

ZW13500-200~400V

## Features:

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

## Electrical Characteristics And Ratings

### Reverse Blocking

| Device Type | $V_{RRM}$ (1) | $V_{RSM}$ (1) |
|-------------|---------------|---------------|
| ZW13500-02  | 200           | 300           |
| ZW13500-04  | 400           | 450           |

$V_{RRM}$  = Repetitive peak reverse voltage

$V_{RSM}$  = Non repetitive peak reverse voltage (2)

|                                         |           |                    |
|-----------------------------------------|-----------|--------------------|
| Repetitive peak reverse leakage current | $I_{RRM}$ | 10 mA<br>75 mA (3) |
|-----------------------------------------|-----------|--------------------|



Notes:

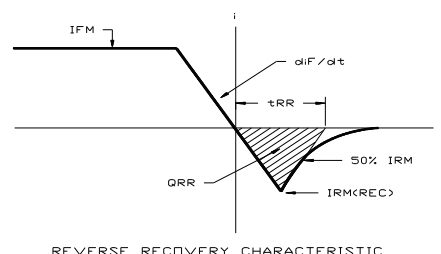
All ratings are specified for  $T_j = 25^\circ\text{C}$ , unless otherwise stated

(1) Sine half wave,  $f=50\text{Hz}$ ,  $T_j = -40$  to  $+180^\circ\text{C}$ .

(2) Sine half wave, Pulse width 10 msec.  $T_j = -40$  to  $+180^\circ\text{C}$ .

(3) Maximum value for  $T_j = 180^\circ\text{C}$ .

(4) See parameter definition below :



REVERSE RECOVERY CHARACTERISTIC

### Conducting - on state

| Parameter                                     | Symbol        | Min. | Max.  | Typ. | Units                 | Conditions                                                                                    |
|-----------------------------------------------|---------------|------|-------|------|-----------------------|-----------------------------------------------------------------------------------------------|
| Average forward current                       | $I_{F(AV)}$   |      | 13500 |      | A                     | Sinewave $180^\circ$ , $T_c = 85^\circ\text{C}$                                               |
| RMS forward current                           | $I_{FRMS}$    |      | 21200 |      | A                     |                                                                                               |
| Peak one cycle surge (non repetitive) current | $I_{FSM}$     |      | 85000 |      | A                     | Pulse width 10 msec, sinusoidal wave-shape, $180^\circ$ conduction, $T_j = 170^\circ\text{C}$ |
| I square t                                    | $I^2t$        |      | 36000 |      | $\text{KA}^2\text{s}$ | Pulse width 10 msec, sinusoidal wave-shape, $T_j = 180^\circ\text{C}$                         |
| Peak forward voltage                          | $V_{FM}$      |      | 1.05  |      | V                     | $I_{FM} = 5000\text{A}$ ; $25^\circ\text{C}$                                                  |
| Threshold voltage                             | $V_{TO}$      |      | 0.76  |      | V                     | $T_j = 180^\circ\text{C}$                                                                     |
| Slope resistance                              | $r_T$         |      | 0.021 |      | $\text{m}\Omega$      | $T_j = 180^\circ\text{C}$                                                                     |
| Reverse Recovery Current (4)                  | $I_{RM(REC)}$ |      |       |      | A                     | $I_{FM} = 1000\text{A}$ ; $dI_F/dt = 10\text{A}/\mu\text{s}$ ; $T_{jmax}$                     |
| Reverse Recovery Charge (4)                   | $Q_{rr}$      |      |       |      | $\mu\text{C}$         | $I_{FM} = 1000\text{A}$ ; $dI_F/dt = 10\text{A}/\mu\text{s}$ ; $T_{jmax}$                     |
| Reverse Recovery Time (4)                     | $t_{rr}$      |      |       |      | $\mu\text{s}$         | $I_{FM} = 1000\text{A}$ ; $dI_F/dt = 10\text{A}/\mu\text{s}$ ; $T_{jmax}$                     |

\* For guaranteed maximum values, contact factory

### Thermal And Mechanical Characteristics

| 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 | $R_{\theta(jc)}$ |      | 0.0039 |      | °C/W  | Double sided cooled |
| Thermal resistance - case to heatsink | $R_{\theta(jc)}$ |      | 0.0026 |      | °C/W  | Single sided cooled |
| Creepage distance                     | $D_s$            |      | 2      |      | mm    |                     |
| Air breakdown distance                | $D_a$            |      | 2      |      | mm    |                     |
| Mounting force                        | F                | 30   | 40     | 35   | kN    |                     |
| Weight                                | W                |      |        | 140  | g     |                     |

\* Mounting surfaces smooth, flat and greaseless

### Case Outline And Dimensions

