

# Solid State Relays

## Datasheet 9225100



### Features

|                     |                                                                                                                 |
|---------------------|-----------------------------------------------------------------------------------------------------------------|
| <b>Switching</b>    | Zero cross                                                                                                      |
| <b>Output</b>       | Back-to-back SCR with internal snubber                                                                          |
| <b>Input</b>        | DC with constant current control                                                                                |
| <b>Applications</b> | Resistive and inductive loads with $\cos\phi > 0,85$ (Z-Type)<br>inductive load with $\cos\phi > 0,65$ (R-Type) |

### Technical data

#### Input circuit

|                       |                  |
|-----------------------|------------------|
| Control voltage range | 3...32 VDC       |
| Control current max.  | 22 mA            |
| Turn-off voltage min. | 1 VDC            |
| Input resistance      | Constant current |

#### Output circuit

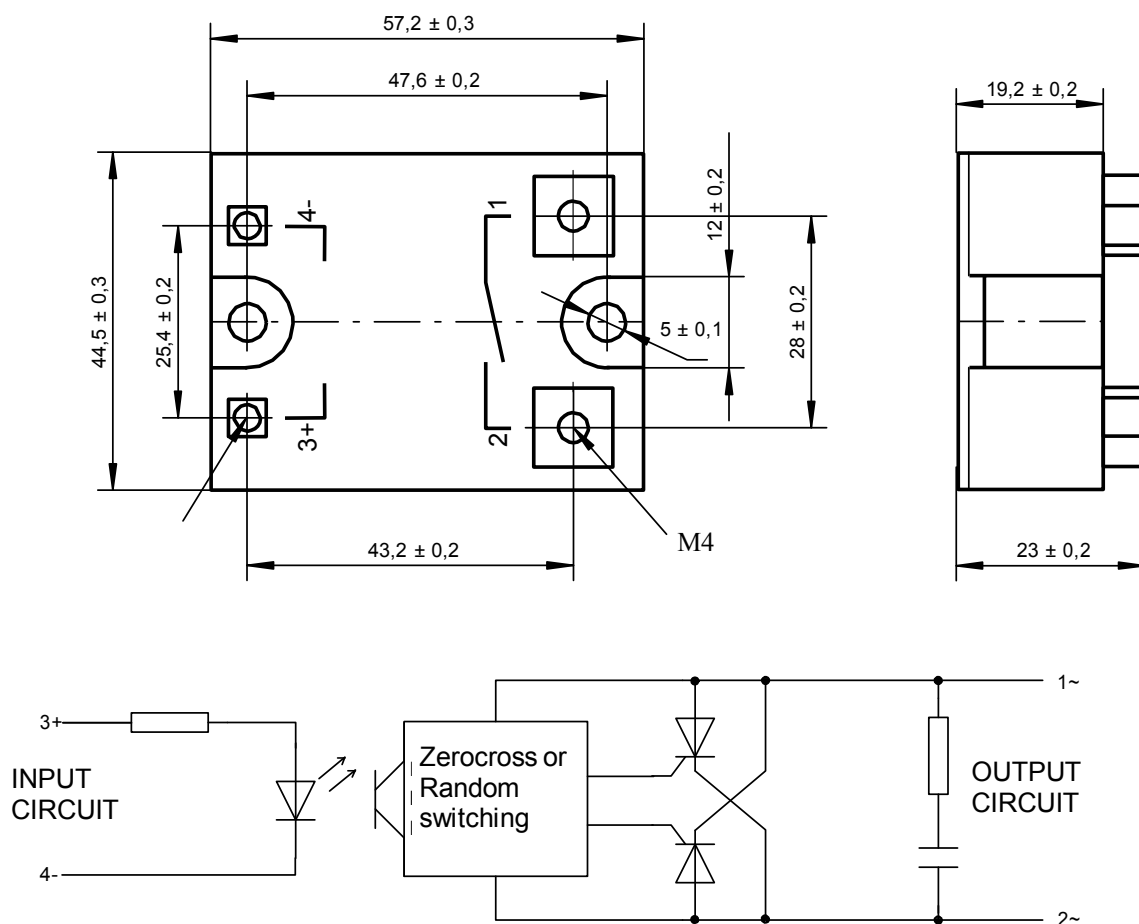
|                             |                           |
|-----------------------------|---------------------------|
| Load voltage range          | 24 (Z) / 48 (R)...660 VAC |
| Peak-off-state voltage      | 1600 V <sub>drm</sub>     |
| Off-state leakage current   | 12 mA eff.                |
| Load current range          | 0,4...90 A                |
| Surge current 1 half wave   | 1090 A <sub>peak</sub>    |
| I <sup>2</sup> t for fusing | 5980 A <sup>2</sup> s     |
| On-state voltage            | 1,6 V <sub>peak</sub>     |
| Off-state (static) dv/dt    | 1000 V/μs                 |
| Snubber                     | 47 Ω / 5nF                |

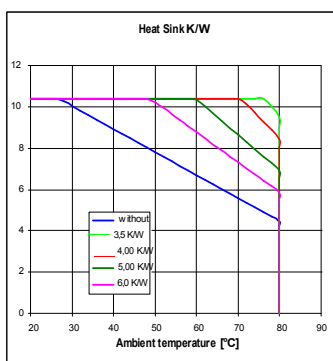
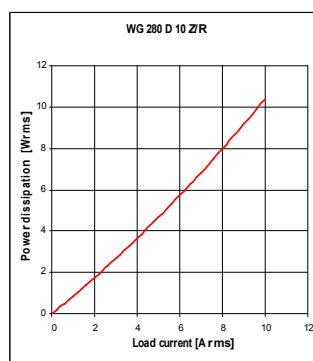
#### General data

|                                           |               |
|-------------------------------------------|---------------|
| 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                                 | cULus, VDE    |

**Housing specification**

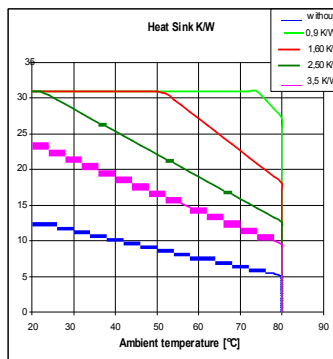
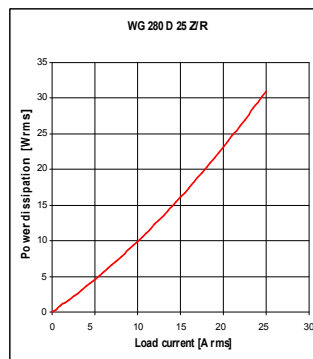
|                             |                                                                   |
|-----------------------------|-------------------------------------------------------------------|
| Weight                      | Approx. 80 gr unpotted , 100 gr potted (optional)                 |
| 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                         |

**Dimensions in mm**


**Derating diagrams**


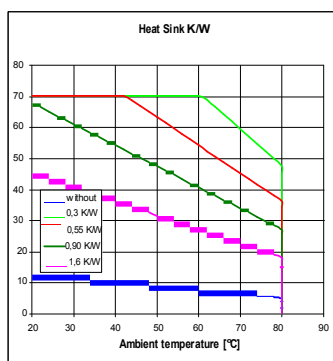
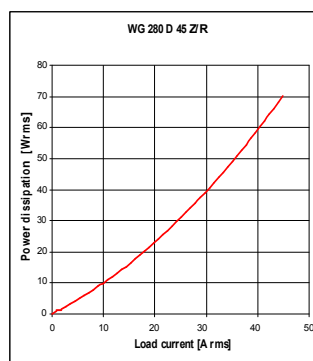
| Number of SSR per Heatsink/<br>Load current per SSR |       |       |       |
|-----------------------------------------------------|-------|-------|-------|
| Heat sink                                           | 1 SSR | 2 SSR | 3 SSR |
| 9225227                                             | 10 A  | 10 A  |       |
| 9225236                                             | 10 A  | 10 A  |       |
| 9225239                                             | 10 A  | 10 A  | 10 A  |
| 9225233                                             | 10 A  | 10 A  | 10 A  |
| 9225242                                             | 10 A  |       |       |

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



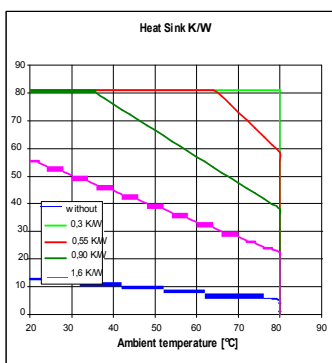
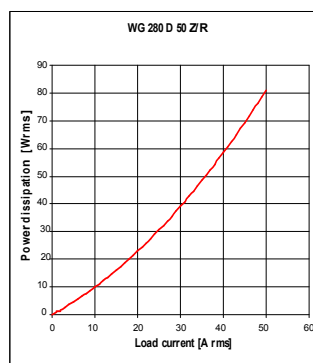
| Number of SSR per Heatsink/<br>Load current per SSR |       |       |       |
|-----------------------------------------------------|-------|-------|-------|
| Heat sink                                           | 1 SSR | 2 SSR | 3 SSR |
| 9225227                                             | 18 A  | 12 A  |       |
| 9225236                                             | 23 A  | 17 A  |       |
| 9225239                                             | 25 A  | 25 A  | 23 A  |
| 9225233                                             | 25 A  | 25 A  | 25 A  |
| 9225242                                             | 25 A  |       |       |

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



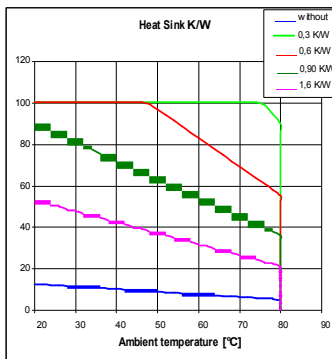
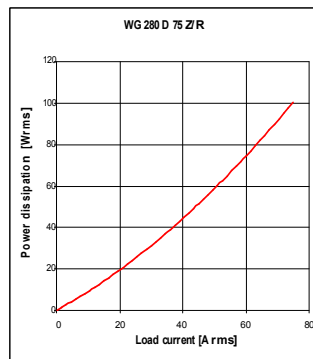
| Number of SSR per Heatsink/<br>Load current per SSR |       |       |       |
|-----------------------------------------------------|-------|-------|-------|
| Heat sink                                           | 1 SSR | 2 SSR | 3 SSR |
| 9225227                                             | 18 A  | 12 A  |       |
| 9225236                                             | 23 A  | 17 A  |       |
| 9225239                                             | 40 A  | 29 A  | 23 A  |
| 9225233                                             | 45 A  | 45 A  | 41 A  |
| 9225242                                             | 34 A  |       |       |

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

**Derating diagrams**


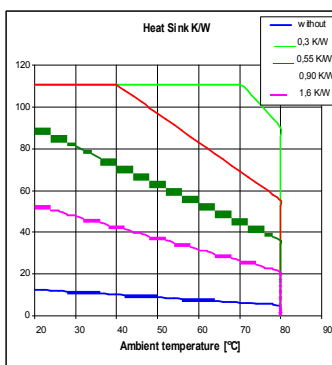
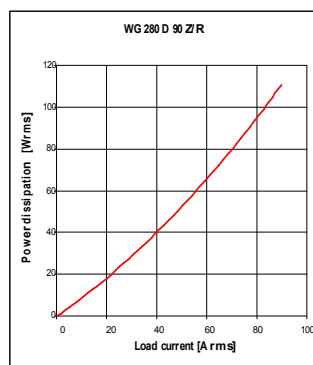
| Number of SSR per Heatsink/<br>Load current per SSR |       |       |       |
|-----------------------------------------------------|-------|-------|-------|
| Heat sink                                           | 1 SSR | 2 SSR | 3 SSR |
| 9225227                                             | 20 A  | 13 A  |       |
| 9225236                                             | 26 A  | 18 A  |       |
| 9225239                                             | 50 A  | 34 A  | 26 A  |
| 9225233                                             | 50 A  | 50 A  | 50 A  |
| 9225242                                             | 41 A  |       |       |

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



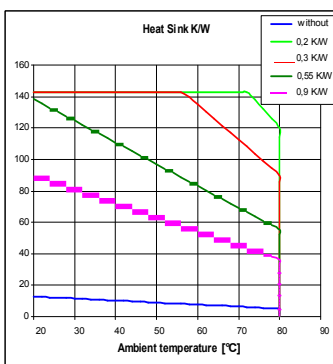
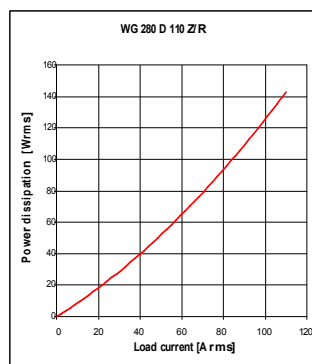
| Number of SSR per Heatsink/<br>Load current per SSR |       |       |       |
|-----------------------------------------------------|-------|-------|-------|
| Heat sink                                           | 1 SSR | 2 SSR | 3 SSR |
| 9225227                                             | 23 A  | 14 A  |       |
| 9225236                                             | 31 A  | 21 A  |       |
| 9225239                                             | 66 A  | 42 A  | 31 A  |
| 9225233                                             | 75 A  | 75 A  | 68 A  |
| 9225242                                             | 51 A  |       |       |

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



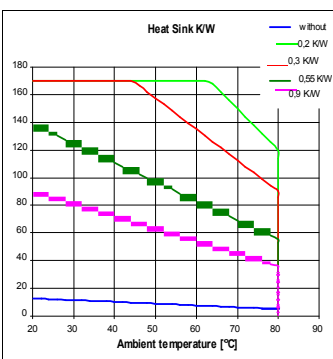
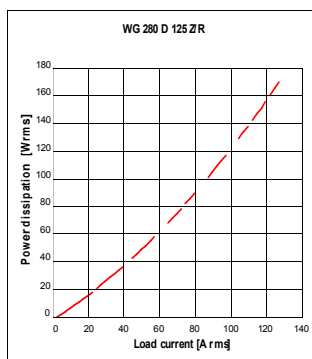
| Number of SSR per Heatsink/<br>Load current per SSR |       |       |       |
|-----------------------------------------------------|-------|-------|-------|
| Heat sink                                           | 1 SSR | 2 SSR | 3 SSR |
| 9225227                                             | 25 A  | 15 A  |       |
| 9225236                                             | 33 A  | 22 A  |       |
| 9225239                                             | 73 A  | 45 A  | 33 A  |
| 9225233                                             | 90 A  | 90 A  | 76 A  |
| 9225242                                             | 56 A  |       |       |

Values for 40°C enclosure-temperature and mounted with conducting 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 |
| 9225227   | 25 A                                                | 15 A  |       |
| 9225236   | 33 A                                                | 22 A  |       |
| 9225239   | 74 A                                                | 46 A  | 33 A  |
| 9225233   | 110 A                                               | 103 A | 77 A  |
| 9225242   | 56 A                                                |       |       |

Values for 40°C enclosure-temperature and mounted with conducting 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 |
| 9225227   | 25 A                                                | 15 A  |       |
| 9225236   | 33 A                                                | 22 A  |       |
| 9225239   | 74 A                                                | 46 A  | 33 A  |
| 9225233   | 125 A                                               | 103 A | 77 A  |
| 9225242   | 57A                                                 |       |       |

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