5SDD 65H2400

Old part no. DV 889-6500-24

Rectifier Diode

Properties

- ③ Industry standard housing
- ③ Suitable for parallel operation
- ③ High operating temperature
- ③ Low forward voltage drop

Key Parameters

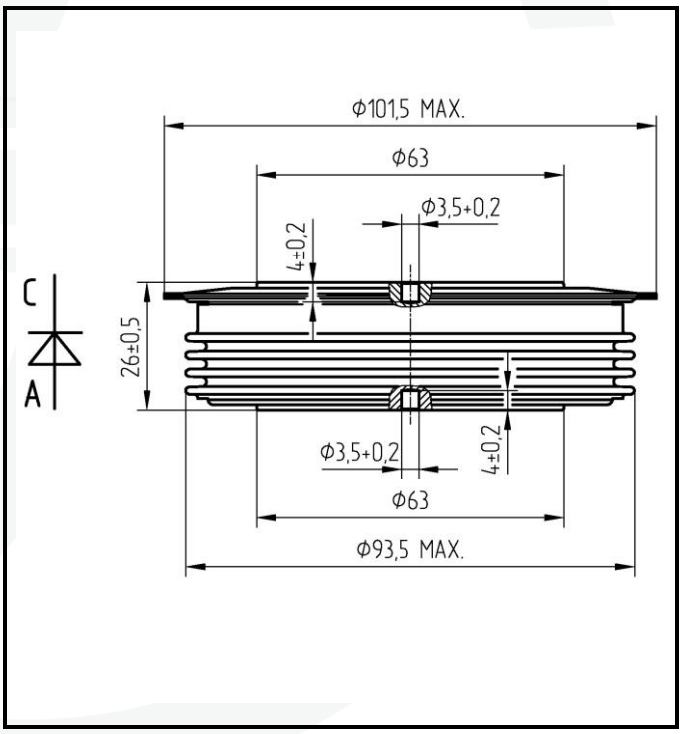
V_{RRM}	=	2 400	V
I_{FAVm}	=	6 520	A
I_{FSM}	=	59 000	A
V_{TO}	=	0.870	V
r_T	=	0.057	m:

Types

	V_{RRM}
5SDD 65H2400	**2 400 V**
Conditions:	*T_j = 0 ÷ 190 °C, half sine waveform, f = 50 Hz*

F_m	**Mounting force**	**50 ± 5 kN**
m	**Weight**	**0.9 kg**
D_S	**Surface creepage distance**	**40 mm**
D_a	**Air strike distance**	**20 mm**

Mechanical Data



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Maximum Ratings			Maximum Limits	Unit
V_{RRM}	**Repetitive peak reverse voltage** T_j = 0 ÷ 190 °C		**2 400**	**V**
I_{FAVm}	**Average forward current** T_c = 85 °C		**6 520**	**A**
I_{FRMS}	**RMS forward current** T_c = 85 °C		**10 240**	**A**
I_{RRM}	**Repetitive reverse current** $V_R = V_{RRM}$		**150**	**mA**
I_{FSM}	**Non repetitive peak surge current** V_R = 0 V, half sine pulse	t_p = 8.3 ms	**63 000**	**A**
		t_p = 10 ms	**59 000**	**A**
I^2t	**Limiting load integral** V_R = 0 V, half sine pulse	t_p = 8.3 ms	**16 490 000**	**A^2s**
		t_p = 10 ms	**17 405 000**	**A^2s**
T_{jmin} - T_{jmax}	**Operating temperature range**		**0 ÷ 190**	**°C**
T_{STG}	**Storage temperature range**		**-40 ÷ 190**	**°C**

Unless otherwise specified T_j = 190 °C

Characteristics		Value			Unit
		min	typ	max	
V_{T0} r_T	**Threshold voltage**			**0.870**	**V**
	Forward slope resistance I_{F1} = 10 241 A, I_{F2} = 30 725 A			**0.057**	**m:**
V_{FM}	**Maximum forward voltage** I_{FM} = 4 000 A			**1.100**	**V**
Q_{rr}	**Recovered charge** V_R = 100 V, I_{FM} = 2000 A, di_F/dt = -30 A/µs		**4 400**		**µC**

Unless otherwise specified T_j = 190 °C

Thermal Parameters	Value	Unit

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R_{thjc}	**Thermal resistance junction to case**	*double side cooling*	**8.0**	**K/kW**
		anode side cooling	**14.5**	
		cathode side cooling	**18.0**	
R_{thch}	**Thermal resistance case to heatsink**	*double side cooling*	**2.5**	**K/kW**
		single side cooling	**5.0**	

Transient Thermal Impedance

Analytical function for transient thermal impedance

$$Z_{thjc} = \sum_{i=1}^{4} R_i (1 - \exp(t / W_i))$$

Conditions:

F_m = 50 ± 5 kN, Double side cooled

Correction for periodic waveforms

180° sine:	**1.0 K/kW**
120° sine:	**1.5 K/kW**
60° sine:	**2.5 K/kW**
180° rectangular:	**0.9 K/kW**
120° rectangular:	**1.5 K/kW**
60° rectangular:	**2.5 K/kW**

i	1	2	3	4
W_i (s)	**0.4406**	**0.1045**	**0.0092**	**0.0022**
R_i(K/kW)	**4.533**	**2.255**	**0.868**	**0.345**

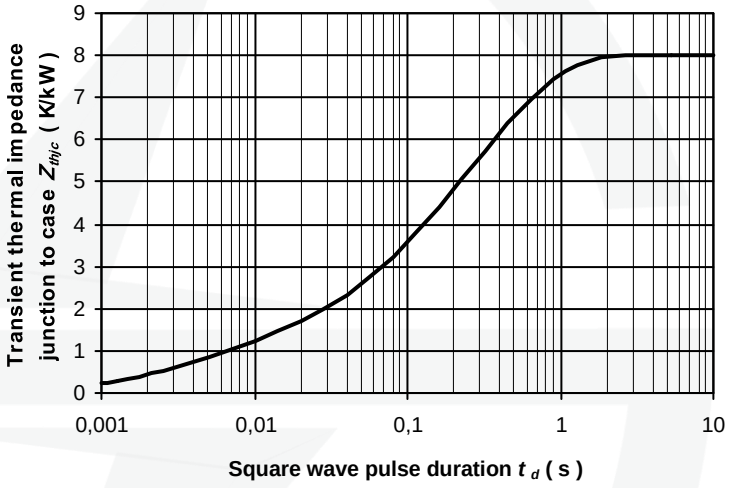

Fig. 2 Dependence transient thermal impedance junction to case on square pulse

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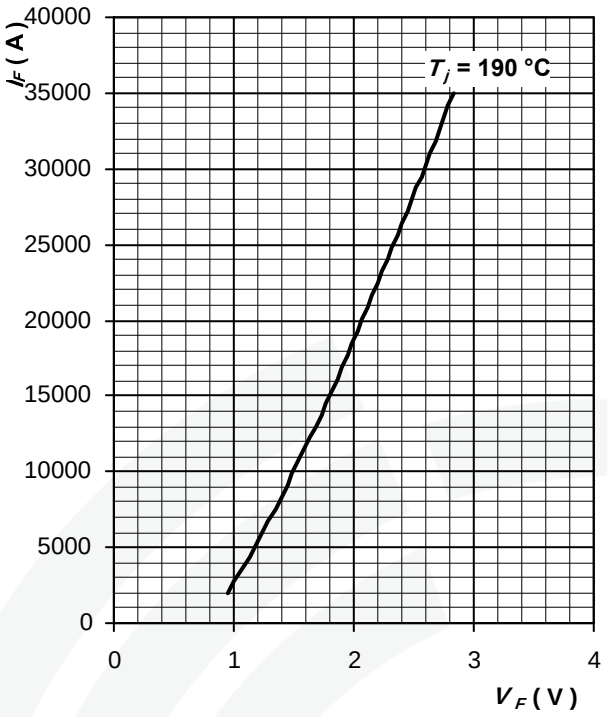
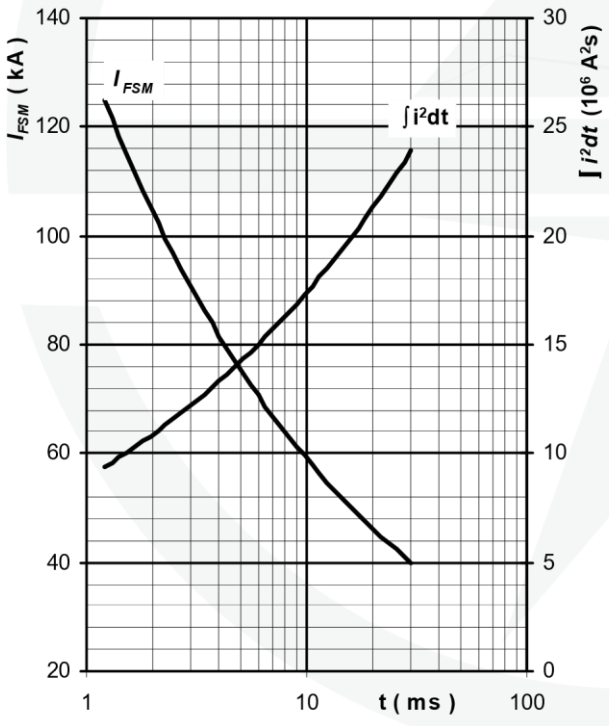


Fig. 3 Maximum forward voltage drop characteristics



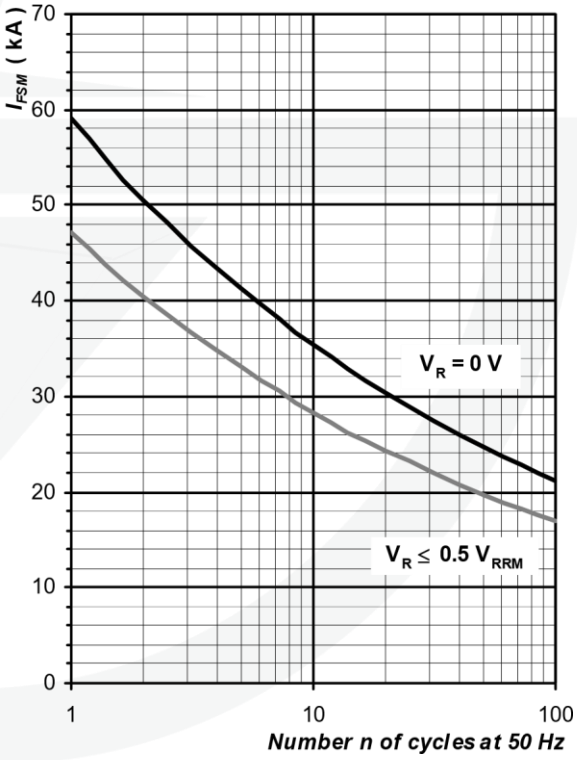
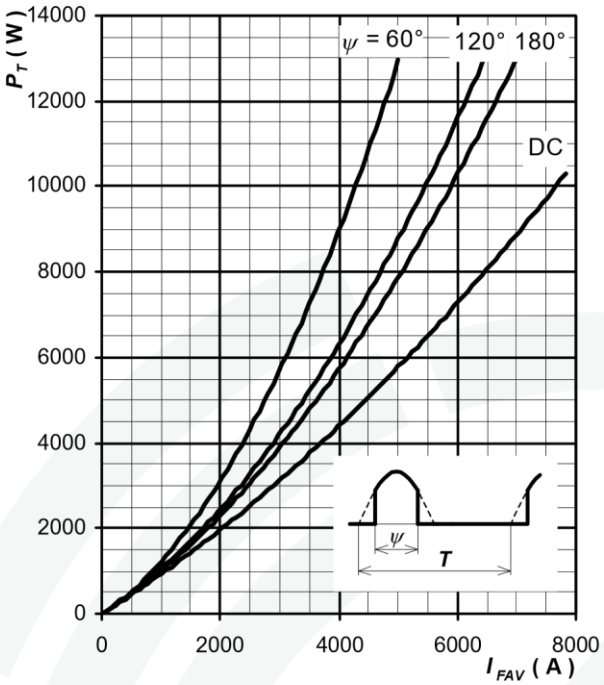


Fig. 6 Forward power loss vs. average forward current, sine waveform, f = 50 Hz, T = 1/f

Fig. 7 Forward power loss vs. average forward current, square waveform, f = 50 Hz, T = 1/f



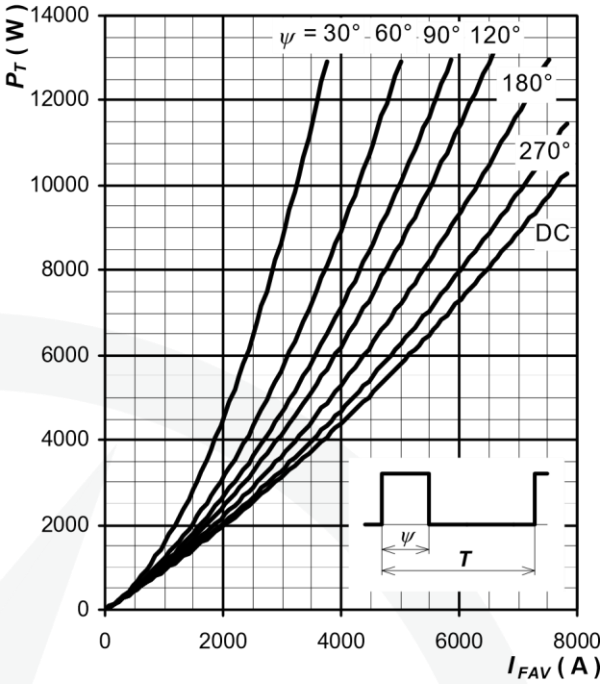
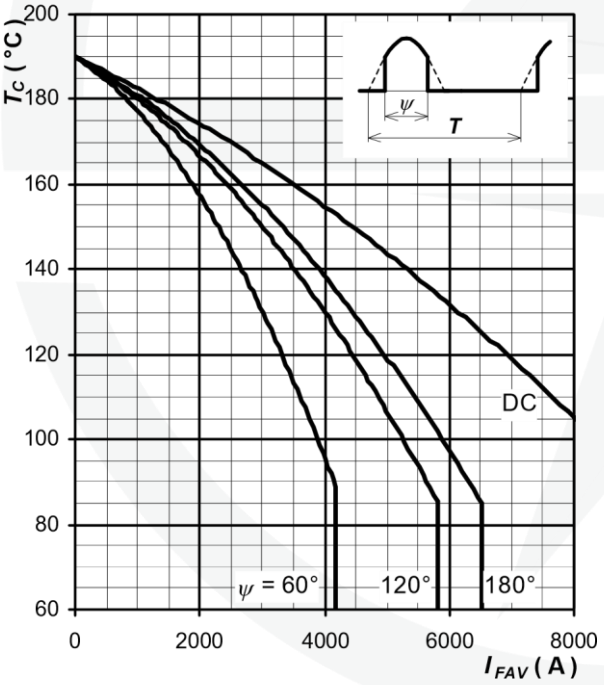


Fig. 4 Surge forward current vs. pulse length, V_R = 0 V, $T_j = T_{jmax}$

Fig. 5 Surge forward current vs. number half sine wave, single pulse, of pulses, half sine wave, $T_j = T_{jmax}$



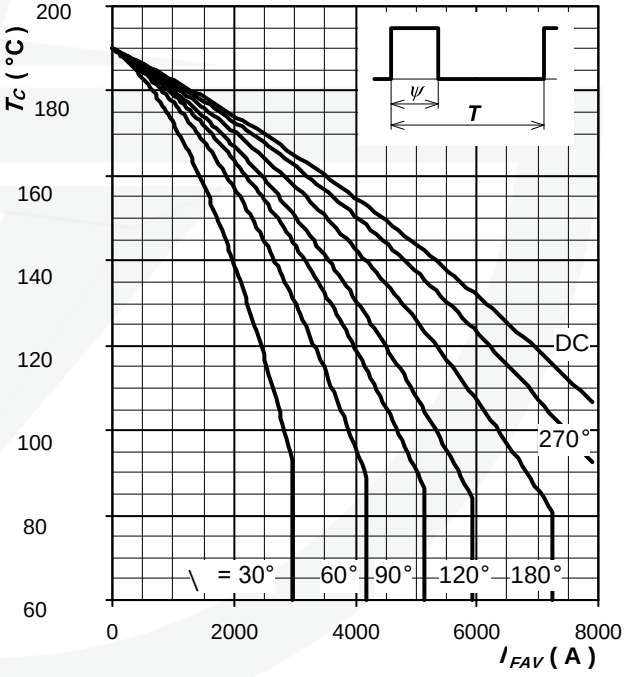


Fig. 8 Max. case temperature vs. aver. forward current, sine waveform, f = 50 Hz, T = 1/f

Fig. 9 Max.case temperature vs. aver. forward current, square waveform,f = 50 Hz, T = 1/f

Notes:

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