



# ZW9200- WELDING DIODE

200-400V<sub>RRM</sub>

## WELDING DIODE

### Features:

- . All diffused structure
- . High current density
- . Very low forward voltage drop
- . Ultra-low thermal resistance



## ELECTRICAL CHARACTERISTICS AND RATINGS

### Reverse Blocking

| Device Type | V <sub>RRM</sub> (1) | V <sub>RSM</sub> (1) |
|-------------|----------------------|----------------------|
| ZP9200-02   | 200                  | 300                  |
| ZP9200-04   | 400                  | 500                  |

V<sub>RRM</sub> = Repetitive peak reverse voltage

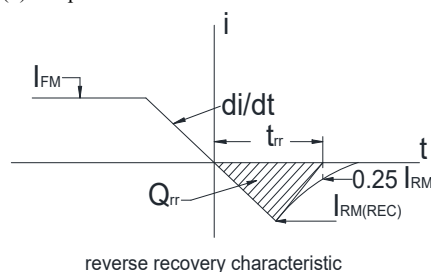
V<sub>RSM</sub> = Non repetitive peak reverse voltage (2)

|                                         |                  |                   |
|-----------------------------------------|------------------|-------------------|
| Repetitive peak reverse leakage current | I <sub>RRM</sub> | 2 mA<br>50 mA (3) |
|-----------------------------------------|------------------|-------------------|

#### Notes:

All ratings are specified for T<sub>j</sub>=25 °C, unless otherwise stated

- (1) Sine half wave, f=50Hz, T<sub>j</sub> = -40 to +180°C.
- (2) Sine half wave, Pulse width 10 msec. T<sub>j</sub> = -40 to +180°C.
- (3) Maximum value for T<sub>j</sub> = 180 °C.
- (4) See parameter definition below :



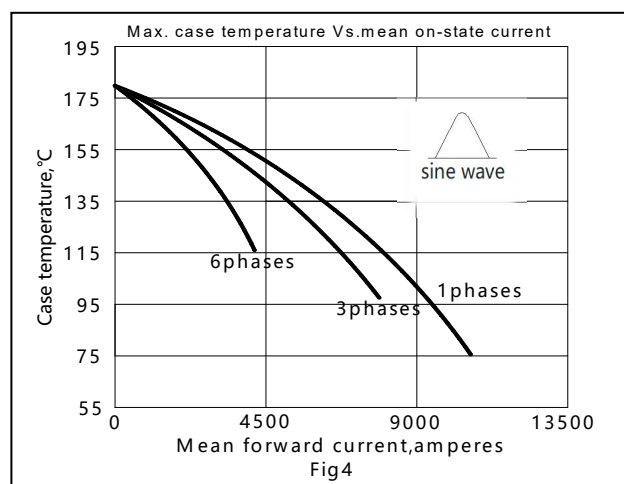
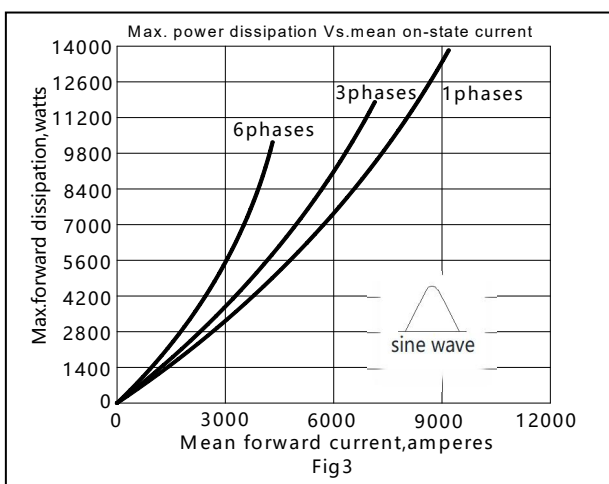
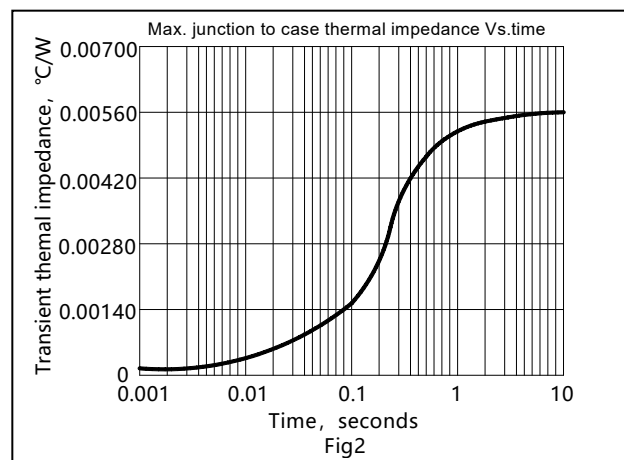
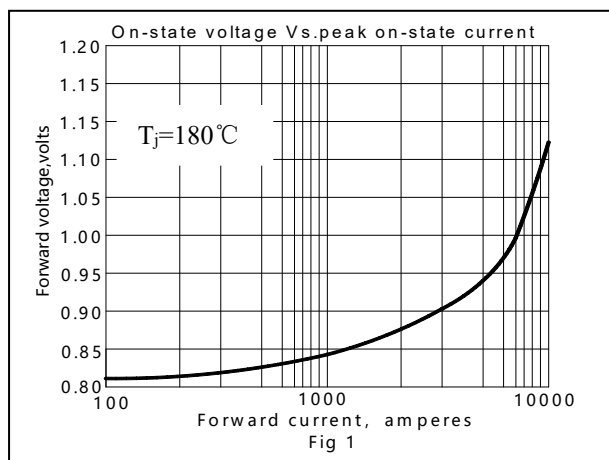
### Conducting - on state

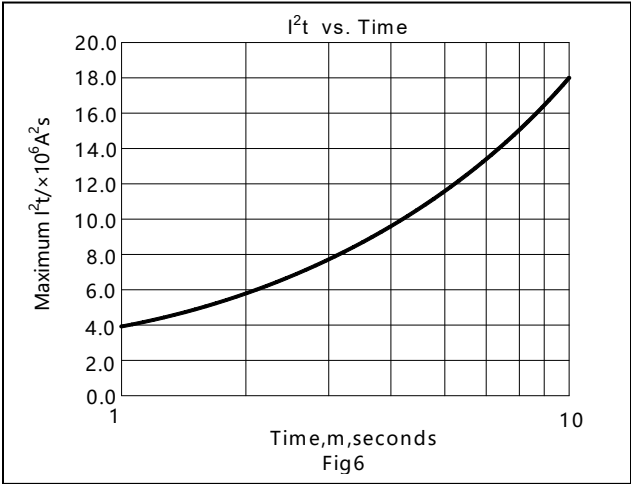
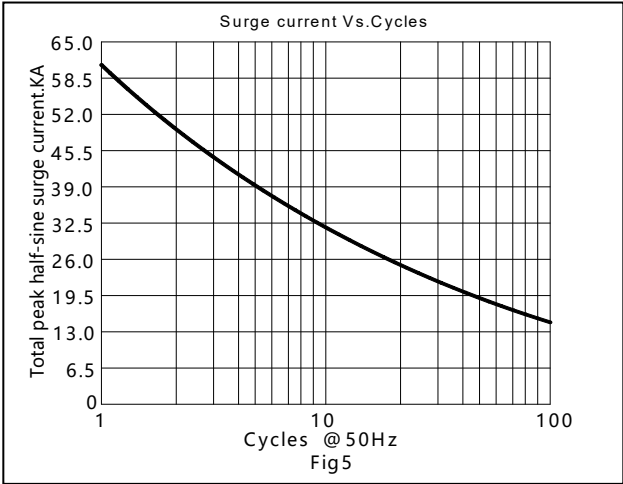
| Parameter                                     | Symbol               | Min. | Max.                   | Typ. | Units            | Conditions                                                                              |
|-----------------------------------------------|----------------------|------|------------------------|------|------------------|-----------------------------------------------------------------------------------------|
| Average forward current                       | I <sub>F(AV)</sub>   |      | 9200                   |      | A                | Sinewave 180°, T <sub>c</sub> =85°C                                                     |
| RMS forward current                           | I <sub>FRMS</sub>    |      | 14444                  |      | A                |                                                                                         |
| Peak one cycle surge (non repetitive) current | I <sub>FSM</sub>     |      | 60000                  |      | A                | Pulse width 10 msec, sinusoidal wave-shape, V <sub>R</sub> =0V, T <sub>j</sub> = 180 °C |
| I square t                                    | I <sup>2</sup> t     |      | 18.0 × 10 <sup>6</sup> |      | A <sup>2</sup> s | Pulse width 10 msec, sinusoidal wave-shape, T <sub>j</sub> = 180 °C                     |
| Peak forward voltage                          | V <sub>FM</sub>      |      | 1.05                   |      | V                | I <sub>FM</sub> = 5000A; T <sub>j</sub> =25°C                                           |
| Threshold voltage                             | V <sub>FO</sub>      |      | 0.81                   |      | V                | T <sub>j</sub> =180°C                                                                   |
| Slope resistance                              | r <sub>F</sub>       |      | 0.031                  |      | mΩ               | T <sub>j</sub> =180°C                                                                   |
| Reverse Recovery Current (4)                  | I <sub>RM(REC)</sub> |      |                        |      | A                | di/dt=-25A/us, I <sub>FM</sub> =1000A, V <sub>R</sub> =50V                              |
| Reverse Recovery Charge (4)                   | Q <sub>rr</sub>      |      | 400                    |      | μC               | di/dt=-25A/us, I <sub>FM</sub> =1000A, V <sub>R</sub> =50V                              |
| Reverse Recovery Time (4)                     | t <sub>rr</sub>      |      |                        |      | μs               | di/dt=-25A/us, I <sub>FM</sub> =1000A, V <sub>R</sub> =50V                              |

| Parameter                             | Symbol            | Min. | Max.   | Typ. | Units | Conditions          |
|---------------------------------------|-------------------|------|--------|------|-------|---------------------|
| Operating temperature                 | $T_j$             | -40  | +180   |      | °C    |                     |
| Storage temperature                   | $T_{stg}$         | -40  | +180   |      | °C    |                     |
| Thermal resistance - junction to case | $R_{\theta(j-c)}$ |      | 0.0056 |      | °C/W  | Double sided cooled |
| Thermal resistance - case to heatsink | $R_{\theta(c-s)}$ |      | 0.0036 |      | °C/W  | Double sided cooled |
| Creepage distance                     | $D_s$             |      | 2      |      | mm    |                     |
| Air breakdown distance                | $D_a$             |      | 2      |      | mm    |                     |
| Mounting force                        | F                 | 25   | 32     | 28   | kN    |                     |
| Weight                                | W                 |      |        | 100  | g     |                     |

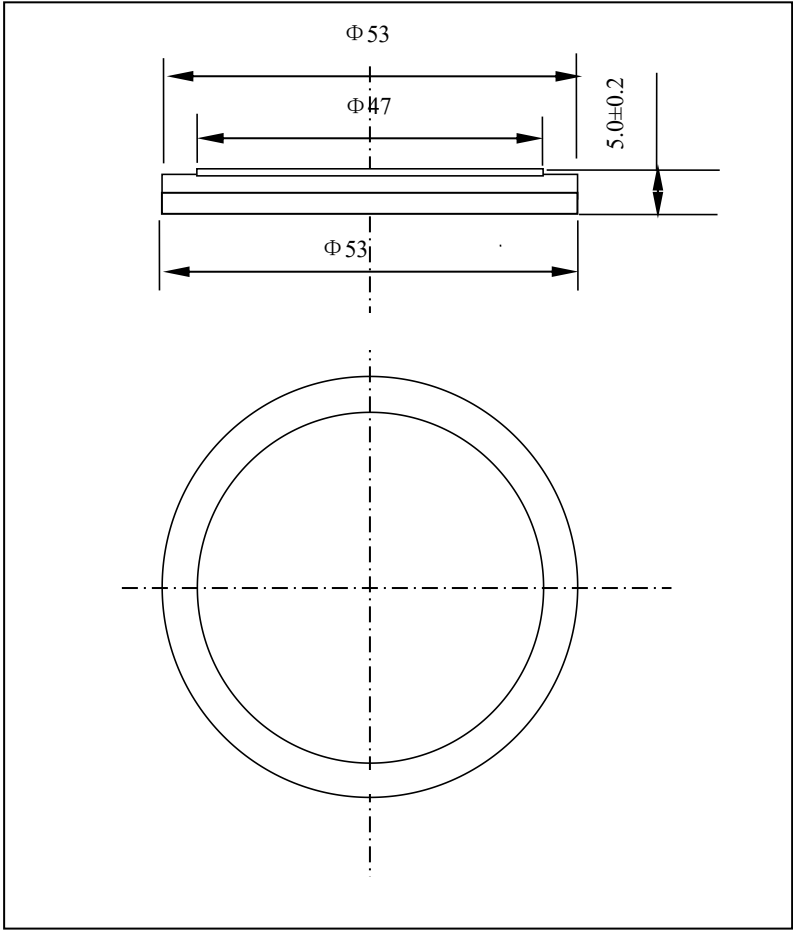
\* Mounting surfaces smooth, flat and greaseless

## Graph





CASE OUTLINE AND DIMENSIONS



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