Ruttonsha International Rectifier Ltd.

RUTTONSHA

SILICON RECTIFIERS

TYPE:R1650K..F SERIES

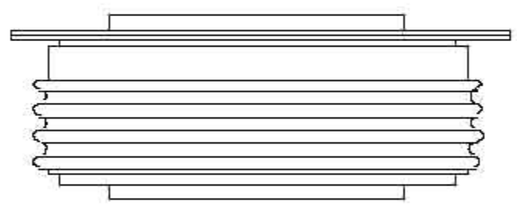
FAST RECOVERY DIODES

Hockey Puk Version

1650A

Features

- High power FAST recovery diode series
- High voltage ratings up to 3000V
- High current capability
- Optimized turn on and turn off characteristics
- Low forward recovery
- Fast and soft reverse recovery
- Press-puk encapsulation
- Case style : DO-200AC (K-PUK)
- Maximum junction temperature 150°C



case style DO-200AC (K-PUK)

Typical Applications

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

Major Ratings and Characteristics

Parameters		R1650K..F	Units
$I_{F(AV)}$		1650	A
	@ T_{hs}	55	°C
$I_{F(RMS)}$		2590	A
I_{FSM}	@ 50Hz	22000	A
V_{RRM} range		1800 to 3000	V
t_{rr}		5.0	µs
	@ T_J	25	°C
T_J		- 40 to 150	°C

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
R1650K..F	18	1800	1900	75
	22	2200	2300	
	25	2500	2600	
	28	2800	2900	
	30	3000	3100	

Forward Conduction

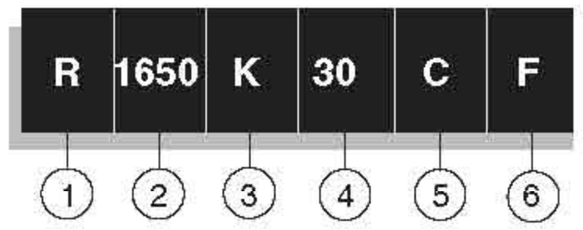
	Parameter	R1650K..F	Units	Conditions	
$I_{F(AV)}$	Max. average forward current	1650	A	180° conduction, half sine wave	
	@ heatsink temperature	55	°C	Double side (single side) cooled	
$I_{F(RMS)}$	Max. RMS forward current	2590	A	@ 55°C heatsink temperature double side cooled	
I_{FSM}	Max. peak, one-cycle forward, non-repetitive surge current	22000	A	t = 10ms	Sinusoidal half wave, Initial $T_J = T_J$ max.
I^2t	Maximum I^2t for fusing	2421	KA^2s	t = 10ms	
$I^2\sqrt{t}$	Maximum $I^2\sqrt{t}$ for fusing	24210	$KA^2\sqrt{s}$	t = 0.1 to 10ms, no voltage reapplied	
$V_{F(TO)}$	Threshold voltage	1.31	V	$T_J = T_J$ max.	
r_f	Forward slope resistance	0.4	mΩ	$T_J = T_J$ max.	
V_{FM}	Max. forward voltage drop	2.60	V	I_{pk}= 4000A, $T_J = T_J$ max, t_p = 10ms sinusoidal wave	
trr	Reverse Recovery time	5.0	us	IFM=1000A, di/dt=100A/us	

Thermal and Mechanical Specifications

	Parameter	R1650K..F	Units	Conditions
T_J	Max. junction operating temperature range	-40 to 150	°C	
T_{stg}	Max. storage temperature range	-40 to 150		
$R_{thJ\text{-}hs}$	Max. thermal resistance, case junction to heatsink	0.02	K/W	DC operation double side cooled
F	Mounting force, ± 10%	22250 (2250)	N (Kg)	
wt	Approximate weight	425	g	
	Case style	DO-200AC (K-PUK)		See Outline Table

Ordering Information Table

Device Code

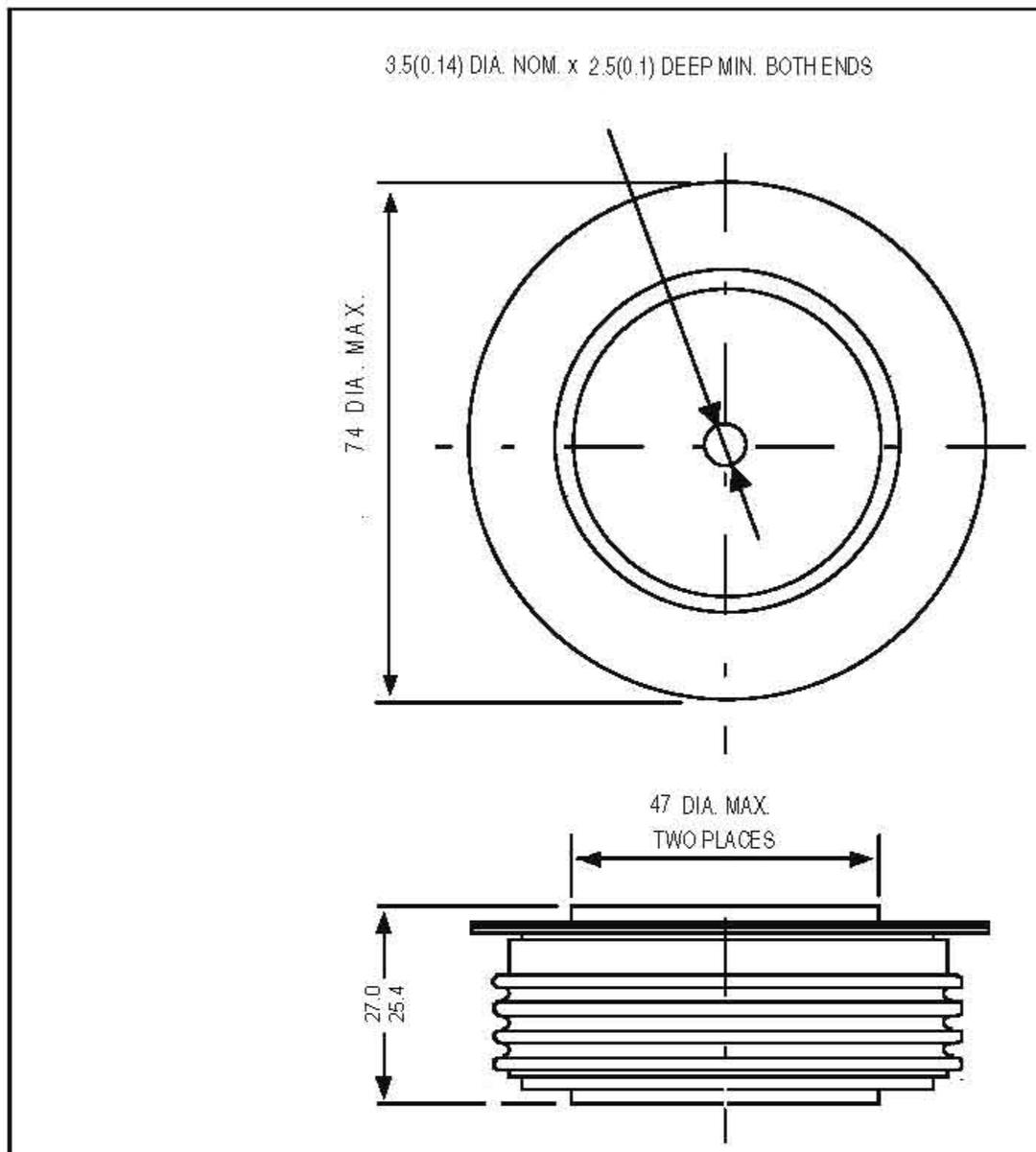


1 - R = Diode
2 - Essential part number
3 - K = Puk Case DO-200AC (K-PUK)
4 - Voltage code: Code x 100 = V_{RRM} (See Voltage Ratings table)
5 - C = Ceramic Puk
6 - F = Fast recovery

SILICON RECTIFIERS

R1650K...F Series

Outline Table



Case Style DO-200AC (K-PUK)

All dimensions in millimeters

Quote between upper and lower pole pieces has to be considered after application of Mounting Force (see Thermal and Mechanical Specification)

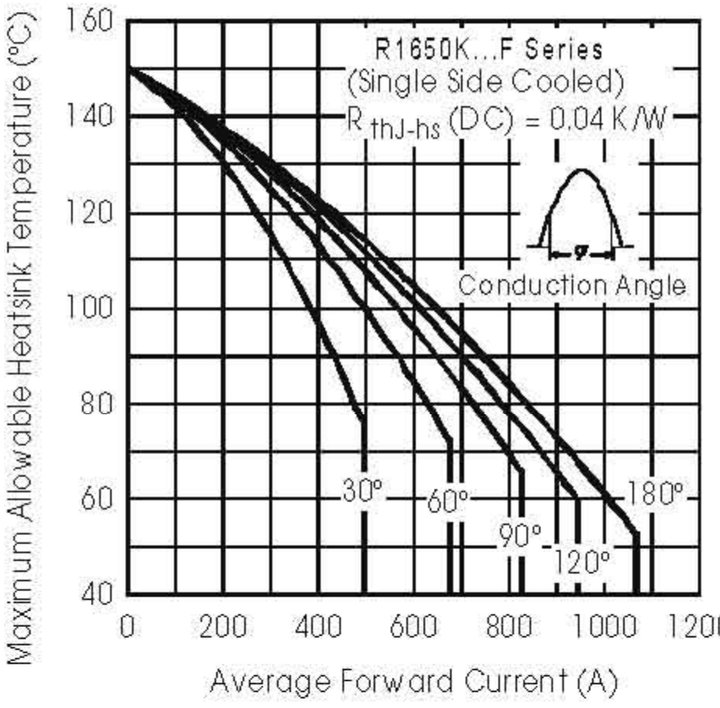


Fig. 1 - Current Ratings Characteristics

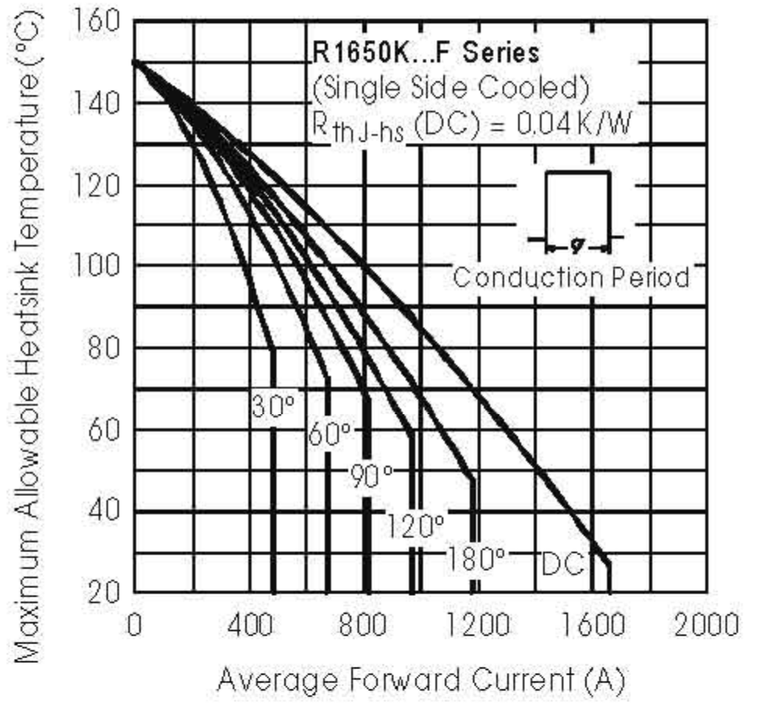


Fig. 2 - Current Ratings Characteristics