5SDD 06D6000

Old part no. DV 817-630-60

High Voltage Diode

Properties

- Low forward voltage drop
- Low recovery charge
- High operating temperature
- Low leakage current

Applications

- Rectifier bridges

Key Parameters

V_{RRM}	=	6 000	V
I_{FAVm}	=	662	A
I_{FSM}	=	10 500	A
V_{TO}	=	1.066	V
r_T	=	0.778	mΩ

Types

	V_{RRM}
5SDD 06D6000	**6 000 V**
Conditions:	*T_j = -40 ÷ 150 °C, half sine waveform, f = 50 Hz*

Mechanical Data

F_m	**Mounting force**	**11 ± 1**	**kN**
m	**Weight**	**0.25**	**kg**
D_S	**Surface creepage distance**	**30**	**mm**
D_a	**Air strike distance**	**18.5**	**mm**

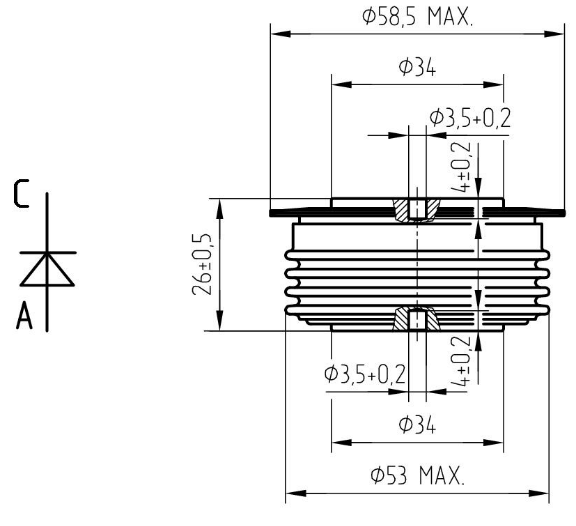

Fig. 1 Case

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Maximum Ratings			Maximum Limits	Unit
V_{RRM}	**Repetitive peak reverse voltage** T_j = -40 ÷ 150 °C		**6 000**	**V**
I_{FAVm}	**Average forward current** T_c = 85 °C		**662**	**A**
I_{FRMS}	**RMS forward current**		**1 040**	**A**
I_{RRM}	**Repetitive reverse current** $V_R = V_{RRM}$		**50**	**mA**
I_{FSM}	**Non repetitive peak surge current** V_R = 0 V, half sine pulse, T_j = 25 °C	t_p = 8.3 ms	**12 500**	**A**
		t_p = 10 ms	**11 700**	**A**
	Non repetitive peak surge current V_R = 0 V, half sine pulse	t_p = 8.3 ms	**11 200**	**A**
		t_p = 10 ms	**10 500**	**A**
I^2t	**Limiting load integral** V_R = 0 V, half sine pulse, T_j = 25 °C	t_p = 8.3 ms	**648 000**	**A^2s**
		t_p = 10 ms	**684 450**	**A^2s**
	Limiting load integral V_R = 0 V, half sine pulse	t_p = 8.3 ms	**522 000**	**A^2s**
		t_p = 10 ms	**551 250**	**A^2s**
T_{jmin} - T_{jmax}	**Operating temperature range**		**-40 ÷ 150**	**°C**
T_{STG}	**Storage temperature range**		**-40 ÷ 150**	**°C**

Unless otherwise specified T_j = 150 °C

Characteristics		Value			Unit
		min	typ	max	
V_{T0}	**Threshold voltage**, I_{F1} = 1 040 A, I_{F2} = 3 120 A;			**1.066**	**V**
r_T	**Forward slope resistance**			**0.778**	**mΩ**
V_{FM}	**Maximum forward voltage** I_{FM} = 900 A			**1.750**	**V**
Q_{rr}	**Recovered charge** V_R = 100 V, I_{FM} = 1 000 A, di_F/dt = -10 A/µs		**2 000**		**µC**

Unless otherwise specified T_j = 150 °C

Thermal Parameters			**Value**	**Unit**
R_{thjc}	**Thermal resistance junction to case**	*double side cooling*	**42**	**K/kW**
		anode side cooling	**70**	
		cathode side cooling	**105**	
R_{thch}	**Thermal resistance case to heatsink**	*double side cooling*	**8**	**K/kW**
		single side cooling	**16**	

Transient Thermal Impedance

Analytical function for transient thermal impedance

$$Z_{thjc} = \sum_{i=1}^{5} R_i (1 - \exp(-t / \tau_i))$$

Conditions:
F_m = 11 ± 1 kN, Double side cooled

i	1	2	3	4	5
R_i(K/kW)	23.59	14.17	1.33	2.79	0.12
τ_i (s)	0.4271	0.1337	0.0366	0.0050	0.0009

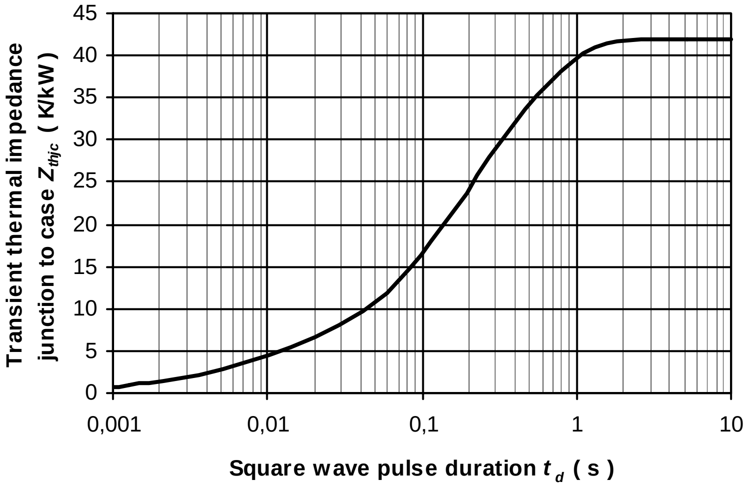

Fig. 2 Dependence transient thermal impedance junction to case on square pulse

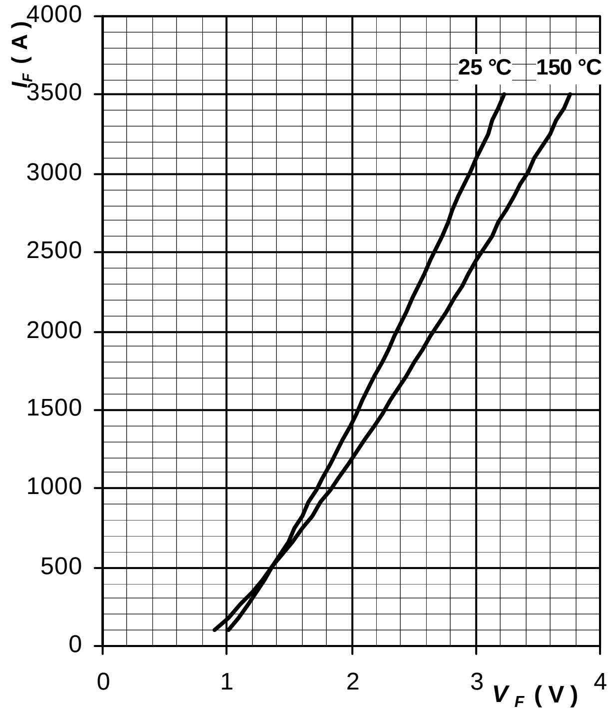

Fig. 3 Maximum forward voltage drop characteristics

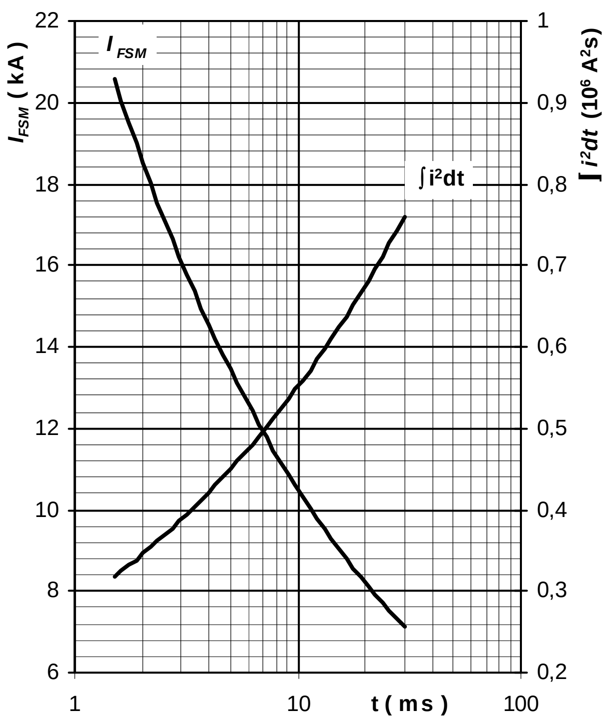

Fig. 4 Surge forward current vs. pulse length, half sine wave, single pulse, V_R = 0 V, $T_j = T_{jmax}$

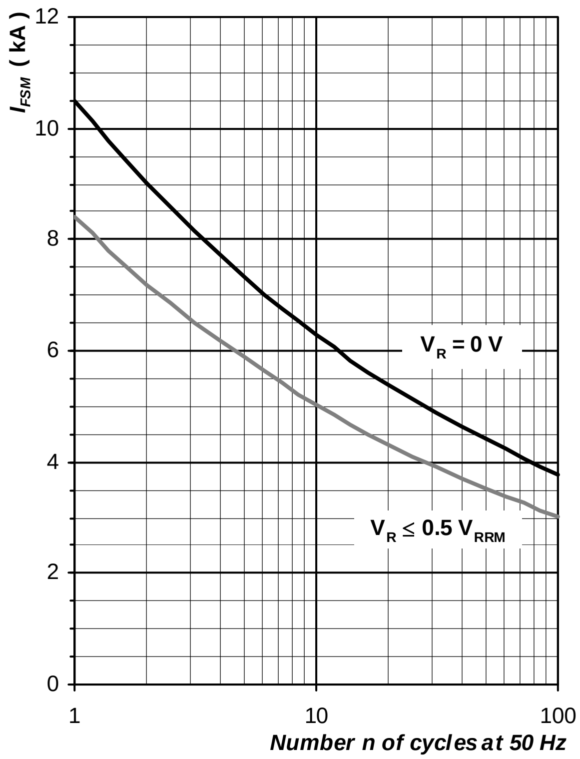

Fig. 5 Surge forward current vs. number of pulses, half sine wave, $T_j = T_{jmax}$

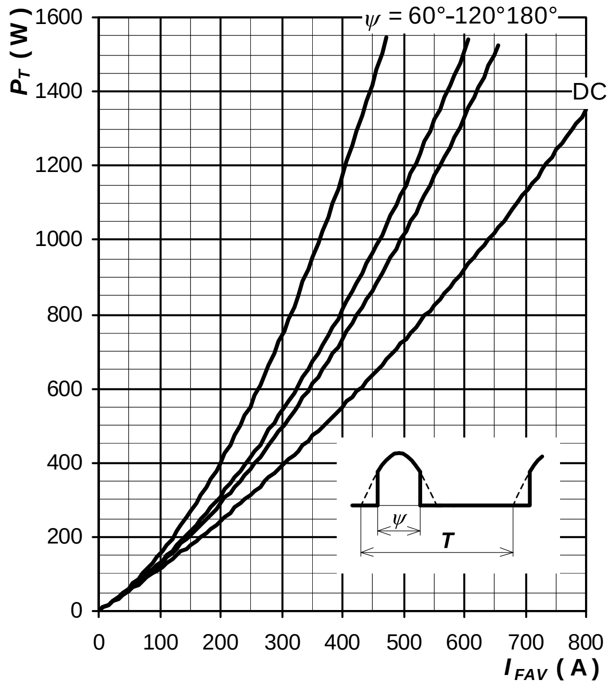

Fig. 6 Forward power loss vs. average forward current, sine waveform, f = 50 Hz, T = 1/f

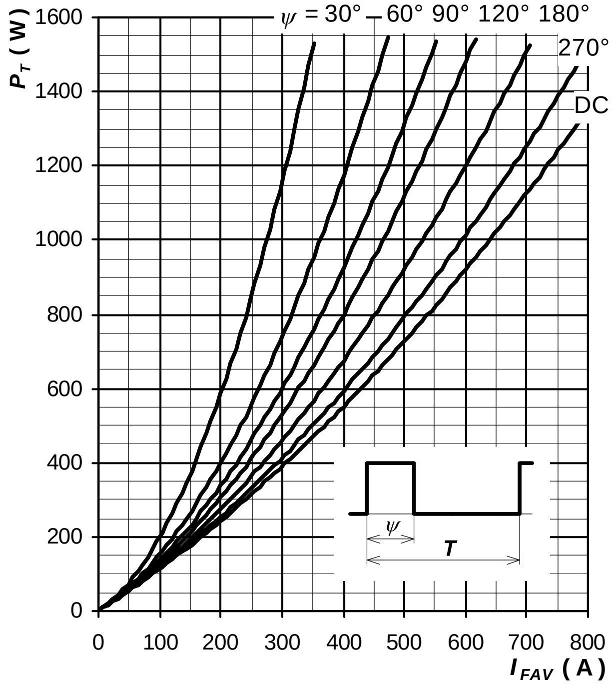

Fig. 7 Forward power loss vs. average forward current, square waveform, f = 50 Hz, T = 1/f

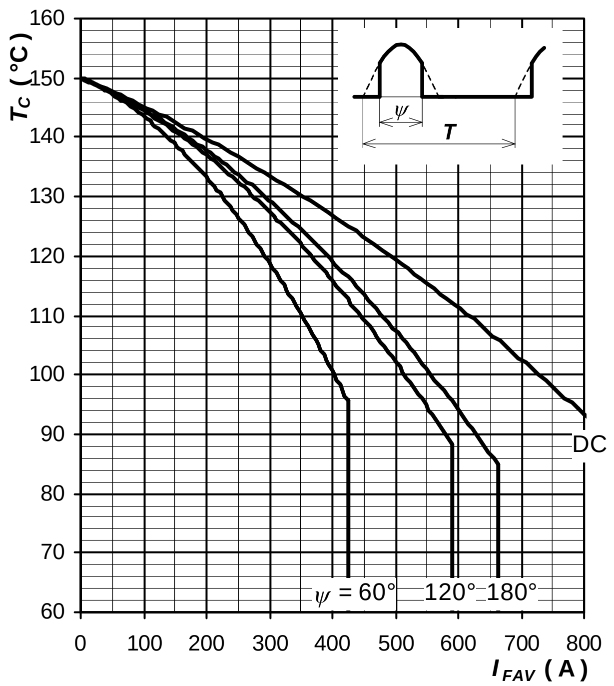

Fig. 8 Max. case temperature vs. aver. forward current, sine waveform, f = 50 Hz, T = 1/f

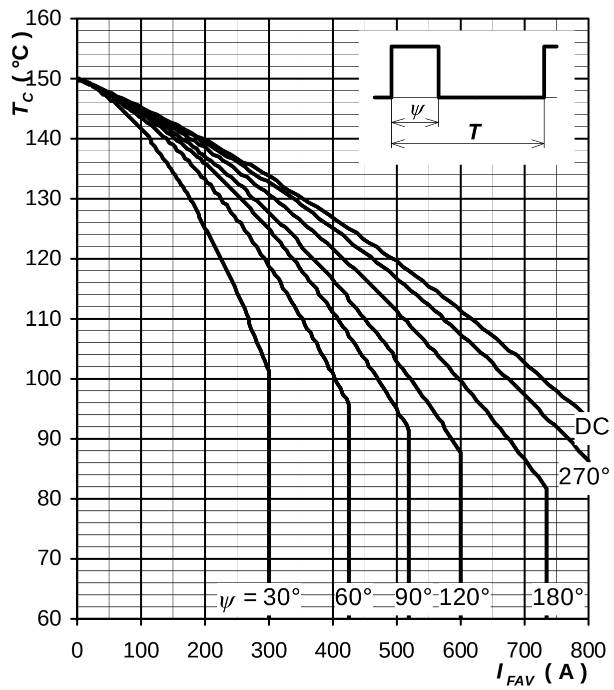

Fig. 9 Max.case temperature vs. aver. forward current, square waveform, f = 50 Hz, T = 1/f

Notes: