

D814 5100-54-65

Key Parameters

V_{RSM}	5400~6500	V
$I_{F(AV)}$	5150	A
I_{FSM}	82.5	kA
V_{FO}	1.15	V
r_F	0.083	mΩ

Applications

High power drive
High voltage supplies
Motor control

Features

Double-side cooling
High mean current
High surge current

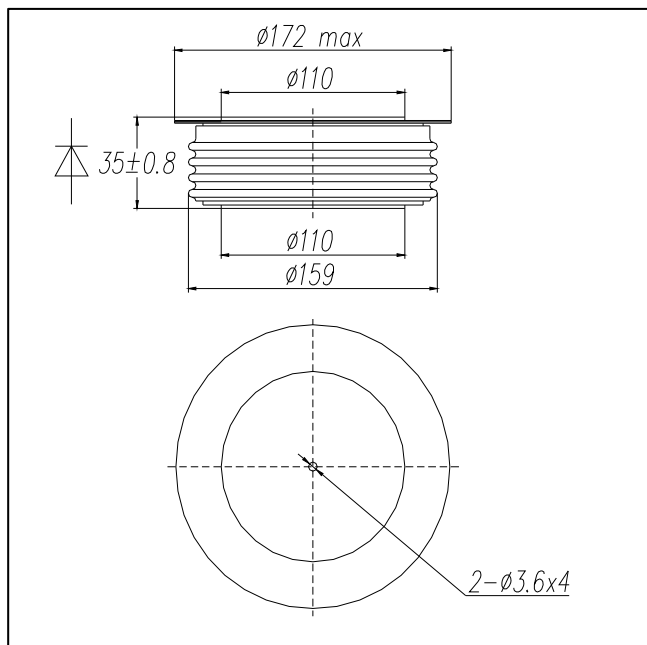
Thermal & Mechanical Data

Symb.	Parameter	Min	Type	Max	Unit
R_{thjc}	Thermal Resistance Junction to Case	-	-	0.004	K/W
R_{thcs}	Thermal Resistance Case to Heatsink	-	-	0.0008	K/W
T_{vj}	Junction Temperature	-40	-	150	°C
T_{stg}	Storage Temperature	-40	-	160	°C
F	Mounting Force	-	120	-	kN
m	Weight	-	3.50	-	kg

Voltage Ratings

Device Type	$V_{RSM}(V)$	Test Conditions
D814 5100-54	5400	$T_{vj} = 25, 150 \text{ } ^\circ\text{C}$
D814 5100-58	5800	$I_{RRM} = 600 \text{ mA}$
D814 5100-62	6200	$V_R = V_{RRM}$
D814 5100-65	6500	$t_p = 10\text{ms}$
		$V_{RRM} = V_{RSM} - 500 \text{ V}$

Outline



Current Ratings

Symb.	Parameter	Test Conditions	Min	Type	Max	Unit
$I_{F(AV)}$	Mean Forward Current	Half Sine Wave, $T_C = 100 \text{ } ^\circ\text{C}$	-	-	5150	A
$I_{F(RMS)}$	RMS Forward Current	$T_C = 100 \text{ } ^\circ\text{C}$	-	-	8086	A
I_{FSM}	Surge (non-repetitive) Current	10ms, Half Sine Wave, $T_{vj} = 150 \text{ } ^\circ\text{C}$, $V_R = 0$	-	-	82.5	kA
I^2t	Limiting load integral	Sine Wave, 10ms	-	-	3403	$10^4 \text{ A}^2\text{s}$

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Characteristics

Symb.	Parameter	Test Conditions	Min	Type	Max	Unit
V_{FM}	Peak Forward Voltage	$I_{FM} = 6000 \text{ A}$, $T_{vj} = 150 \text{ }^{\circ}\text{C}$	-	-	1.65	V
I_{RRM}	Reverse Repetitive Peak Current	$T_{vj} = 150 \text{ }^{\circ}\text{C}$, V_{RRM}	-	-	600	mA
V_{FO}	Threshold Voltage	$T_{vj} = 150 \text{ }^{\circ}\text{C}$	-	-	1.15	V
r_F	Slope Resistance	$T_{vj} = 150 \text{ }^{\circ}\text{C}$	-	-	0.083	m Ω
Q_r	Reverse Recovery Charge	$T_{vj} = 150 \text{ }^{\circ}\text{C}$	-	10000	-	μC

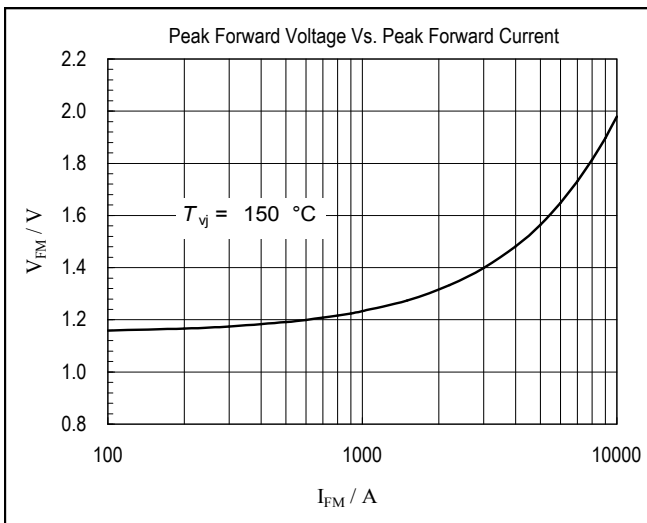


Fig1. Peak Forward Voltage Vs. Peak Forward Current

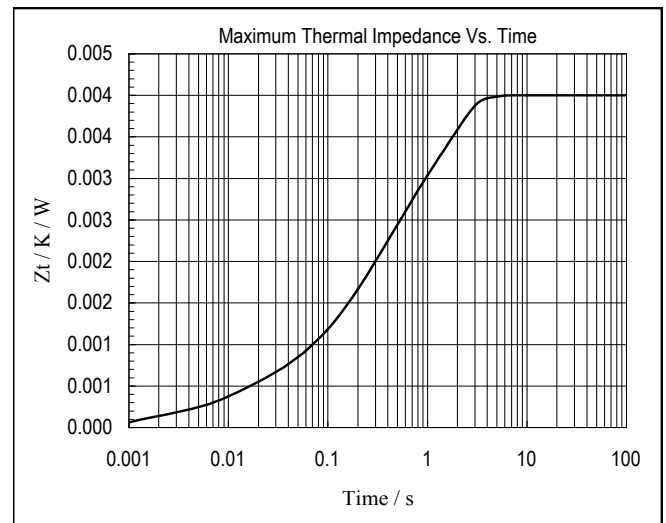


Fig2. Maximum Thermal Impedance Vs. Time

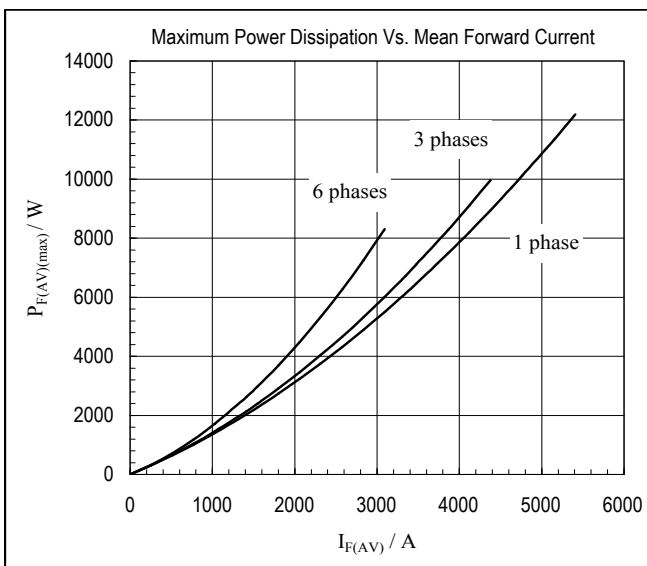


Fig3. Maximum Power Dissipation Vs. Mean Forward Current

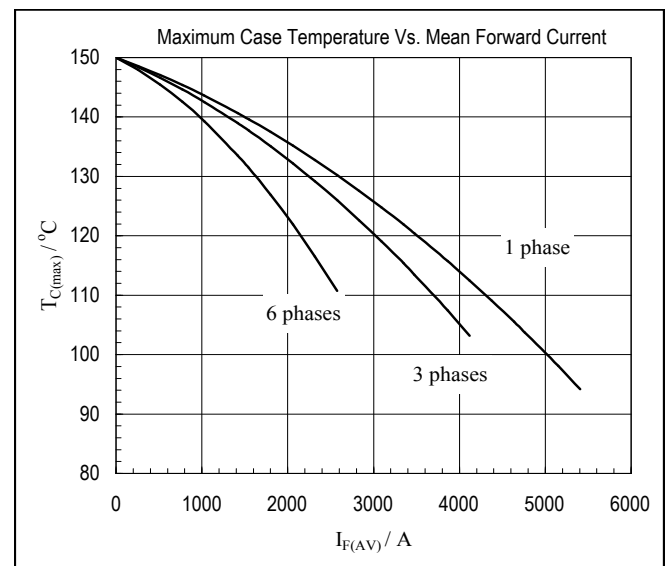


Fig4. Maximum Case Temperature Vs. Mean Forward Current

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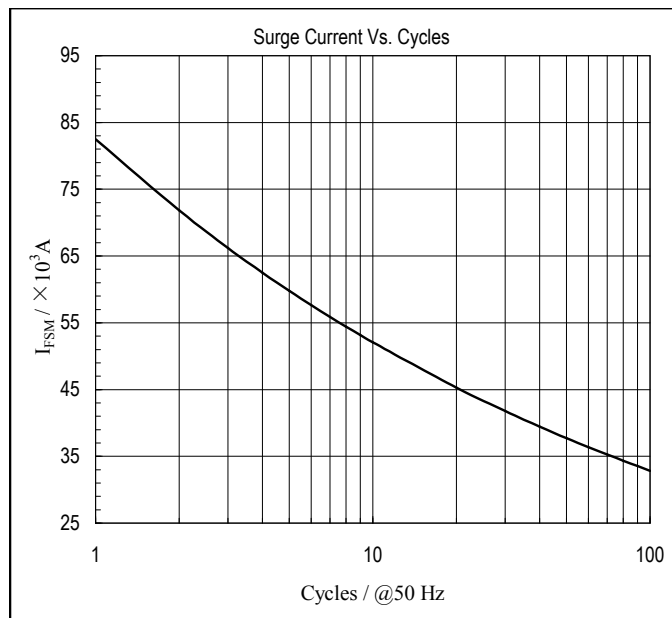


Fig5. Surge Current Vs. Cycles

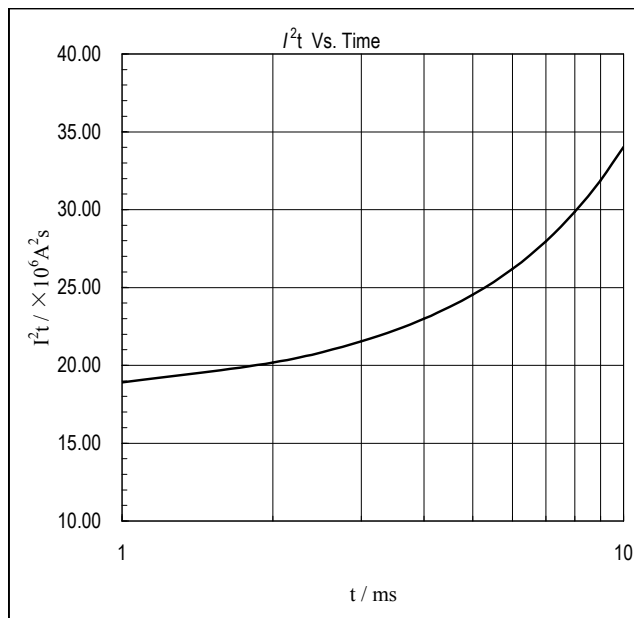


Fig6. I^2t Vs. Time