

D812 4600-36-45

Key Parameters

V_{RRM}	3600~4500	V
$I_{F(AV)}$	4630	A
I_{FSM}	59.4	kA
V_{FO}	0.98	V
r_F	0.086	mΩ

Applications

High power drive
High voltage supplies
Motor control

Features

Double-side cooling
High mean current
High surge current

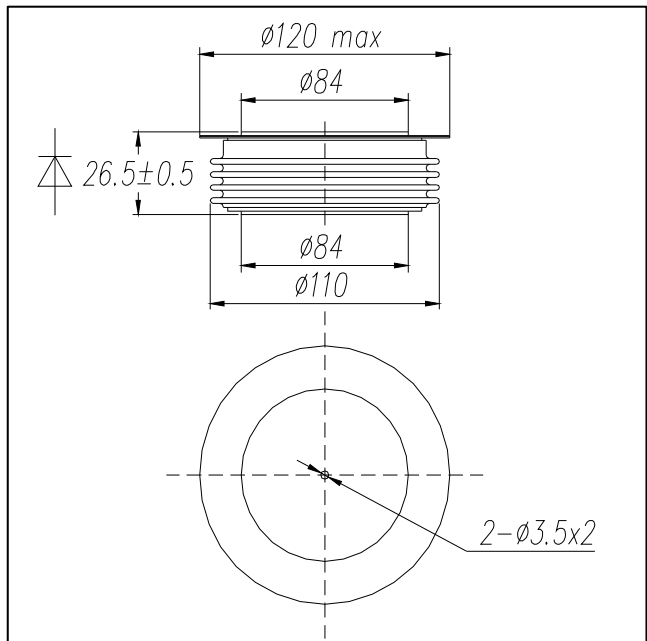
Thermal & Mechanical Data

Symb.	Parameter	Min	Type	Max	Unit
R_{thjc}	Thermal Resistance Junction to Case	-	-	0.007	K/W
R_{thcs}	Thermal Resistance Case to Heatsink	-	-	0.002	K/W
T_{vj}	Junction Temperature	-40	-	160	°C
T_{stg}	Storage Temperature	-40	-	160	°C
F	Mounting Force	-	70	-	kN
m	Weight	-	1.40	-	kg

Voltage Ratings

Device Type	$V_{RRM}(V)$	Test Conditions
D812 4600-36	3600	$T_{vj} = 25, 160 \text{ } ^\circ\text{C}$ $I_{RRM} = 400 \text{ mA}$ $V_R = V_{RRM}$ $t_p = 10\text{ms}$ $V_{RSM} = V_{RRM} + 100V$
D812 4600-38	3800	
D812 4600-40	4000	
D812 4600-42	4200	
D812 4600-45	4500	

Outline



Current Ratings

Symb.	Parameter	Test Conditions	Min	Type	Max	Unit
$I_{F(AV)}$	Mean Forward Current	Half Sine Wave, $T_C = 90 \text{ } ^\circ\text{C}$	-	-	4630	A
$I_{F(RMS)}$	RMS Forward Current	$T_C = 90 \text{ } ^\circ\text{C}$	-	-	7269	A
I_{FSM}	Surge (non-repetitive) Current	10ms, Half Sine Wave, $T_{vj} = 160 \text{ } ^\circ\text{C}$, $V_R = 0$	-	-	59.4	kA
I^2t	Limiting load integral	Sine Wave, 10ms	-	-	1764	$10^4 \text{ A}^2\text{s}$

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Characteristics

Symb.	Parameter	Test Conditions	Min	Type	Max	Unit
V_{FM}	Peak Forward Voltage	$I_{FM} = 6000 \text{ A}$, $T_{vj} = 160 \text{ }^{\circ}\text{C}$	-	-	1.50	V
I_{RRM}	Reverse Repetitive Peak Current	$T_{vj} = 160 \text{ }^{\circ}\text{C}$, V_{RRM}	-	-	400	mA
V_{FO}	Threshold Voltage	$T_{vj} = 160 \text{ }^{\circ}\text{C}$	-	-	0.98	V
r_F	Slope Resistance	$T_{vj} = 160 \text{ }^{\circ}\text{C}$	-	-	0.086	m Ω
Q_r	Reverse Recovery Charge	$T_{vj} = 160 \text{ }^{\circ}\text{C}$	-	6000	-	μC

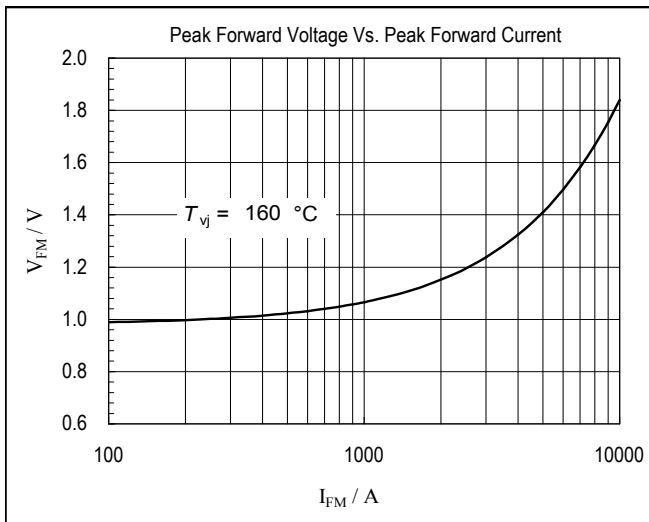


Fig1. Peak Forward Voltage Vs. Peak Forward Current

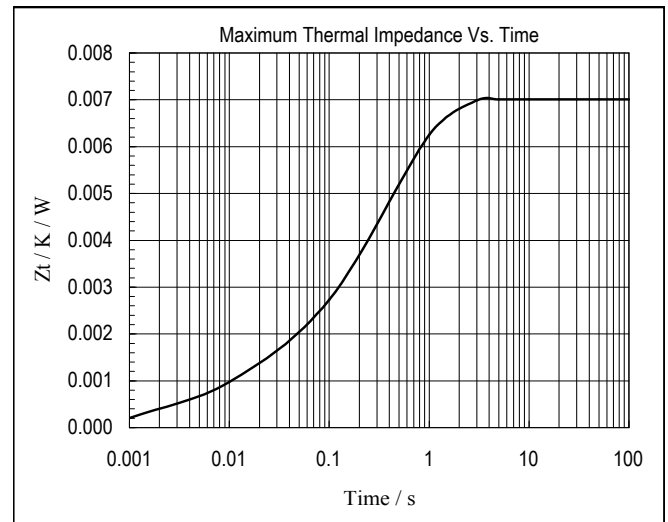


Fig2. Maximum Thermal Impedance Vs. Time

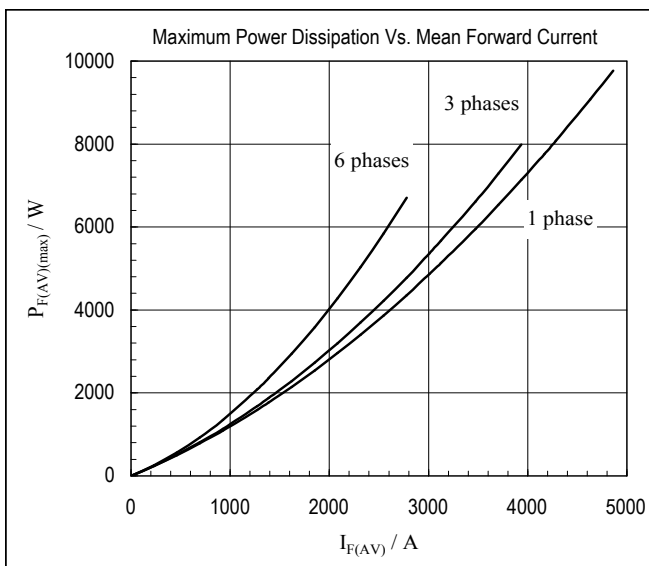


Fig3. Maximum Power Dissipation Vs. Mean Forward Current

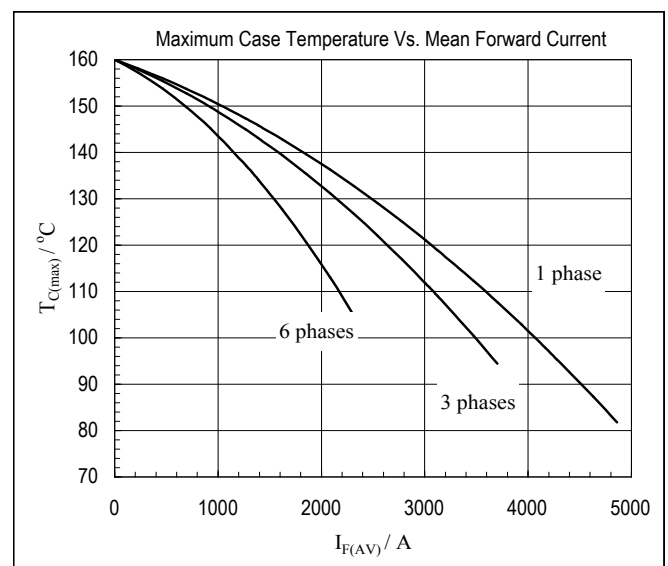


Fig4. Maximum Case Temperature Vs. Mean Forward Current

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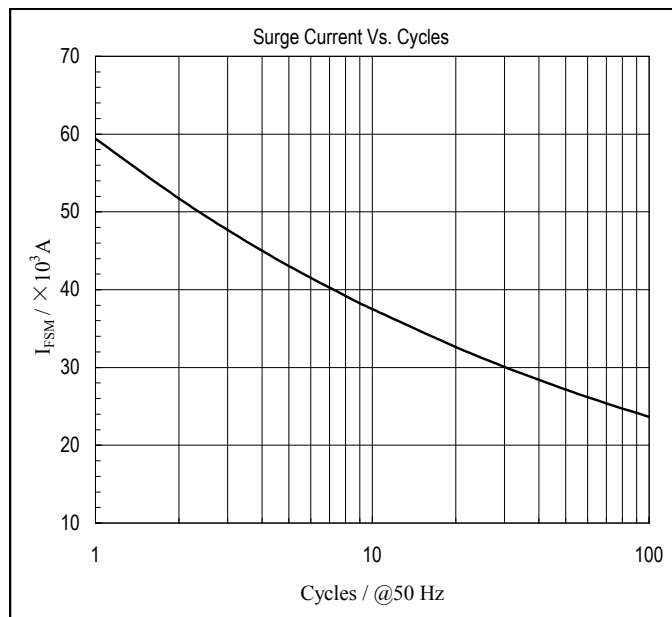


Fig5. Surge Current Vs. Cycles

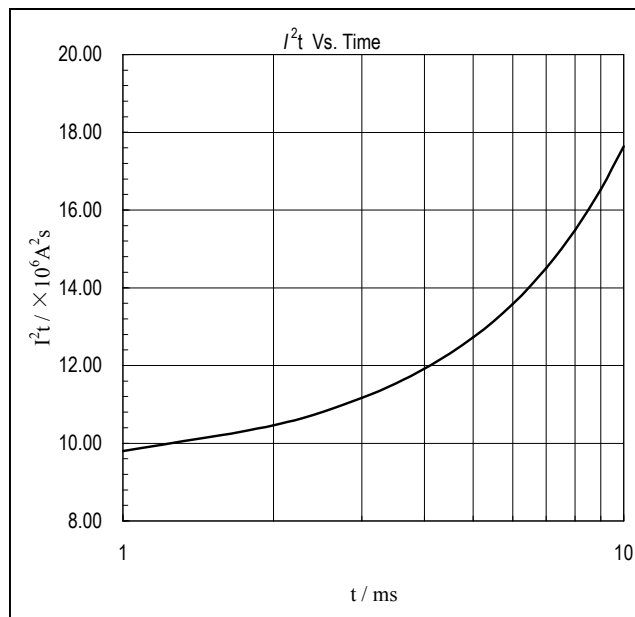


Fig6. I^2t Vs. Time