

Diode type DB3-5000 are of modern design with pressure contacts, high alumina ceramic insulator and cold-welding encapsulation. Designed for use in power rectifying circuits and equipment under normal operating conditions.

KEY PARAMETERS

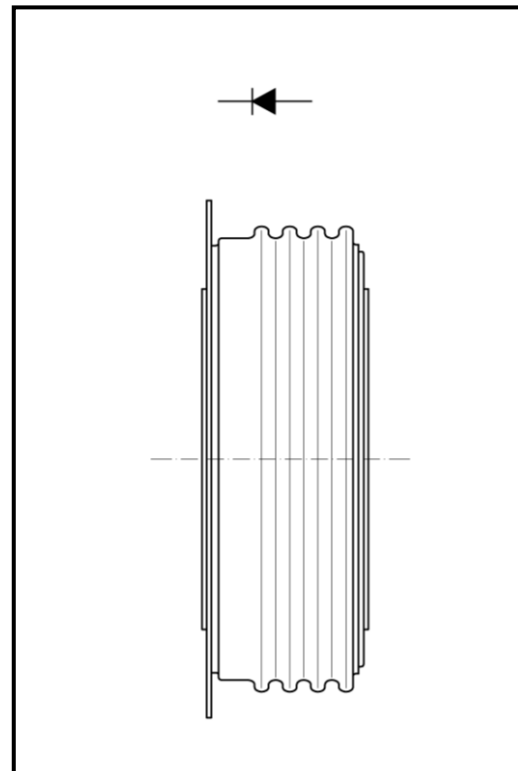
U_{RRM}	up to 3200 V
$I_{F(AV)}$	5000 A
I_{FSM}	62000 A

FEATURES

- all diffused design
- high current capabilities
- high surge current capabilities
- high rated voltages
- low thermal impedance
- tested according to IEC standards

APPLICATION

- High Voltage Power Supplies
- Motor Control
- Battery Chargers
- Free Wheeling Diode
- Resistance Welding



Outline type code: JEDEC DO-200AE
See Package Details for further information

Designed for use in high power industrial and commercial electronic circuits and equipment where high currents are encountered and high reliability is essential. Low forward voltages let minimize energy loss.

ORDERING INFORMATION

When ordering please refer to device code builder presented below.
Please use the complete part number when ordering, quote or in any future correspondence relating to your order.

DB3-5000-□□

voltage class (hundreds of volts)

ELECTRICAL PARAMETERS

Voltage ratings

Voltage class	U_{RRM}	U_{RSM}	I_{RRM}
	V	V	mA
20	2000	2100	100
22	2200	2300	
24	2400	2500	
26	2600	2700	
28	2800	2900	
30	3000	3100	
32	3200	3300	

Electrical properties

Parameter	Unit	Test conditions	Value	
Average forward current @ case temperature	$I_{F(AV)}$	A	5000	
	T_c	°C	85	
RMS forward current	$I_{F(RMS)}$	A	7850	
Surge current	I_{FSM}	$T_j=175^\circ\text{C}, U_R=0\text{V}, t_p=10\text{ms}$	62kA	
		$T_j=175^\circ\text{C}, U_R=0,6U_{RRM}, t_p=10\text{ms}$	53kA	
I^2t – value	I^2t	$T_j=175^\circ\text{C}, U_R=0\text{V}, t_p=10\text{ms}$	19220	
		$T_j=175^\circ\text{C}, U_R=0,6U_{RRM}, t_p=10\text{ms}$	14000	
Forward voltage drop max.	U_{FM}	V	$T_j=175^\circ\text{C}, I_{FM}=4000\text{A}$	0,98
Threshold voltage	$U_{F(T0)}$	V		0,706
Slope resistance	r_F	mΩ		0,0707
Vfm model 4-term $V_{fm}=A+B*\ln(I_{fm})+C*I_{fm}+D*(I_{fm})^{1/2}$			A=-0,90913 B=0,279859 C=0,0001094 D=-0,01363765	
Reverse recovery time	t_{rr}	μs	$T_j=25^\circ\text{C}, I_{FM}=2000\text{A}, di_R/dt=25\text{A}/\mu\text{s}$	25

Thermal properties

Parameter	Unit	Test conditions	Value	
Thermal resistance, junction to case	R_{thJC}	°C/W	two sided, DC	0,011
Thermal resistance, case to heatsink	R_{thCS}	°C/W	two sided	0,002
Operating junction temperature	$T_{jmin}...T_{jmax}$	°C		-40...+175
Storage temperature	T_{stg}	°C		-40...+150

Thermal Impedance Model

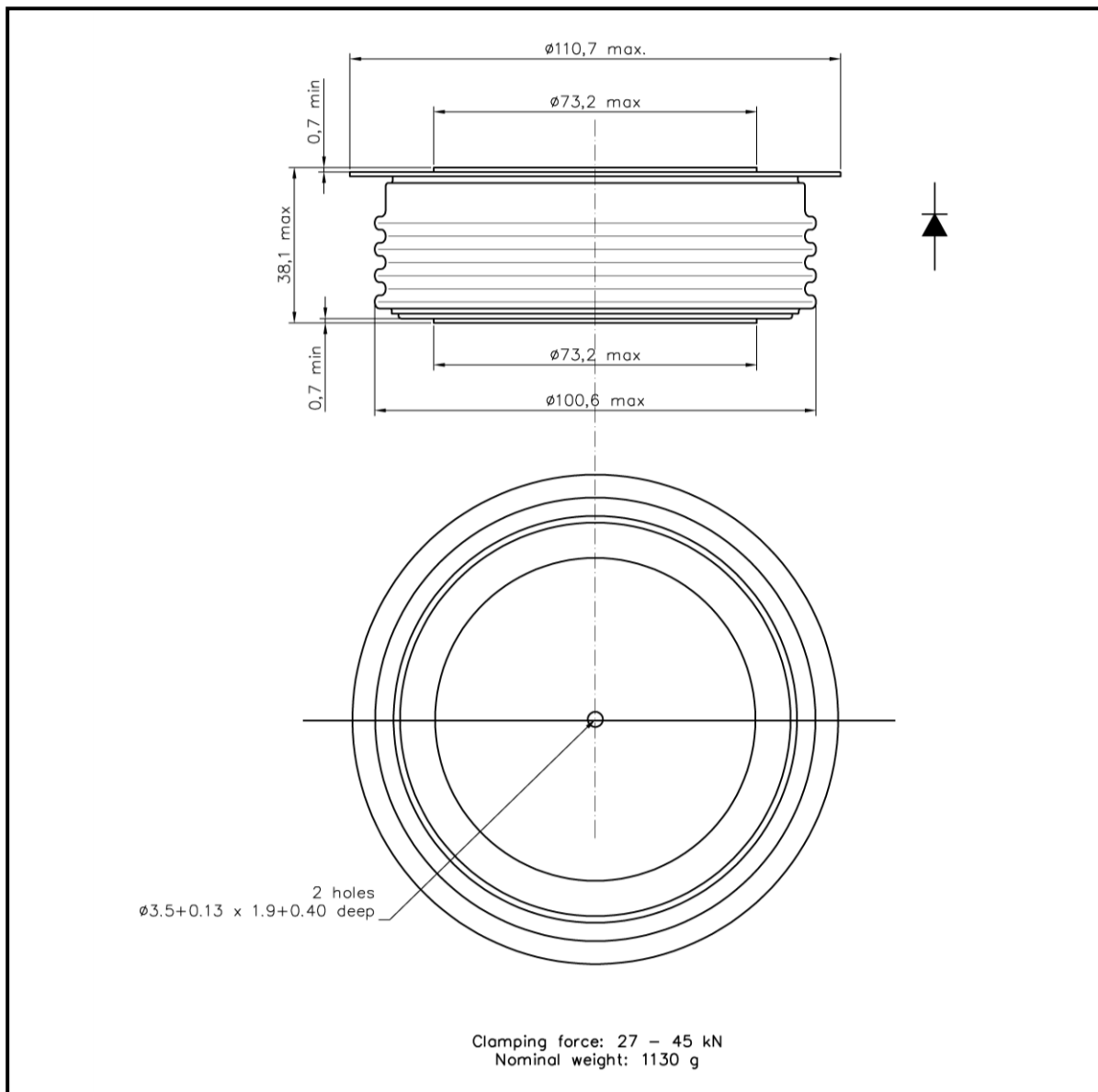
$$Z_{th}(t) = \sum_1^N r_N \left(1 - e^{-\frac{t}{\tau_N}} \right)$$

The coefficients for this device are shown in the tables below:

Double side cooled				
N	1	2	3	4
r_N	$6,786 \times 10^{-4}$	$2,419 \times 10^{-3}$	$7,925 \times 10^{-3}$	$9,274 \times 10^{-3}$
τ_N	$5,947 \times 10^{-5}$	$2,762 \times 10^{-2}$	$4,011 \times 10^{-1}$	4,012

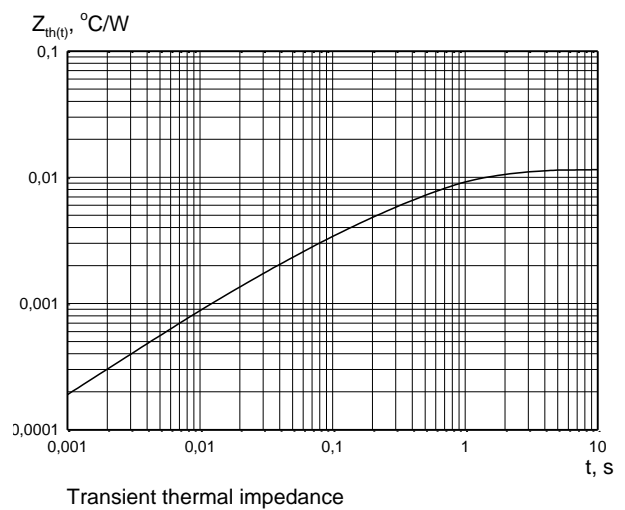
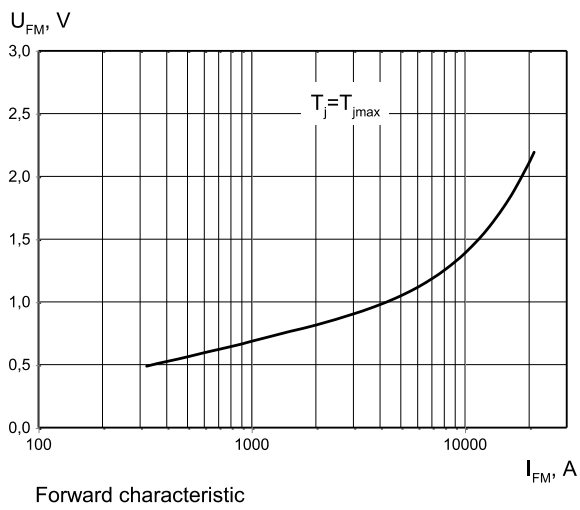
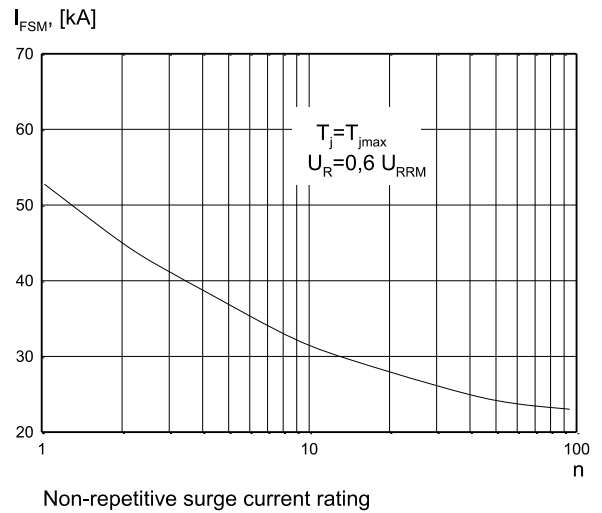
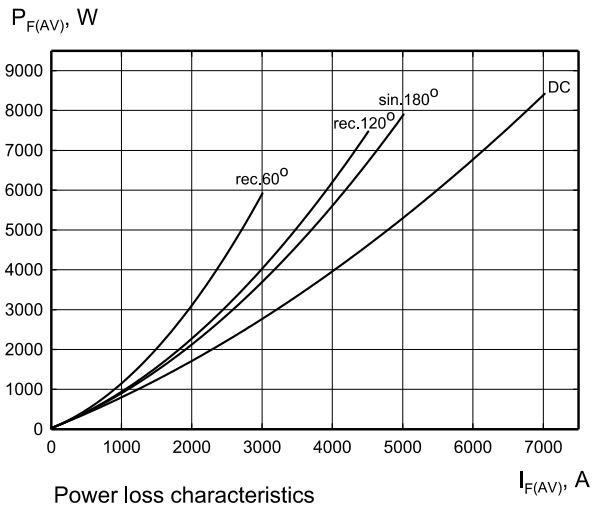
Mechanical properties

Parameter		Unit	Value
Clamping force	F_M	kN	27... 45
Weight	m	g	1130

Package details

For further package information, please contact Sales & Marketing Department. All dimensions in mm, unless stated otherwise.
Do not scale.

CHARACTERISTICS



HEATSINKS

KUBARA LAMINA SA has its own proprietary range of extruded aluminium heatsinks designed to optimise the performance of our semiconductors with natural and forced air flow. High efficiency water cooled copper heatsinks are also available.

DEVICE CLAMPS

Disc devices require the correct clamping force to ensure their best operation.

KUBARA LAMINA SA offers a wide selection of clamps to suit all of our manufactured devices.

POWER ASSEMBLY CAPABILITY

KUBARA LAMINA SA provides a support for those customers requiring more than a basic semiconductor and offers precisely assembled Power Blocks according to factory or customer standards.