



# Ruttonsha International Rectifier Ltd.

## SILICON RECTIFIERS

### TYPE : R3000Q..F SERIES

#### FAST RECOVERY DIODES

##### Features

- High power FAST recovery diode series
- 7.0  $\mu$ s recovery time
- High voltage ratings up to 2400V
- High current capability
- Optimized turn on and turn off characteristics
- Low forward recovery
- Fast and soft reverse recovery
- Press-puk encapsulation
- Maximum junction temperature 150°C

Hockey Puk Version

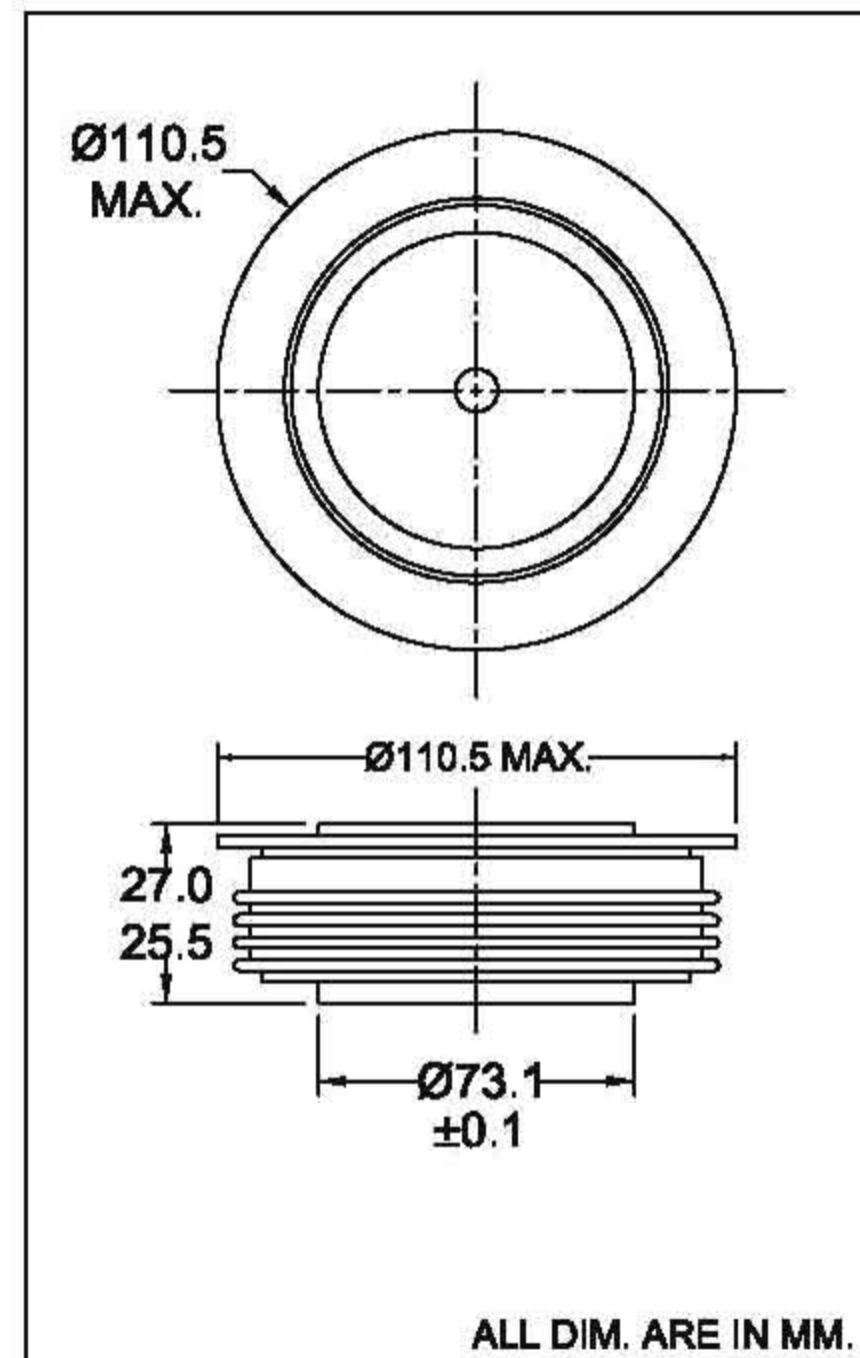


##### Typical Applications

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

##### Major Ratings and Characteristics

Parameters	R 3000Q	Units
$I_{F(AV)}$	3000	A
@ $T_{hs}$	55	°C
$I_{F(RMS)}$	4710	A
@ 50Hz	31.8	KA
$V_{RRM}$ range	1600 to 2400	V
$t_{rr}$	7.0	$\mu$ s
@ $T_J$	150	°C
$T_J$	-40 to 150	°C



# SILICON RECTIFIERS

## R3000Q..F Series

### ELECTRICAL SPECIFICATIONS

#### Voltage Ratings

Type number	Voltage Code	$V_{RRM}$ , maximum repetitive peak reverse voltage V	$V_{RSM}$ , maximum non-repetitive peak rev. voltage V	$I_{RRM}$ max. @ $T_J = T_J$ max. mA
R3000Q..F	16	1600	1700	100
	18	1800	1900	
	20	2000	2100	
	22	2200	2300	
	24	2400	2500	

#### Forward Conduction

Parameter	R3000Q..F	Units	Conditions
$I_{F(AV)}$ Max. average forward current @ heatsink temperature	3000	A	180° conduction, half sine wave
	55	°C	Double side cooled
$I_{F(RMS)}$ Max. RMS forward current	4710	A	@ 55°C heatsink temperature double side cooled
$I_{FSM}$ Max. peak, one-cycle forward, non-repetitive surge current	31.8	KA	t = 10ms Sinusoidal half wave, Initial $T_J = T_J$ max.
$I^2t$ Maximum $I^2t$ for fusing	5056	KA <sup>2</sup> s	t = 10ms
$V_{F(TO)}$ Threshold voltage	0.90	V	$T_J = T_J$ max.
$r_f$ Forward slope resistance	0.24	mΩ	$T_J = T_J$ max.
$V_{FM}$ Max. forward voltage drop	1.50	V	$I_{pk} = 3000A$ , $T_J = T_J$ max, $t_p = 10ms$ sinusoidal wave
trr Reverse Recovery time	7.0	us	IFM=1000A, di/dt=60A/us

# SILICON RECTIFIERS

## R3000Q..F Series

### Thermal and Mechanical Specifications

Parameter	R3000Q..F	Units	Conditions
T <sub>J</sub> Max. junction operating temperature range	-40 to 150	°C	
T <sub>stg</sub> Max. storage temperature range	-40 to 150		
R <sub>thJ-hs</sub> Max. thermal resistance, case junction to heatsink	0.012	K/W	DC operation double side cooled
F Mounting force, ± 10%	40	KN (Kg)	
wt Approximate weight	1050	g	
Case style	Q - PUK		See Outline Table

### Ordering Information Table

Device Code													
	<table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td style="padding: 5px;"><b>R</b></td> <td style="padding: 5px;"><b>3000</b></td> <td style="padding: 5px;"><b>Q</b></td> <td style="padding: 5px;"><b>24</b></td> <td style="padding: 5px;"><b>C</b></td> <td style="padding: 5px;"><b>F</b></td> </tr> <tr> <td style="text-align: center;">①</td> <td style="text-align: center;">②</td> <td style="text-align: center;">③</td> <td style="text-align: center;">④</td> <td style="text-align: center;">⑤</td> <td style="text-align: center;">⑥</td> </tr> </table>	<b>R</b>	<b>3000</b>	<b>Q</b>	<b>24</b>	<b>C</b>	<b>F</b>	①	②	③	④	⑤	⑥
<b>R</b>	<b>3000</b>	<b>Q</b>	<b>24</b>	<b>C</b>	<b>F</b>								
①	②	③	④	⑤	⑥								
<table border="1" style="width: 100px; border-collapse: collapse;"> <tr><td style="text-align: center;"><b>1</b></td><td>- R = Diode</td></tr> <tr><td style="text-align: center;"><b>2</b></td><td>- Essential part number</td></tr> <tr><td style="text-align: center;"><b>3</b></td><td>- Q - Puk</td></tr> <tr><td style="text-align: center;"><b>4</b></td><td>- Voltage code: Code x 100 = V<sub>RRM</sub> (See Voltage Ratings table)</td></tr> <tr><td style="text-align: center;"><b>5</b></td><td>- C = Ceramic Puk</td></tr> <tr><td style="text-align: center;"><b>6</b></td><td>- F = Fast recovery</td></tr> </table>	<b>1</b>	- R = Diode	<b>2</b>	- Essential part number	<b>3</b>	- Q - Puk	<b>4</b>	- Voltage code: Code x 100 = V <sub>RRM</sub> (See Voltage Ratings table)	<b>5</b>	- C = Ceramic Puk	<b>6</b>	- F = Fast recovery	
<b>1</b>	- R = Diode												
<b>2</b>	- Essential part number												
<b>3</b>	- Q - Puk												
<b>4</b>	- Voltage code: Code x 100 = V <sub>RRM</sub> (See Voltage Ratings table)												
<b>5</b>	- C = Ceramic Puk												
<b>6</b>	- F = Fast recovery												