



# Ruttonsha International Rectifier Ltd.

## SILICON RECTIFIERS

### TYPE: R430A...F SERIES

#### FAST RECOVERY DIODES

Hockey Puk Version4

#### Features

- High power FAST recovery diode series
- High voltage ratings up to 2500V
- High current capability
- Optimized turn on and turn off characteristics
- Low forward recovery
- Fast and soft reverse recovery
- Press-puk encapsulation
- Case style conform to JEDEC DO-200AA
- Maximum junction temperature 125°C

430A

#### Typical Applications

- Snubber diode for GTO
- High voltage free-wheeling diode
- Fast recovery rectifier applications

case style DO-200AA

#### Major Ratings and Characteristics

| Parameters      | R430A...F   | Units             |
|-----------------|-------------|-------------------|
| $I_{F(AV)}$     | 430         | A                 |
| @ $T_{hs}$      | 55          | °C                |
| $I_{F(RMS)}$    | 550         | A                 |
| @ $T_{hs}$      | 25          | °C                |
| $I_{FSM}$       | 5770        | A                 |
| @ 50Hz          | 5770        | A                 |
| @ 60Hz          | 6040        | A                 |
| $I^2t$          | 166         | KA <sup>2</sup> s |
| @ 50Hz          | 166         | KA <sup>2</sup> s |
| @ 60Hz          | 152         | KA <sup>2</sup> s |
| $V_{RRM}$ range | 400 to 2500 | V                 |
| $t_{rr}$ range  | 1.0 to 2.0  | μs                |
| @ $T_j$         | 25          | °C                |
| $T_j$           | - 40 to 125 | °C                |

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### ELECTRICAL SPECIFICATIONS

Voltage Ratings

| Type number   | Voltage Code | $V_{RRM}$ max. repetitive peak and off-state voltage V | $V_{RSM}$ , maximum non-repetitive peak voltage V | $I_{RRM}$ max. $T_J = 125^\circ\text{C}$ mA |
|---------------|--------------|--|---|---|
| R430A...100CF | 04           | 400  | 500   | 35  |
|               | 08           | 800  | 900   |   |
|               | 10           | 1000   | 1100  |   |
| R430A...160CF | 12           | 1200   | 1300  | 35  |
|               | 14           | 1400   | 1500  |   |
|               | 16           | 1600   | 1700  |   |
| R430A...250CF | 20           | 2000   | 2100  | 35  |
|               | 25           | 2500   | 2600  |   |

### Forward Conduction

| Parameter   | R430A...F  | Units                    | Conditions   |
|---|------------|--------------------------|--|
| $I_{F(AV)}$ Max. average forward current @ Heatsink temperature | 430        | A                        | 180° conduction, half sine wave.   |
|   | 55         | °C                       | Double side cooled   |
| $I_{F(RMS)}$ Max. RMS current                                   | 675        | A                        | @55 °C heatsink temperature double side cooled                                     |
| $I_{FSM}$ Max. peak, one-cycle non-repetitive forward current   | 5770       | A                        | t = 10ms<br>Sinusoidal half wave,<br>Initial $T_J = T_{J, \text{max.}}$            |
| $I^2t$ Maximum $I^2t$ for fusing                                | 166        | KA <sup>2</sup> s        | t = 10ms<br>Initial $T_J = T_{J, \text{max.}}$                                     |
| $I^2\sqrt{t}$ Maximum $I^2\sqrt{t}$ for fusing                  | 1660       | KA <sup>2</sup> \sqrt{s} | t = 0.1 to 10ms, no voltage reapplied  |
| $V_{FT(OI)}$ Threshold voltage                                  | 1.14       | V                        | $T_J = T_{J, \text{max.}}$   |
| $r_f$ Forward slope resistance                                  | 0.90       | mΩ                       | $T_J = T_{J, \text{max.}}$   |
| $V_{FM}$ Max. forward voltage                                   | 2.25       | V                        | $I_{pk} = 1100\text{A}, T_J = 25^\circ\text{C}, t_p = 10\text{ms sinusoidal wave}$ |
| trr Reverse Recovery Time                                       | 1.0 to 2.0 | μs                       | IFM=750A, di/dt=25A/μs   |

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## R430A...F SERIES

### Thermal and Mechanical Specifications

| Parameter    | R430A...F  | Units             | Conditions                          |
|--------------|--|-------------------|-------------------------------------|
| $T_J$        | Max. operating temperature range                 | -40 to 125        | °C                                  |
| $T_{stg}$    | Max. storage temperature range                   | -40 to 150        |                                     |
| $R_{thJ-hs}$ | Max. thermal resistance,<br>junction to heatsink | 0.08              | K/W DC operation double side cooled |
| F            | Mounting force, $\pm 10\%$                       | 4900<br>(500)     | N (Kg)                              |
| wt           | Approximate weight                               | 50                | g                                   |
| Case style   | DO-200AA   | See Outline Table |                                     |

### Ordering Information Table

| Device Code |  | R | 430 | A | 80 | C | F |
|-------------|--|---|-----|---|----|---|---|
| 1           | - R = Diode  | 1 | 2   | 3 | 4  | 5 | 6 |
| 2           | - Essential part number  |   |     |   |    |   |   |
| 3           | - A = Puk Case DO-200AA  |   |     |   |    |   |   |
| 4           | - Voltage code: Code x 100 = $V_{RRM}$ (see Voltage Ratings table) |   |     |   |    |   |   |
| 5           | - C = Ceramic Puk  |   |     |   |    |   |   |
| 6           | - F = Fast recovery  |   |     |   |    |   |   |

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## R430A...F SERIES

Outline Table

