

D809 2000-16-22

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Key Parameters

V_{RRM}	1600~2200	V
$I_{F(AV)}$	2030	A
I_{FSM}	25.7	kA
V_{FO}	0.82	V
r_F	0.156	mΩ

Applications

High power drive
High voltage supplies
Motor control

Features

Double-side cooling
High mean current
High surge current

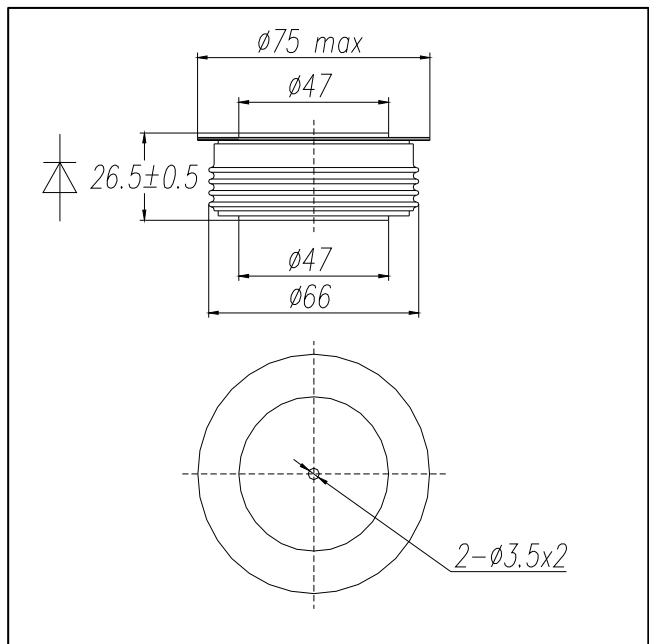
Thermal & Mechanical Data

Symb.	Parameter	Min	Type	Max	Unit
R_{thjc}	Thermal Resistance Junction to Case	-	-	0.02	K/W
R_{thcs}	Thermal Resistance Case to Heatsink	-	-	0.005	K/W
T_{vj}	Junction Temperature	-40	-	175	°C
T_{stg}	Storage Temperature	-40	-	175	°C
F	Mounting Force	-	22	-	kN
m	Weight	-	0.47	-	kg

Voltage Ratings

Device Type	$V_{RRM}(V)$	Test Conditions
D809 2000-16	1600	$T_{vj} = 25, 175 \text{ } ^\circ\text{C}$
D809 2000-18	1800	$I_{RRM} = 150 \text{ mA}$
D809 2000-20	2000	$V_R = V_{RRM}$
D809 2000-22	2200	$t_p = 10\text{ms}$
		$V_{RSM} = V_{RRM} + 100 \text{ V}$

Outline



Current Ratings

Symb.	Parameter	Test Conditions	Min	Type	Max	Unit
$I_{F(AV)}$	Mean Forward Current	Half Sine Wave, $T_C = 100 \text{ } ^\circ\text{C}$	-	-	2030	A
$I_{F(RMS)}$	RMS Forward Current	$T_C = 100 \text{ } ^\circ\text{C}$	-	-	3187	A
I_{FSM}	Surge (non-repetitive) Current	10ms, Half Sine Wave, $T_{vj} = 175 \text{ } ^\circ\text{C}$, $V_R = 0$	-	-	25.7	kA
I^2t	Limiting load integral	Sine Wave, 10ms	-	-	330	$10^4 \text{ A}^2\text{s}$

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Characteristics

Symb.	Parameter	Test Conditions	Min	Type	Max	Unit
V_{FM}	Peak Forward Voltage	$I_{FM} = 1500 \text{ A}$, $T_{vj} = 25 \text{ }^{\circ}\text{C}$	-	-	1.20	V
I_{RRM}	Reverse Repetitive Peak Current	$T_{vj} = 175 \text{ }^{\circ}\text{C}$, V_{RRM}	-	-	150	mA
V_{FO}	Threshold Voltage	$T_{vj} = 175 \text{ }^{\circ}\text{C}$	-	-	0.82	V
r_F	Slope Resistance	$T_{vj} = 175 \text{ }^{\circ}\text{C}$	-	-	0.156	m Ω
Q_r	Reverse Recovery Charge	$T_{vj} = 175 \text{ }^{\circ}\text{C}$	-	4000	-	μC

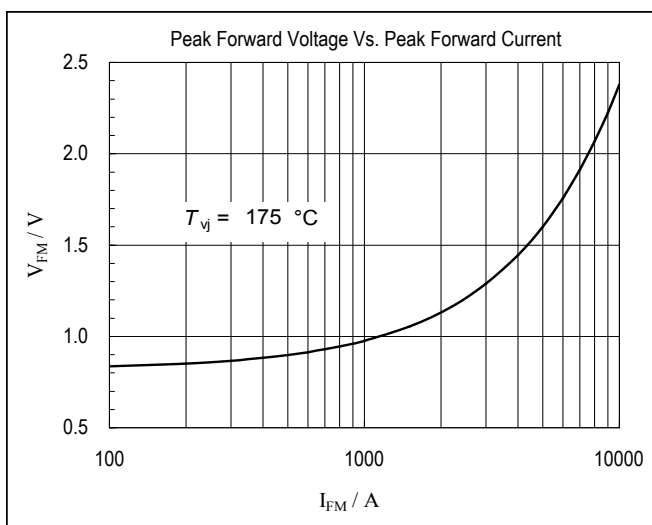


Fig1. Peak Forward Voltage Vs. Peak Forward Current

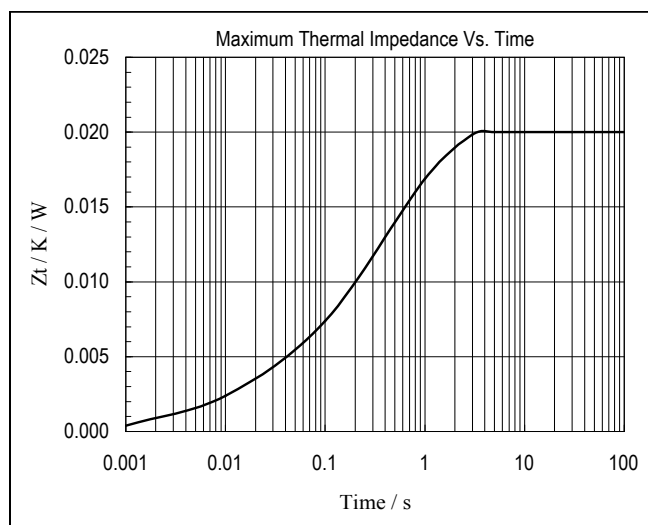


Fig2. Maximum Thermal Impedance Vs. Time

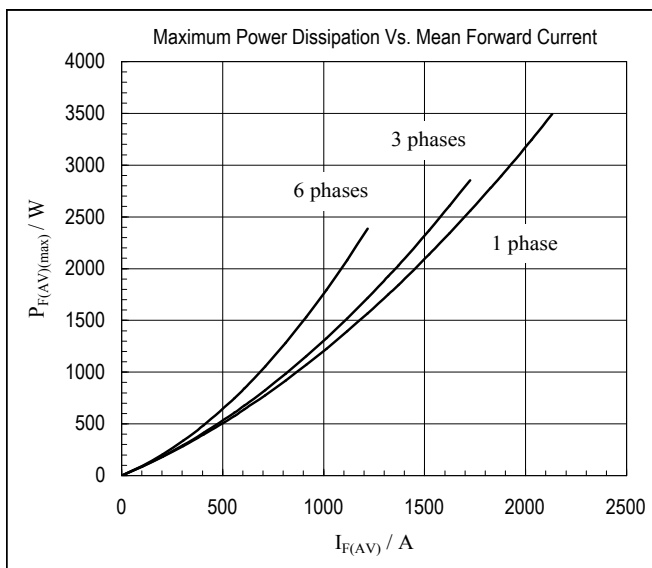


Fig3. Maximum Power Dissipation Vs. Mean Forward Current

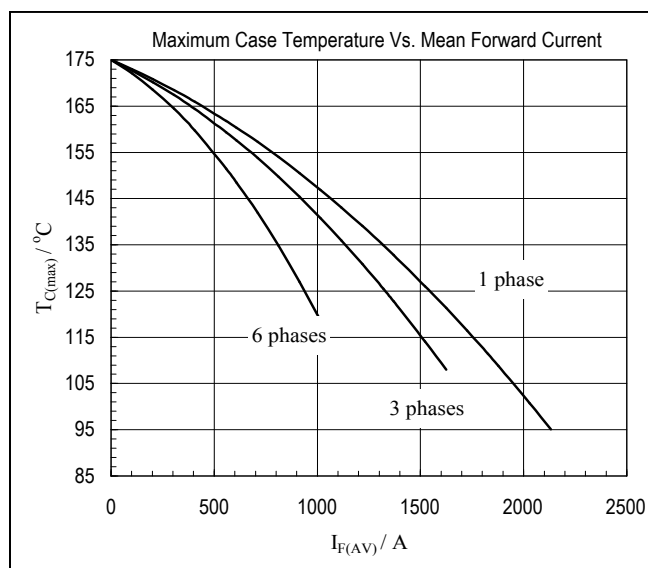


Fig4. Maximum Case Temperature Vs. Mean Forward Current

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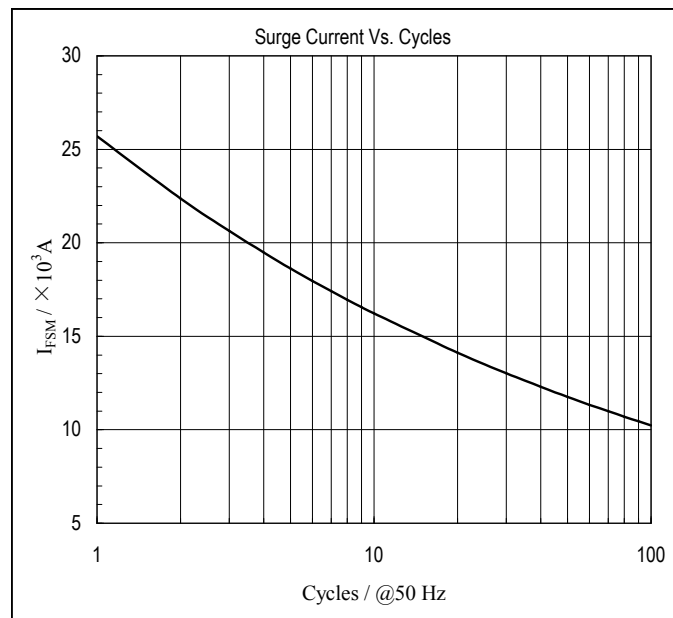


Fig5. Surge Current Vs. Cycles

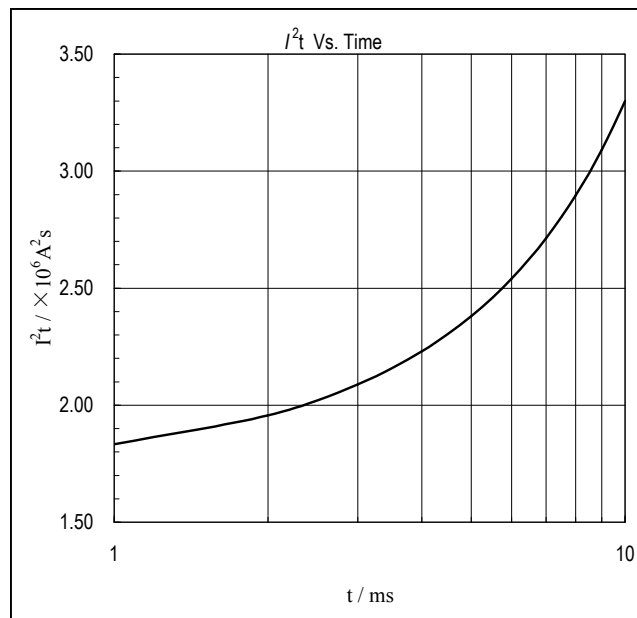


Fig6. I^2t Vs. Time