

5SDD 06D6000

Old part no. DV 817-630-60

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

High Voltage Diode

Properties

- ③ Low forward voltage drop
- ③ Low recovery charge
- ③ High operating temperature
- ③ Low leakage current
- ③ Rectifier bridges

Key Parameters

Applications

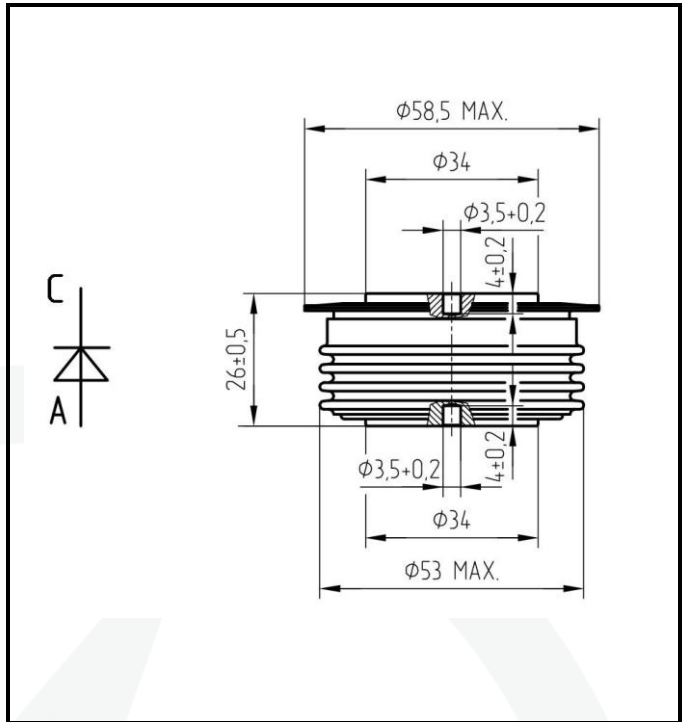
	V_{RRM}
5SDD 06D6000	6 000 V
Conditions:	$T_j = -40 \div 150 \text{ }^\circ\text{C}$, half sine waveform, $f = 50 \text{ Hz}$

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
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Types

Mechanical Data



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

Unless otherwise specified $T_j = 150\text{ }^\circ\text{C}$

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

Unless otherwise specified $T_j = 150\text{ }^\circ\text{C}$

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

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

Conditions:
 $F_m = 11 \pm 1$ kN, Double side cooled

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

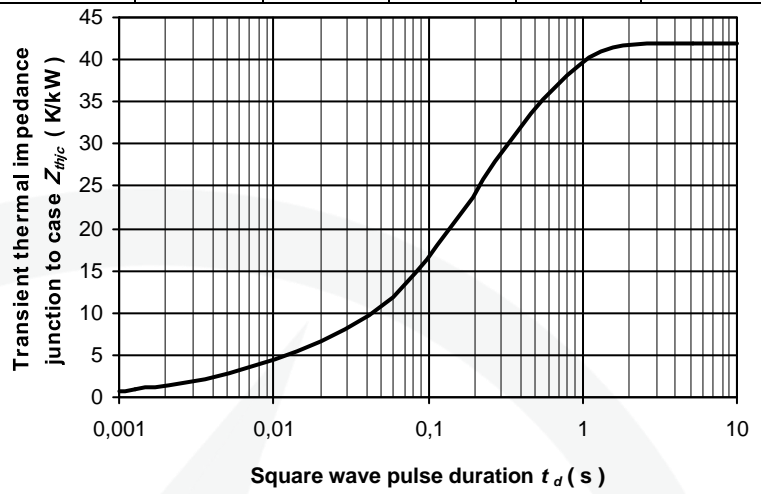


Fig. 2 Dependence transient thermal impedance junction to case on square pulse

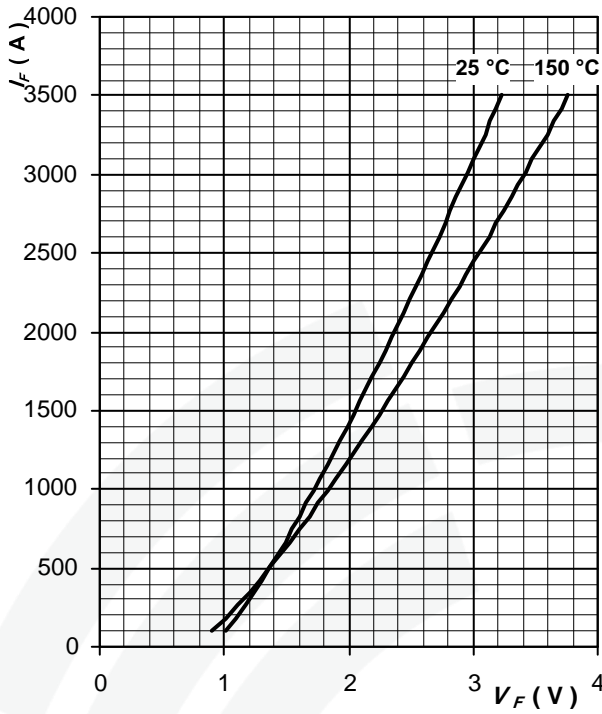


Fig. 3 Maximum forward voltage drop characteristics

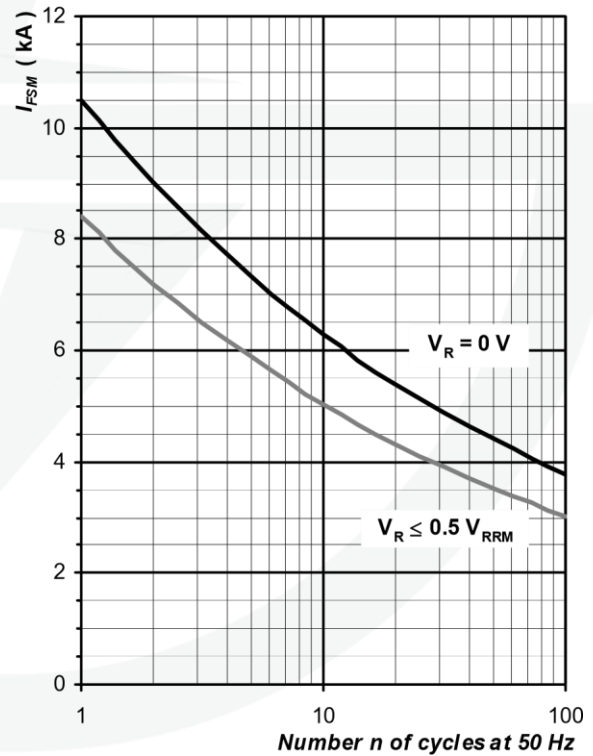
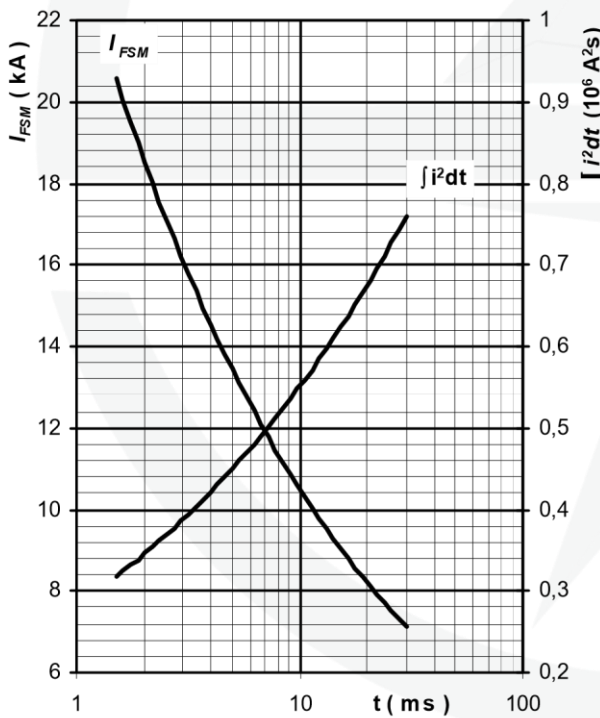


Fig. 4 Surge forward current vs. pulse length, Fig. 5 Surge forward current vs. number half sine wave, single pulse, of pulses, half sine wave, $T_j = T_{jmax}$
 $V_R = 0 V, T_j = T_{jmax}$

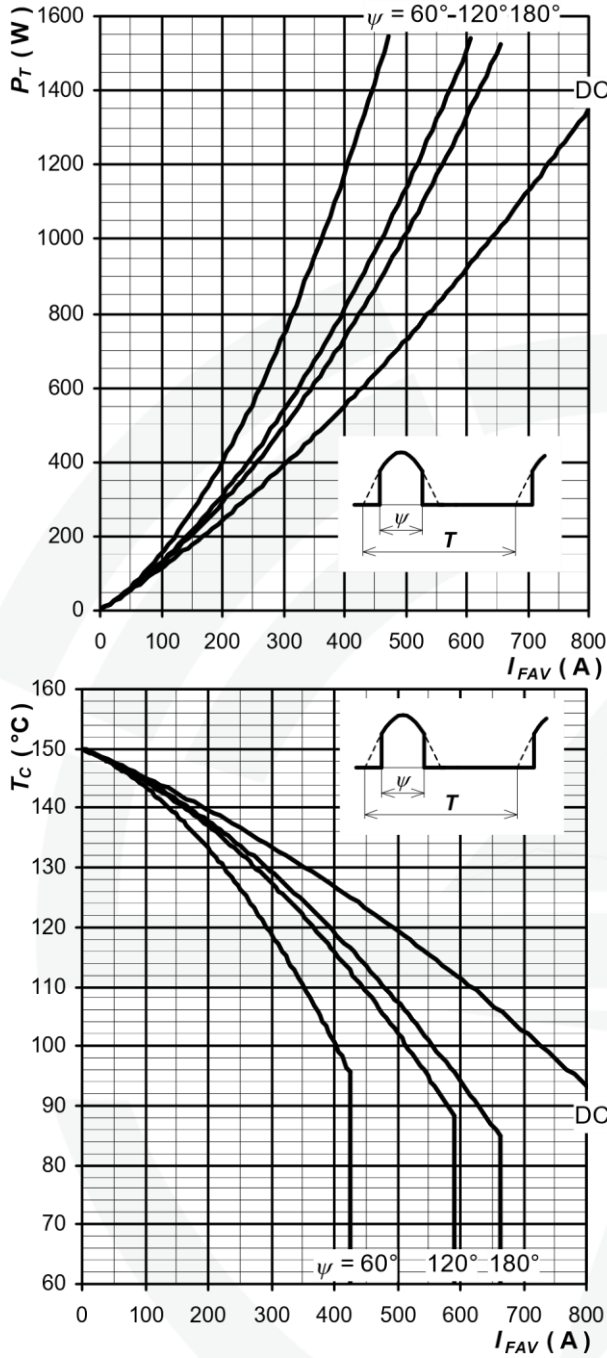


Fig. 8 Max. case temperature vs. aver. forward current, sine waveform, $f = 50 \text{ Hz}$, $T = 1/f$

Notes:

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

