volt. between input-output/base | 2.500 V   |                       |                       |                       |
| Isolation resistance                      | 50 MΩ   |                       |                       |                       |
| Operation temperature                     | -20...+80 °C  |                       |                       |                       |
| Recommended varistor                      | SIOV-S20 K420   |                       |                       |                       |
| Approvals                                 | UL, VDE   |                       |                       |                       |

| Technical data                            |   |                        |                        |                        |
|---|---|------------------------|------------------------|------------------------|
| WG 480 D...                               | 75 Z  | 90 Z                   | 110 Z                  | 125 Z                  |
| <b>Input circuit</b>                      |   |                        |                        |                        |
| Control voltage range                     | 3...32 VDC  |                        |                        |                        |
| Control current max.                      | 22 mA   |                        |                        |                        |
| Turn-off voltage min.                     | 1 VDC   |                        |                        |                        |
| Input resistance                          | constant current  |                        |                        |                        |
| <b>Output circuit</b>                     |   |                        |                        |                        |
| Load voltage range                        | 24...530 VAC  |                        |                        |                        |
| Peak-off state voltage                    | 1200 V <sub>drm</sub> (integrated overvoltage protection effective above 1000V) |                        |                        |                        |
| Off-state leakage current                 | 10 mA eff.  |                        |                        |                        |
| Load current range                        | 0,4...75 A  | 0,4...90 A             | 0,4...110 A            | 0,4...125 A            |
| Surge current 1 half wave                 | 910 A <sub>peak</sub>   | 1090 A <sub>peak</sub> | 1350 A <sub>peak</sub> | 1590 A <sub>peak</sub> |
| I <sup>2</sup> t for fusing               | 4150 A <sup>2</sup> s   | 5980 A <sup>2</sup> s  | 9100 A <sup>2</sup> s  | 12650 A <sup>2</sup> s |
| On-state voltage                          | 1,6 V <sub>peak</sub>   |                        |                        |                        |
| Off-state (static) dV/dt                  | 500 V/μs  |                        |                        |                        |
| Snubber                                   | 47 Ω / 22 nF  |                        |                        |                        |
| <b>General data</b>                       |   |                        |                        |                        |
| Turn-on time max.                         | 11 ms   |                        |                        |                        |
| Turn-off time max.                        | 11 ms   |                        |                        |                        |
| Line frequency range                      | 47...63 Hz  |                        |                        |                        |
| Isolation volt. between input/output      | 4.000 V   |                        |                        |                        |
| Isolation volt. between input-output/base | 2.500 V   |                        |                        |                        |
| Isolation resistance                      | 50 MΩ   |                        |                        |                        |
| Operation temperature                     | -20...+80 °C  |                        |                        |                        |
| Recommended varistor                      | SIOV-S20 K420   |                        |                        |                        |
| Approvals                                 | UL, VDE   |                        |                        |                        |



### Features

- Switching** Zero cross
- Output** Back to back SCR with internal snubber
- Input** DC with constant current control
- Applications** Inductive loads

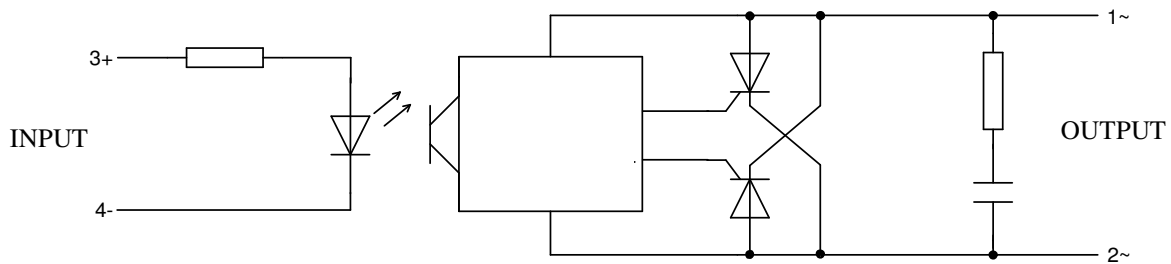
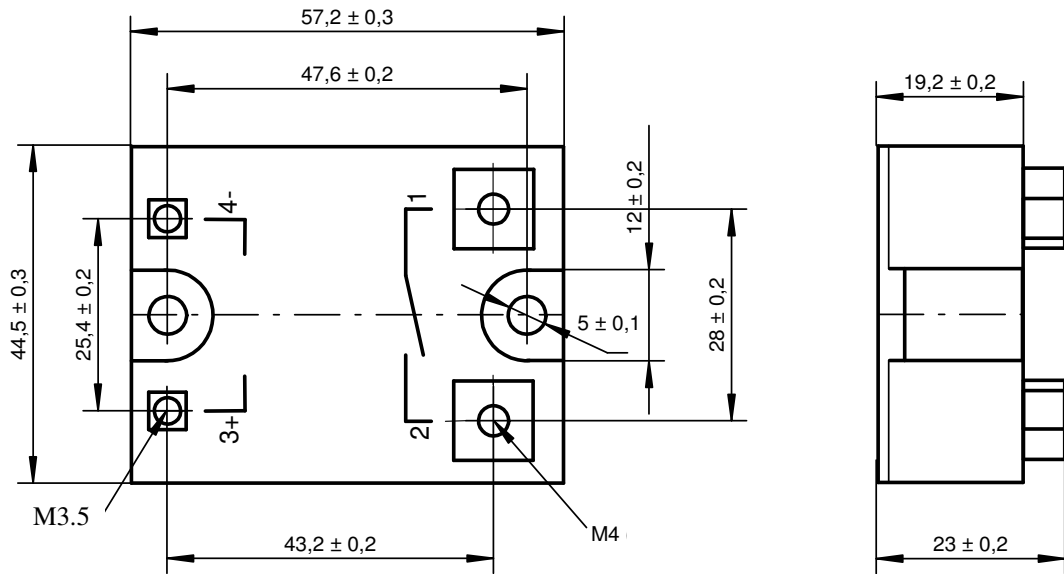
### Technical data

| WG 480 D...                               | 10 R  | 25 R                  | 40 R                  | 50 R                  |
|---|---|-----------------------|-----------------------|-----------------------|
| <b>Input circuit</b>                      |   |                       |                       |                       |
| Control voltage range                     | 3...32 VDC  |                       |                       |                       |
| Control current max.                      | 22 mA   |                       |                       |                       |
| Turn-off voltage min.                     | 1 VDC   |                       |                       |                       |
| Input resistance                          | constant current  |                       |                       |                       |
| <b>Output circuit</b>                     |   |                       |                       |                       |
| Load voltage range                        | 48...530 VAC  |                       |                       |                       |
| Peak-off state voltage                    | 1200 V <sub>drm</sub> (integrated overvoltage protection effective above 1000V) |                       |                       |                       |
| Off-state leakage current                 | 10 mA eff.  |                       |                       |                       |
| Load current range                        | 0,1...10 A  | 0,2...25 A            | 0,4...40 A            | 0,4...50 A            |
| Surge current 1 half wave                 | 110 A <sub>peak</sub>   | 230 A <sub>peak</sub> | 500 A <sub>peak</sub> | 570 A <sub>peak</sub> |
| I <sup>2</sup> t for fusing               | 60 A <sup>2</sup> s   | 260 A <sup>2</sup> s  | 1250 A <sup>2</sup> s | 1620 A <sup>2</sup> s |
| On-state voltage                          | 1,6 V <sub>peak</sub>   |                       |                       |                       |
| Off-state (static) dV/dt                  | 500 V/μs  |                       |                       |                       |
| Snubber                                   | 47 Ω / 22 nF  |                       |                       |                       |
| <b>General data</b>                       |   |                       |                       |                       |
| Turn-on time max.                         | 0,1 ms  |                       |                       |                       |
| Turn-off time max.                        | 11 ms   |                       |                       |                       |
| Line frequency range                      | 47...63 Hz  |                       |                       |                       |
| Isolation volt. between input/output      | 4.000 V   |                       |                       |                       |
| Isolation volt. between input-output/base | 2.500 V   |                       |                       |                       |
| Isolation resistance                      | 50 MΩ   |                       |                       |                       |
| Operation temperature                     | -20...+80 °C  |                       |                       |                       |
| Recommended varistor                      | SIOV-S20 K420   |                       |                       |                       |
| Approvals                                 | UL, VDE   |                       |                       |                       |

### Technical data

| WG 480 D...                               | 75 R  | 90 R                   | 110 R                  | 125 R                  |
|---|---|------------------------|------------------------|------------------------|
| <b>Input circuit</b>                      |   |                        |                        |                        |
| Control voltage range                     | 3...32 VDC  |                        |                        |                        |
| Control current max.                      | 22 mA   |                        |                        |                        |
| Turn-off voltage min.                     | 1 VDC   |                        |                        |                        |
| Input resistance                          | constant current  |                        |                        |                        |
| <b>Output circuit</b>                     |   |                        |                        |                        |
| Load voltage range                        | 48...530 VAC  |                        |                        |                        |
| Peak-off state voltage                    | 1200 V <sub>drm</sub> (integrated overvoltage protection effective above 1000V) |                        |                        |                        |
| Off-state leakage current                 | 10 mA eff.  |                        |                        |                        |
| Load current range                        | 0,4...75 A  | 0,4...90 A             | 0,4...110 A            | 0,4...125 A            |
| Surge current 1 half wave                 | 910 A <sub>peak</sub>   | 1090 A <sub>peak</sub> | 1350 A <sub>peak</sub> | 1590 A <sub>peak</sub> |
| I <sup>2</sup> t for fusing               | 4150 A <sup>2</sup> s   | 5980 A <sup>2</sup> s  | 9100 A <sup>2</sup> s  | 12650 A <sup>2</sup> s |
| On-state voltage                          | 1,6 V <sub>peak</sub>   |                        |                        |                        |
| Off-state (static) dV/dt                  | 500 V/μs  |                        |                        |                        |
| Snubber                                   | 47 Ω / 22 nF  |                        |                        |                        |
| <b>General data</b>                       |   |                        |                        |                        |
| Turn-on time max.                         | 0,1 ms  |                        |                        |                        |
| Turn-off time max.                        | 11 ms   |                        |                        |                        |
| Line frequency range                      | 47...63 Hz  |                        |                        |                        |
| Isolation volt. between input/output      | 4.000 V   |                        |                        |                        |
| Isolation volt. between input-output/base | 2.500 V   |                        |                        |                        |
| Isolation resistance                      | 50 MΩ   |                        |                        |                        |
| Operation temperature                     | -20...+80 °C  |                        |                        |                        |
| Recommended varistor                      | SIOV-S20 K420   |                        |                        |                        |
| Approvals                                 | UL, VDE   |                        |                        |                        |

### Dimensions in mm & circuit diagram

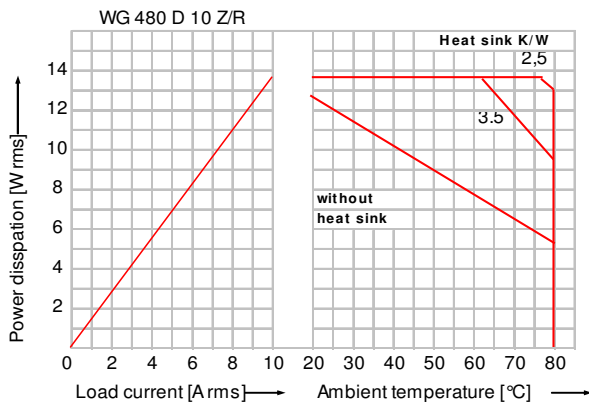


### Housing specification

|                             |  |
|-----------------------------|--|
| Weight                      | Approx. 80 gr unpotted , 100 gr potted (optional)                  |
| Housing material            | Glass filled polyester   |
| Potting compound (optional) | UL recognized Epoxy  |
| Base plate                  | 10 ... 45 A : Aluminium<br>50 ... 125A : Aluminium , nickel plated |
| Terminals                   | Input : M3,5-screws<br>Output : M4-screws                          |

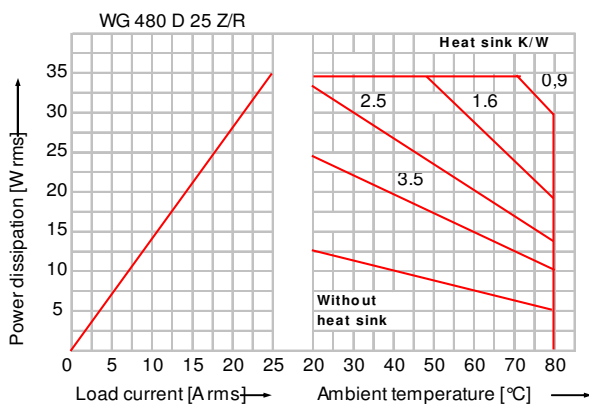
### Derating-diagrams

UL recognised components: suitable for a max. surrounding air temperature of 40°C.  
 For use at other ambient temperatures, check the derating diagrams.



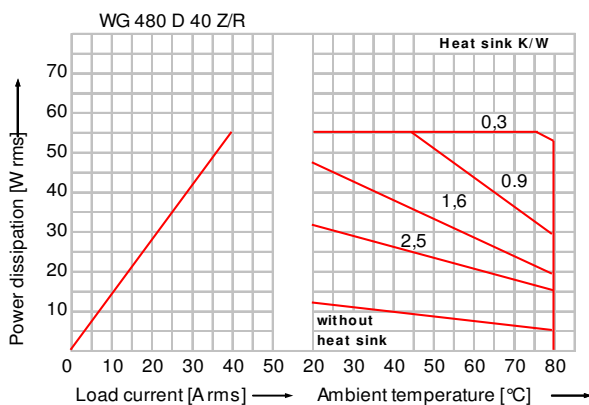
| Heat sink  | Number of SSR per heatsink/<br>load current per SSR |       |       |
|------------|---|-------|-------|
|            | 1 SSR   | 2 SSR | 3 SSR |
| WG K1/100  | 10 A  | 8 A   |       |
| WG K2/100  | 10 A  | 10 A  |       |
| WG K3/160  | 10 A  | 10 A  | 10 A  |
| WG K4/160L | 10 A  | 10 A  | 10 A  |
| WG K5/80   | 10 A  |       |       |

Values for 40°C enclosure-temperature and mounted with conduction paste between the SSR and the heat sink



| Heat sink  | Number of SSR per heatsink/<br>load current per SSR |       |       |
|------------|---|-------|-------|
|            | 1 SSR   | 2 SSR | 3 SSR |
| WG K1/100  | 13 A  | 8 A   |       |
| WG K2/100  | 19 A  | 12 A  |       |
| WG K3/160  | 25 A  | 25 A  | 19 A  |
| WG K4/160L | 25 A  | 25 A  | 25 A  |
| WG K5/80   | 24 A  |       |       |

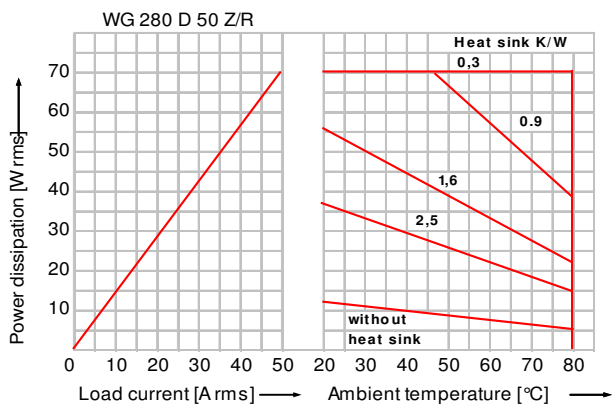
Values for 40°C enclosure-temperature and mounted with conduction paste between the SSR and the heat sink



| Heat sink  | Number of SSR per heatsink/<br>load current per SSR |       |       |
|------------|---|-------|-------|
|            | 1 SSR   | 2 SSR | 3 SSR |
| WG K1/100  | 13 A  | 8 A   |       |
| WG K2/100  | 19 A  | 12 A  |       |
| WG K3/160  | 42 A  | 26 A  | 19 A  |
| WG K4/160L | 45 A  | 45 A  | 40 A  |
| WG K5/80   | 24 A  |       |       |

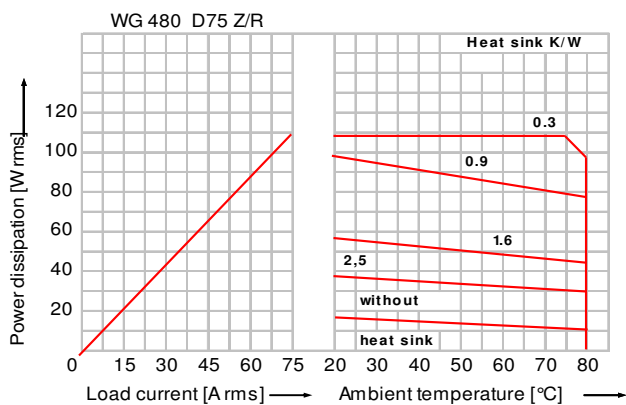
Values for 40°C enclosure-temperature and mounted with conduction paste between the SSR and the heat sink

### Derating-diagrams



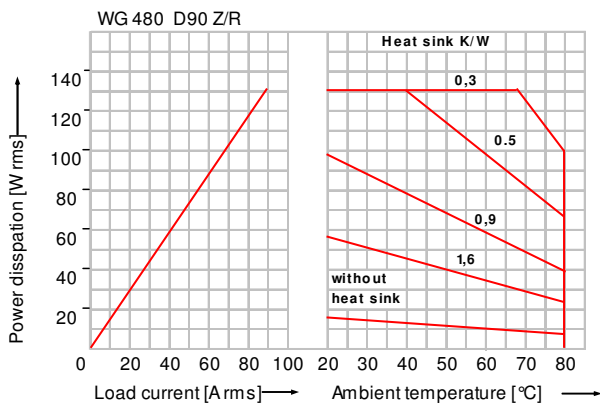
| Heat sink  | Number of SSR per heatsink/<br>load current per SSR |       |       |
|------------|---|-------|-------|
|            | 1 SSR   | 2 SSR | 3 SSR |
| WG K1/100  | 13 A  | 8 A   |       |
| WG K2/100  | 20 A  | 12 A  |       |
| WG K3/160  | 50 A  | 31 A  | 20 A  |
| WG K4/160L | 50 A  | 50 A  | 50 A  |
| WG K5/80   | 25 A  |       |       |

Values for 40°C enclosure-temperature and mounted with conduction paste between the SSR and the heat sink



| Heat sink  | Number of SSR per heatsink/<br>load current per SSR |       |       |
|------------|---|-------|-------|
|            | 1 SSR   | 2 SSR | 3 SSR |
| WG K1/100  | 13 A  | 8 A   |       |
| WG K2/100  | 20 A  | 12 A  |       |
| WG K3/160  | 55 A  | 32 A  | 20 A  |
| WG K4/160L | 75 A  | 75 A  | 57 A  |
| WG K5/80   | 25 A  |       |       |

Values for 40°C enclosure-temperature and mounted with conduction paste between the SSR and the heat sink

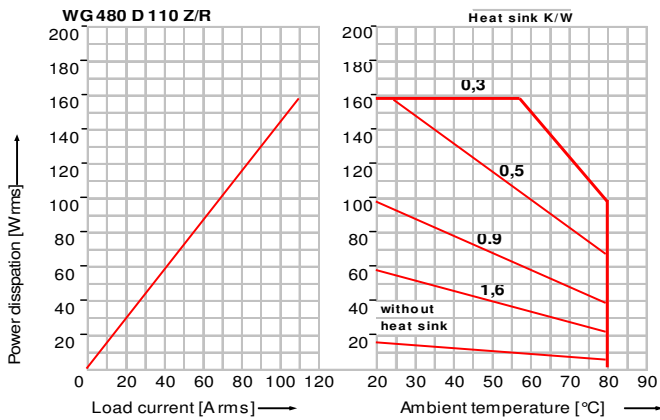


| Heat sink  | Number of SSR per heatsink/<br>load current per SSR |       |       |
|------------|---|-------|-------|
|            | 1 SSR   | 2 SSR | 3 SSR |
| WG K1/100  | 13 A  | 8 A   |       |
| WG K2/100  | 20 A  | 12 A  |       |
| WG K3/160  | 55 A  | 32 A  | 20 A  |
| WG K4/160L | 90 A  | 90 A  | 57 A  |
| WG K5/80   | 25 A  |       |       |

Values for 40°C enclosure-temperature and mounted with conduction paste between the SSR and the heat sink



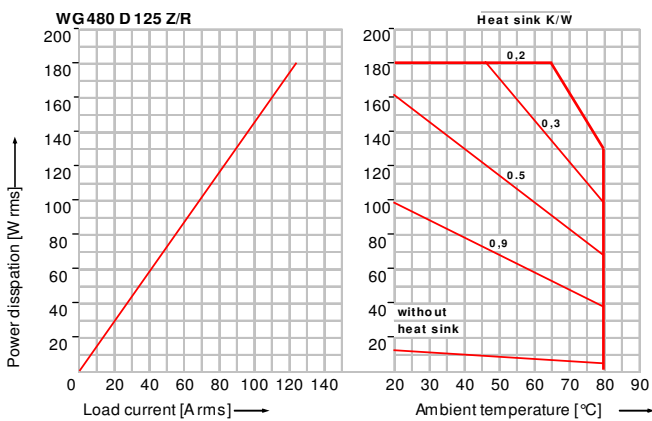
### Derating-Diagrams



Number of SSR per heatsink/  
load current per SSR

| Heat sink  | 1 SSR | 2 SSR |
|------------|-------|-------|
| WG K1/100  | 13 A  | 8 A   |
| WG K2/100  | 21 A  | 12 A  |
| WG K3/160  | 58 A  | 30 A  |
| WG K4/160L | 110 A | 85 A  |
| WG K5/80   | 34 A  |       |

Values for 40°C enclosure-temperature and mounted with conduction paste between the SSR and the heat sink

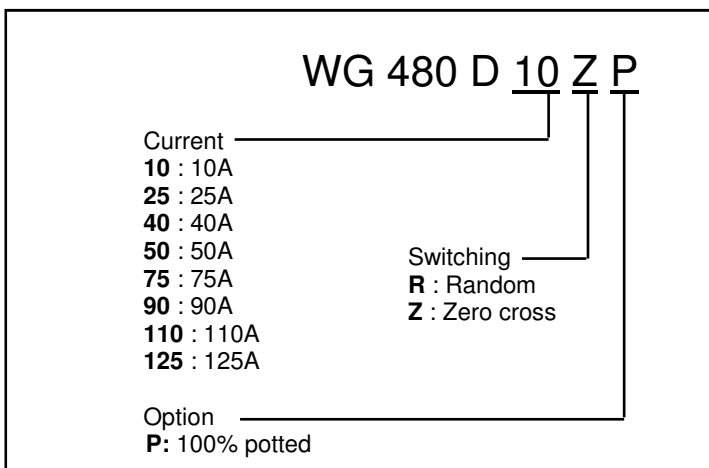


Number of SSR per heatsink/  
load current per SSR

| Heat sink  | 1 SSR | 2 SSR |
|------------|-------|-------|
| WG K1/100  | 13 A  | 8 A   |
| WG K2/100  | 21 A  | 12 A  |
| WG K3/160  | 58 A  | 33 A  |
| WG K4/160L | 125 A | 85 A  |
| WG K5/80   | 34 A  |       |

Values for 40°C enclosure-temperature and mounted with conduction paste between the SSR and the heat sink

### Ordering



| Description              | Part Number   |
|--------------------------|---------------|
| Protective case small    | 8440 5700 110 |
| Thermal Conducting paste | 8406 0180 020 |
| Heat sink WG K1/100      | 5981 5701 100 |
| Heat sink WG K2/100      | 5981 5701 110 |
| Heat sink WG K3/160      | 5981 5701 370 |
| Heat sink WG K4/160L     | 5981 5701 371 |
| Heat sink WG K5/80       | 5981 5701 372 |
| Mounting plate DIN rail  | 5981 5701 430 |

# Solid State Relays

## Datasheet WG 660 D...Z

Comus International Bvba  
 Overhaamlaan 40  
 3700 Tongeren, Belgium  
 Phone: +32 12390400  
 Fax: +32 12235754  
 Email: info@comus.be  
 www.comus.be



### Features

- Switching** Zero cross
- Output** Back to back SCR with internal snubber
- Input** DC with constant current control
- Applications** Resistive and inductive loads with  $\cos\phi > 0.85$

### Technical data

| WG 660 D...                               | 10 Z  | 25 Z                  | 40 Z                  | 50 Z                  |
|---|---|-----------------------|-----------------------|-----------------------|
| <b>Input circuit</b>                      |   |                       |                       |                       |
| Control voltage range                     | 3...32 VDC  |                       |                       |                       |
| Control current max.                      | 22 mA   |                       |                       |                       |
| Turn-off voltage min.                     | 1 VDC   |                       |                       |                       |
| Input resistance                          | constant current  |                       |                       |                       |
| <b>Output circuit</b>                     |   |                       |                       |                       |
| Load voltage range                        | 24...660 VAC  |                       |                       |                       |
| Peak-off state voltage                    | 1600 V <sub>drm</sub> (integrated overvoltage protection effective above 1200V) |                       |                       |                       |
| Off-state leakage current                 | 10 mA eff.  |                       |                       |                       |
| Load current range                        | 0,1...10 A  | 0,2...25 A            | 0,4...40 A            | 0,4...50 A            |
| Surge current 1 half wave                 | 110 A <sub>peak</sub>   | 230 A <sub>peak</sub> | 500 A <sub>peak</sub> | 570 A <sub>peak</sub> |
| I <sup>2</sup> t for fusing               | 60 A <sup>2</sup> s   | 260 A <sup>2</sup> s  | 1250 A <sup>2</sup> s | 1620 A <sup>2</sup> s |
| On-state voltage                          | 1,6 V <sub>peak</sub>   |                       |                       |                       |
| Off-state (static) dV/dt                  | 500 V/μs  |                       |                       |                       |
| Snubber                                   | 47 Ω / 5 nF   |                       |                       |                       |
| <b>General data</b>                       |   |                       |                       |                       |
| Turn-on time max.                         | 11 ms   |                       |                       |                       |
| Turn-off time max.                        | 11 ms   |                       |                       |                       |
| Line frequency range                      | 47...63 Hz  |                       |                       |                       |
| Isolation volt. between input/output      | 4.000 V   |                       |                       |                       |
| Isolation volt. between input-output/base | 2.500 V   |                       |                       |                       |
| Isolation resistance                      | 50 MΩ   |                       |                       |                       |
| Operation temperature                     | -20...+80 °C  |                       |                       |                       |
| Recommended varistor                      | SIOV-S20 K625   |                       |                       |                       |
| Approvals                                 | UL, VDE   |                       |                       |                       |

| Technical data                            |   |                        |                        |                        |
|---|---|------------------------|------------------------|------------------------|
| WG 660 D...                               | 75 Z  | 90 Z                   | 110 Z                  | 125 Z                  |
| <b>Input circuit</b>                      |   |                        |                        |                        |
| Control voltage range                     | 3...32 VDC  |                        |                        |                        |
| Control current max.                      | 22 mA   |                        |                        |                        |
| Turn-off voltage min.                     | 1 VDC   |                        |                        |                        |
| Input resistance                          | constant current  |                        |                        |                        |
| <b>Output circuit</b>                     |   |                        |                        |                        |
| Load voltage range                        | 24...660 VAC  |                        |                        |                        |
| Peak-off state voltage                    | 1600 V <sub>drm</sub> (integrated overvoltage protection effective above 1200V) |                        |                        |                        |
| Off-state leakage current                 | 10 mA eff.  |                        |                        |                        |
| Load current range                        | 0,4...75 A  | 0,4...90 A             | 0,4...110 A            | 0,4...125 A            |
| Surge current 1 half wave                 | 910 A <sub>peak</sub>   | 1090 A <sub>peak</sub> | 1350 A <sub>peak</sub> | 1590 A <sub>peak</sub> |
| I <sup>2</sup> t for fusing               | 4150 A <sup>2</sup> s   | 5980 A <sup>2</sup> s  | 9100 A <sup>2</sup> s  | 12650 A <sup>2</sup> s |
| On-state voltage                          | 1,6 V <sub>peak</sub>   |                        |                        |                        |
| Off-state (static) dV/dt                  | 500 V/μs  |                        |                        |                        |
| Snubber                                   | 47 Ω / 5 nF   |                        |                        |                        |
| <b>General data</b>                       |   |                        |                        |                        |
| Turn-on time max.                         | 11 ms   |                        |                        |                        |
| Turn-off time max.                        | 11 ms   |                        |                        |                        |
| Line frequency range                      | 47...63 Hz  |                        |                        |                        |
| Isolation volt. between input/output      | 4.000 V   |                        |                        |                        |
| Isolation volt. between input-output/base | 2.500 V   |                        |                        |                        |
| Isolation resistance                      | 50 MΩ   |                        |                        |                        |
| Operation temperature                     | -20...+80 °C  |                        |                        |                        |
| Recommended varistor                      | SIOV-S20 K625   |                        |                        |                        |
| Approvals                                 | UL, VDE   |                        |                        |                        |



### Features

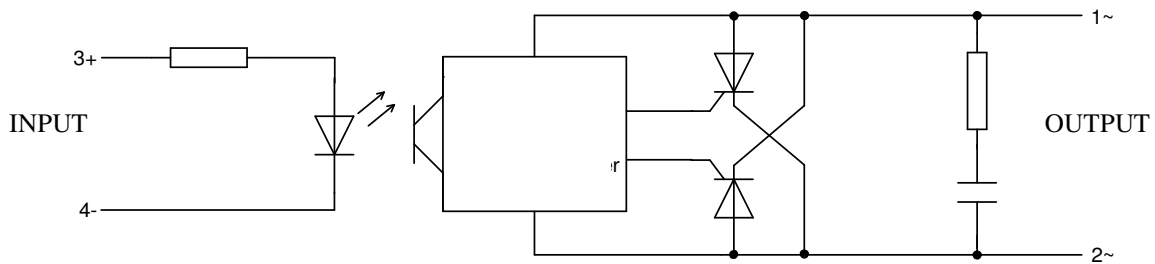
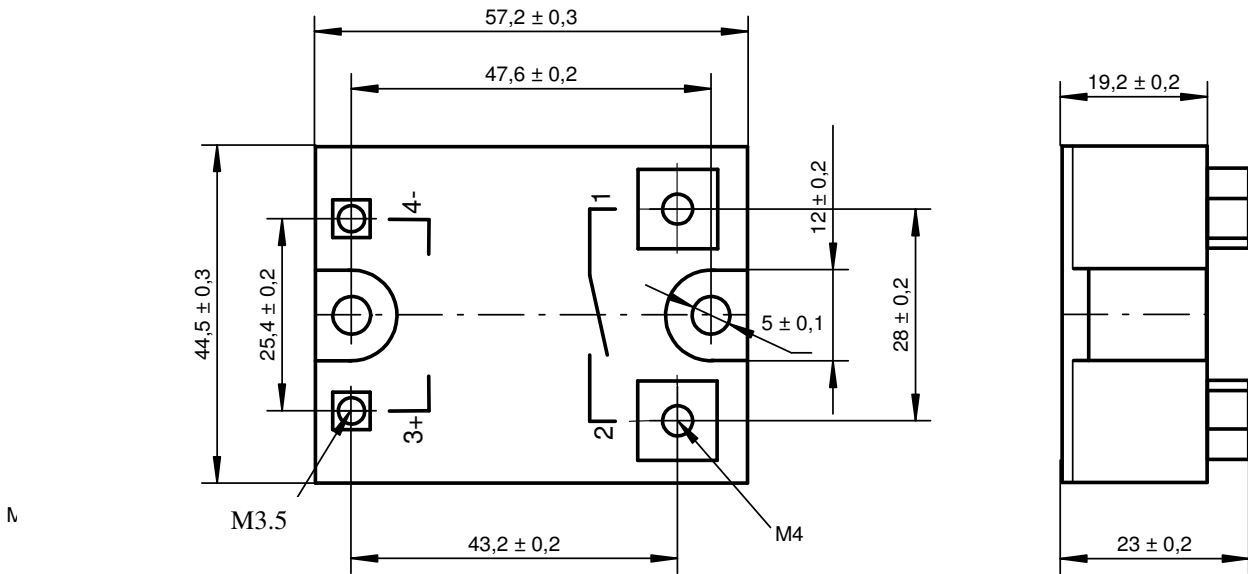
- Switching** Zero cross
- Output** Back to back SCR with internal snubber
- Input** DC with constant current control
- Applications** Inductive loads

### Technical data

| WG 660 D...                               | 10 R  | 25 R                  | 40 R                  | 50 R                  |
|---|---|-----------------------|-----------------------|-----------------------|
| <b>Input circuit</b>                      |   |                       |                       |                       |
| Control voltage range                     | 3...32 VDC  |                       |                       |                       |
| Control current max.                      | 22 mA   |                       |                       |                       |
| Turn-off voltage min.                     | 1 VDC   |                       |                       |                       |
| Input resistance                          | constant current  |                       |                       |                       |
| <b>Output circuit</b>                     |   |                       |                       |                       |
| Load voltage range                        | 48...660 VAC  |                       |                       |                       |
| Peak-off state voltage                    | 1600 V <sub>drm</sub> (integrated overvoltage protection effective above 1200V) |                       |                       |                       |
| Off-state leakage current                 | 10 mA eff.  |                       |                       |                       |
| Load current range                        | 0,1...10 A  | 0,2...25 A            | 0,4...40 A            | 0,4...50 A            |
| Surge current 1 half wave                 | 110 A <sub>peak</sub>   | 230 A <sub>peak</sub> | 500 A <sub>peak</sub> | 570 A <sub>peak</sub> |
| I <sup>2</sup> t for fusing               | 60 A <sup>2</sup> s   | 260 A <sup>2</sup> s  | 1250 A <sup>2</sup> s | 1620 A <sup>2</sup> s |
| On-state voltage                          | 1,6 V <sub>peak</sub>   |                       |                       |                       |
| Off-state (static) dV/dt                  | 500 V/μs  |                       |                       |                       |
| Snubber                                   | 47 Ω / 5 nF   |                       |                       |                       |
| <b>General data</b>                       |   |                       |                       |                       |
| Turn-on time max.                         | 0,1 ms  |                       |                       |                       |
| Turn-off time max.                        | 11 ms   |                       |                       |                       |
| Line frequency range                      | 47...63 Hz  |                       |                       |                       |
| Isolation volt. between input/output      | 4.000 V   |                       |                       |                       |
| Isolation volt. between input-output/base | 2.500 V   |                       |                       |                       |
| Isolation resistance                      | 50 MΩ   |                       |                       |                       |
| Operation temperature                     | -20...+80 °C  |                       |                       |                       |
| Recommended varistor                      | SIOV-S20 K625   |                       |                       |                       |
| Approvals                                 | UL, VDE   |                       |                       |                       |

| Technical data                            |   |                        |                        |                        |
|---|---|------------------------|------------------------|------------------------|
| WG 660 D...                               | 75 R  | 90 R                   | 110 R                  | 125 R                  |
| <b>Input circuit</b>                      |   |                        |                        |                        |
| Control voltage range                     | 3...32 VDC  |                        |                        |                        |
| Control current max.                      | 22 mA   |                        |                        |                        |
| Turn-off voltage min.                     | 1 VDC   |                        |                        |                        |
| Input resistance                          | constant current  |                        |                        |                        |
| <b>Output circuit</b>                     |   |                        |                        |                        |
| Load voltage range                        | 48...660 VAC  |                        |                        |                        |
| Peak-off state voltage                    | 1600 V <sub>drm</sub> (integrated overvoltage protection effective above 1200V) |                        |                        |                        |
| Off-state leakage current                 | 10 mA eff.  |                        |                        |                        |
| Load current range                        | 0,4...75 A  | 0,4...90 A             | 0,4...110 A            | 0,4...125 A            |
| Surge current 1 half wave                 | 910 A <sub>peak</sub>   | 1090 A <sub>peak</sub> | 1350 A <sub>peak</sub> | 1590 A <sub>peak</sub> |
| I <sup>2</sup> t for fusing               | 4150 A <sup>2</sup> s   | 5980 A <sup>2</sup> s  | 9100 A <sup>2</sup> s  | 12650 A <sup>2</sup> s |
| On-state voltage                          | 1,6 V <sub>peak</sub>   |                        |                        |                        |
| Off-state (static) dV/dt                  | 500 V/μs  |                        |                        |                        |
| Snubber                                   | 47 Ω / 5 nF   |                        |                        |                        |
| <b>General data</b>                       |   |                        |                        |                        |
| Turn-on time max.                         | 0,1 ms  |                        |                        |                        |
| Turn-off time max.                        | 11 ms   |                        |                        |                        |
| Line frequency range                      | 47...63 Hz  |                        |                        |                        |
| Isolation volt. between input/output      | 4.000 V   |                        |                        |                        |
| Isolation volt. between input-output/base | 2.500 V   |                        |                        |                        |
| Isolation resistance                      | 50 MΩ   |                        |                        |                        |
| Operation temperature                     | -20...+80 °C  |                        |                        |                        |
| Recommended varistor                      | SIOV-S20 K625   |                        |                        |                        |
| Approvals                                 | UL, VDE   |                        |                        |                        |

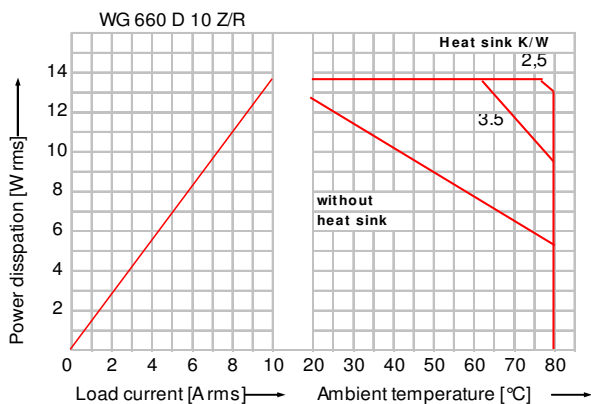
**Dimensions in mm & circuit diagram**



| Housing specification       |  |
|-----------------------------|--|
| Weight                      | Approx. 80 gr unpotted , 100 gr potted (optional)                  |
| Housing material            | Glass filled polyester   |
| Potting compound (optional) | UL recognized Epoxy  |
| Base plate                  | 10 ... 45 A : Aluminium<br>50 ... 125A : Aluminium , nickel plated |
| Terminals                   | Input : M3,5-screws<br>Output : M4-screws                          |

### Derating-diagrams

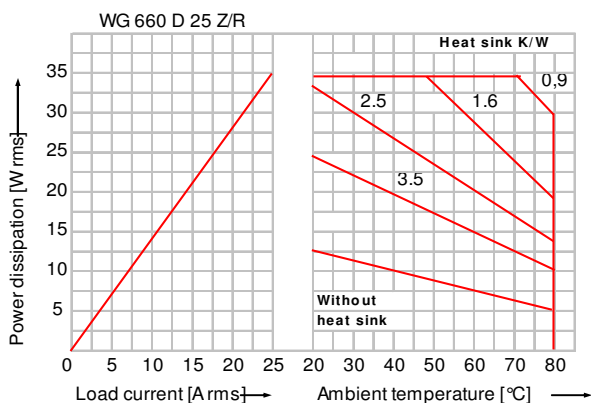
UL recognised components: suitable for a max. surrounding air temperature of 40°C.  
 For use at other ambient temperatures, check the derating diagrams.



**Number of SSR per heatsink/  
load current per SSR**

| Heat sink  | 1 SSR | 2 SSR | 3 SSR |
|------------|-------|-------|-------|
| WG K1/100  | 10 A  | 8 A   |       |
| WG K2/100  | 10 A  | 10 A  |       |
| WG K3/160  | 10 A  | 10 A  | 10 A  |
| WG K4/160L | 10 A  | 10 A  | 10 A  |
| WG K5/80   | 10 A  |       |       |

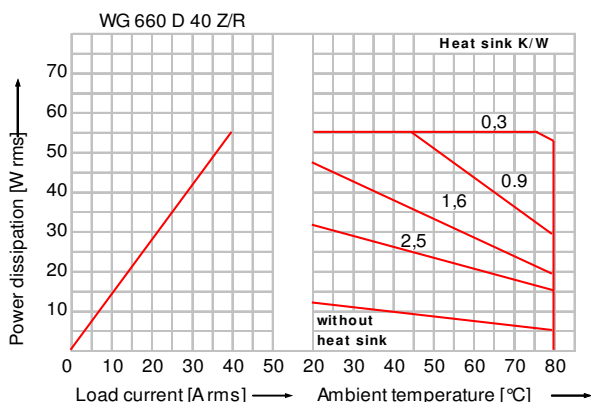
Values for 40°C enclosure-temperature and mounted with conduction paste between the SSR and the heat sink



**Number of SSR per heatsink/  
load current per SSR**

| Heat sink  | 1 SSR | 2 SSR | 3 SSR |
|------------|-------|-------|-------|
| WG K1/100  | 13 A  | 8 A   |       |
| WG K2/100  | 19 A  | 12 A  |       |
| WG K3/160  | 25 A  | 25 A  | 19 A  |
| WG K4/160L | 25 A  | 25 A  | 25 A  |
| WG K5/80   | 24 A  |       |       |

Values for 40°C enclosure-temperature and mounted with conduction paste between the SSR and the heat sink

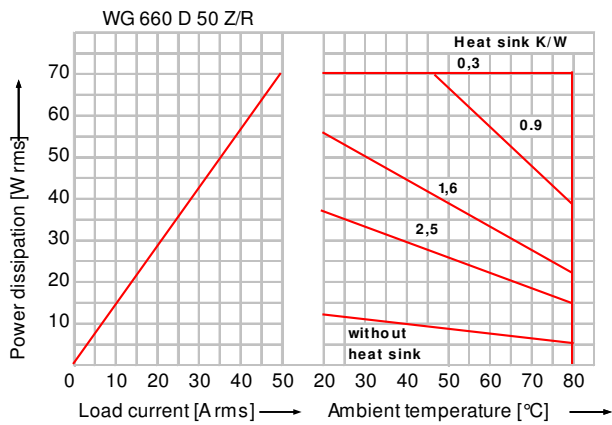


**Number of SSR per heatsink/  
load current per SSR**

| Heat sink  | 1 SSR | 2 SSR | 3 SSR |
|------------|-------|-------|-------|
| WG K1/100  | 13 A  | 8 A   |       |
| WG K2/100  | 19 A  | 12 A  |       |
| WG K3/160  | 42 A  | 26 A  | 19 A  |
| WG K4/160L | 45 A  | 45 A  | 40 A  |
| WG K5/80   | 24 A  |       |       |

Values for 40°C enclosure-temperature and mounted with conduction paste between the SSR and the heat sink

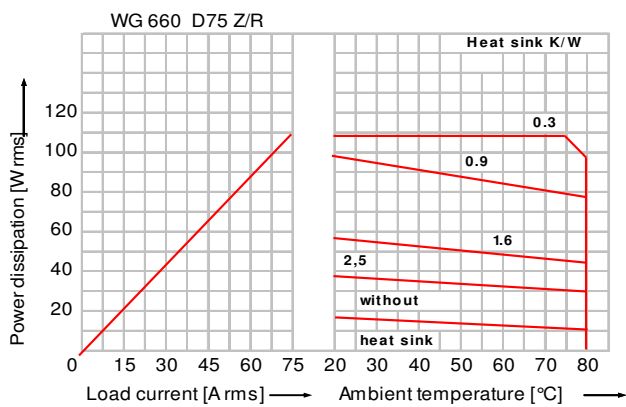
### Derating-diagrams



**Number of SSR per heatsink/  
load current per SSR**

| Heat sink  | 1 SSR | 2 SSR | 3 SSR |
|------------|-------|-------|-------|
| WG K1/100  | 13 A  | 8 A   |       |
| WG K2/100  | 20 A  | 12 A  |       |
| WG K3/160  | 50 A  | 31 A  | 20 A  |
| WG K4/160L | 50 A  | 50 A  | 50 A  |
| WG K5/80   | 25 A  |       |       |

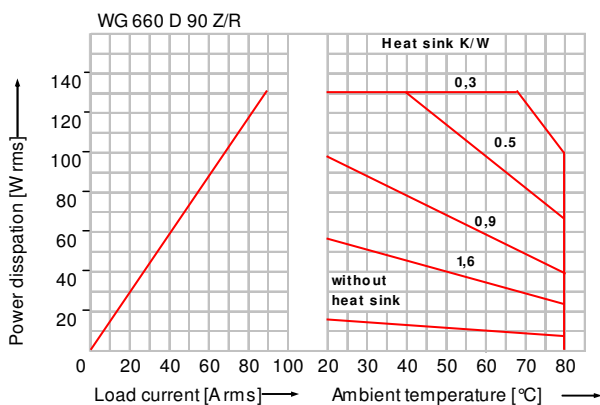
Values for 40°C enclosure-temperature and mounted with conduction paste between the SSR and the heat sink



**Number of SSR per heatsink/  
load current per SSR**

| Heat sink  | 1 SSR | 2 SSR | 3 SSR |
|------------|-------|-------|-------|
| WG K1/100  | 13 A  | 8 A   |       |
| WG K2/100  | 20 A  | 12 A  |       |
| WG K3/160  | 55 A  | 32 A  | 20 A  |
| WG K4/160L | 75 A  | 75 A  | 57 A  |
| WG K5/80   | 25 A  |       |       |

Values for 40°C enclosure-temperature and mounted with conduction paste between the SSR and the heat sink



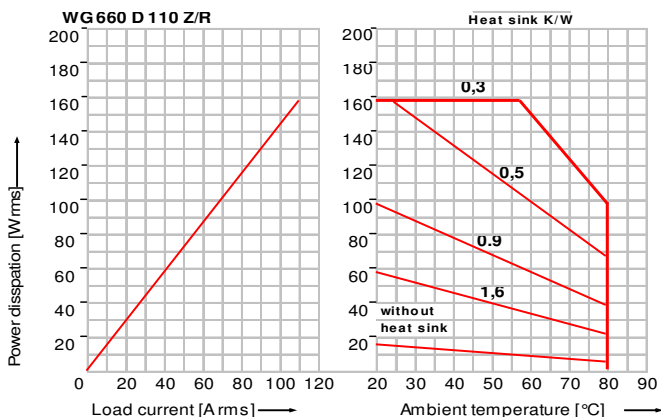
**Number of SSR per heatsink/  
load current per SSR**

| Heat sink  | 1 SSR | 2 SSR | 3 SSR |
|------------|-------|-------|-------|
| WG K1/100  | 13 A  | 8 A   |       |
| WG K2/100  | 20 A  | 12 A  |       |
| WG K3/160  | 55 A  | 32 A  | 20 A  |
| WG K4/160L | 90 A  | 90 A  | 57 A  |
| WG K5/80   | 25 A  |       |       |

Values for 40°C enclosure-temperature and mounted with conduction paste between the SSR and the heat sink



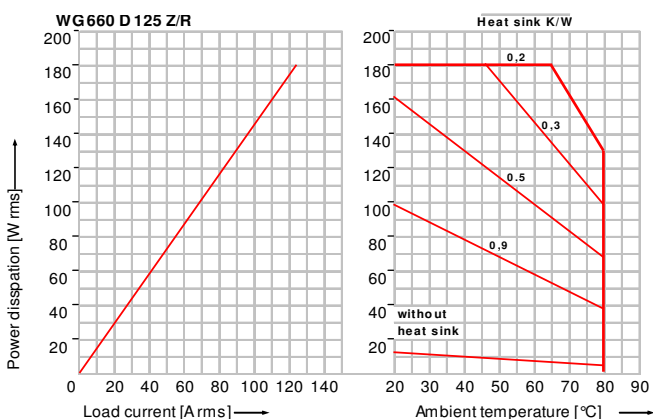
### Derating-diagrams



Number of SSR per heatsink/  
load current per SSR

| Heat sink  | 1 SSR | 2 SSR |
|------------|-------|-------|
| WG K1/100  | 13 A  | 8 A   |
| WG K2/100  | 21 A  | 12 A  |
| WG K3/160  | 58 A  | 33 A  |
| WG K4/160L | 110 A | 85 A  |
| WG K5/80   | 34 A  |       |

Values for 40°C enclosure-temperature and mounted with Conduction paste between the SSR and the heat sink

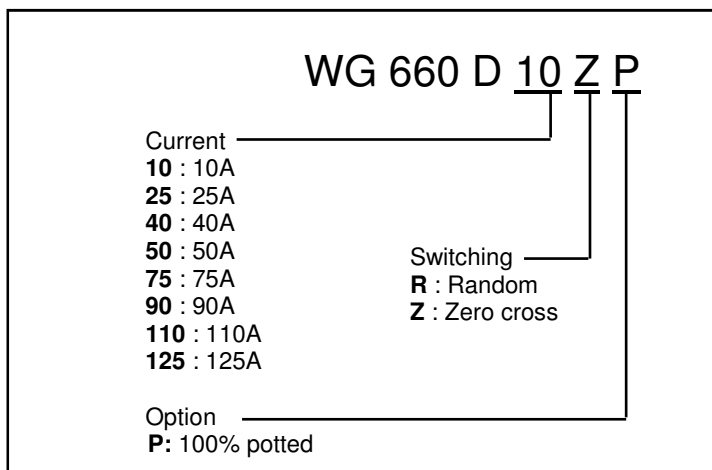


Number of SSR per heatsink/  
load current per SSR

| Heat sink  | 1 SSR | 2 SSR |
|------------|-------|-------|
| WG K1/100  | 13 A  | 8 A   |
| WG K2/100  | 21 A  | 12 A  |
| WG K3/160  | 58 A  | 33 A  |
| WG K4/160L | 125 A | 85 A  |
| WG K5/80   | 34 A  |       |

Values for 40°C enclosure-temperature and mounted with Conduction paste between the SSR and the heat sink

### Ordering



| Description              | Part Number   |
|--------------------------|---------------|
| Protective case small    | 8440 5700 110 |
| Thermal conducting paste | 8406 0180 020 |
| Heat sink WG K1/100      | 5981 5701 100 |
| Heat sink WG K2/100      | 5981 5701 110 |
| Heat sink WG K3/160      | 5981 5701 370 |
| Heat sink WG K4/160L     | 5981 5701 371 |
| Heat sink WG K5/80       | 5981 5701 372 |
| Mounting plate DIN rail  | 5981 5701 430 |