

TMFDO 220

Diodes Modules

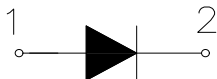
Key Parameters

V_{RRM}	6500	V
$I_{F(AV)}$	220	A
I_{FSM}	3.8	kA
V_{FO}	2.0	V
r_T	3.2	mΩ

Applications

- 大功率变流器 High power convertor
- 电机驱动装置 Motor drive equipment
- 柔性交流输电 Flexible AC transmission system

- 5000 V_{RMS} isolating voltage with baseplate
- High power capability
- Industrial standard package



Voltage Ratings

Module Type	$V_{RRM}(V)$	Test Conditions
TMFDO 220	6500	$T_{vj} = 25, 125\text{ }^{\circ}\text{C}$ $I_{RRM} = 60\text{ mA}$ $V_R = V_{RRM}$ $t_p = 10\text{ ms}$ $V_{RSM} = V_{RRM} + 100\text{ V}$



Thermal & Mechanical Data

Symb.	Parameter	Test Conditions	Min	Type	Max	Unit
$R_{th(j-c)}$	Thermal Resistance junction to case	DC operation	-	-	0.077	$^{\circ}\text{C/W}$
R_{thCH}	Thermal resistance case to heatsink	Mounting surface smooth flat and greased	-	-	0.02	$^{\circ}\text{C/W}$
T_{vj}	Maximum junction operating temperature range		-40	-	125	$^{\circ}\text{C}$
T_{stg}	Storage temperature		-40	-	125	$^{\circ}\text{C}$
F	Busbar to module M10	Mounting torque $\pm 10\%$	-	12	-	N·m
	Module to heatsink M6		-	6	-	N·m
W	Weight		-	830	-	g

Current Ratings

Symb.	Parameter	Test Conditions	Min	Type	Max	Unit
$I_{F(AV)}$	Mean On-State Current	Half Sine Wave $T_c=65^{\circ}\text{C}$	-	-	216	A
$I_{F(RMS)}$	RMS On-State Current	$T_c=65^{\circ}\text{C}$	-	-	339	A
I_{FSM}	Surge (non-repetitive) On-State Current	10ms, Half Sine Wave, $T_{vj}=125^{\circ}\text{C}$, $V_R=0$	-	-	3.8	kA
I^2t	Limiting load integral	Sine Wave, 10ms	-	-	7.22	$10^4\text{A}^2\text{s}$

Characteristics

Symb.	Parameter	Test Conditions	Min	Type	Max	Unit
V_{FM}	Peak on-state voltage	$T_{vj}=125\text{ }^{\circ}\text{C}$, $I_{TM}=500\text{ A}$	-	-	3.6	V
I_{RRM}	Forward leakage current	$T_{vj}=25\text{ }^{\circ}\text{C}$, $125\text{ }^{\circ}\text{C}$, $100\%V_{RRM}$	-	-	60	mA
V_{isol}	Isolation voltage	a.c.; 50 Hz; r.m.s. $t=1\text{min}$	-	5000	-	V
V_{FO}	Threshold voltage	$T_{vj}=125\text{ }^{\circ}\text{C}$	-	-	2.0	V
r_T	Slope resistance	$T_{vj}=125\text{ }^{\circ}\text{C}$	-	-	3.2	m Ω
V_{FR}	Peak Forward Recover voltage	$T_{VJM}=125\text{ }^{\circ}\text{C}$, $di/dt=1000\text{A}/\mu\text{s}$	-	-	450	V
I_{rr}	Reverse Recover Current		-	-	350	A
Q_{rr}	Reverse Recover Charge	$T_{VJM}=125\text{ }^{\circ}\text{C}$, $I_F=200\text{A}$, $V_{DC}=2000\text{V}$, $di/dt=-200\text{A}/\mu\text{s}$	-	-	500	μC
E_{off}	Turn-on Switching Energy		-	-	1	J

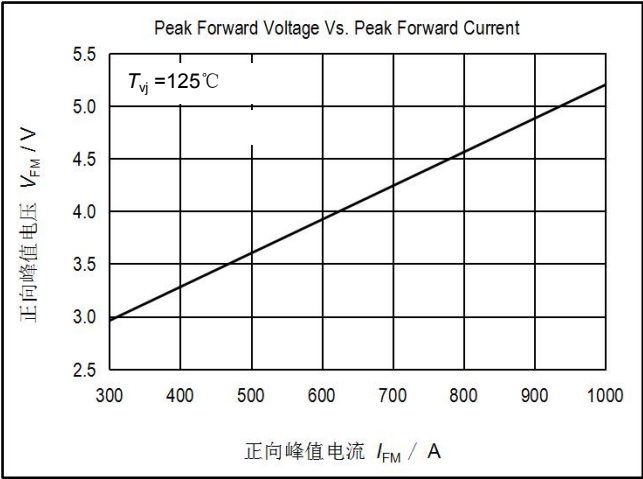


图1. 正向伏安特性曲线

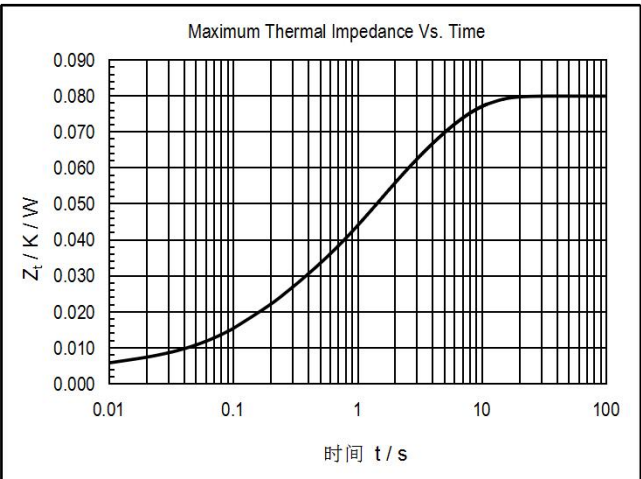


图2. 瞬态热阻抗曲线

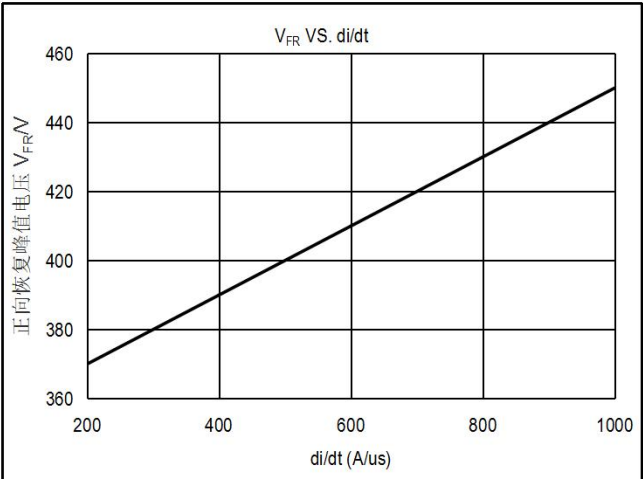


图3. 正向恢复电压与开通 di/dt 的关系曲线

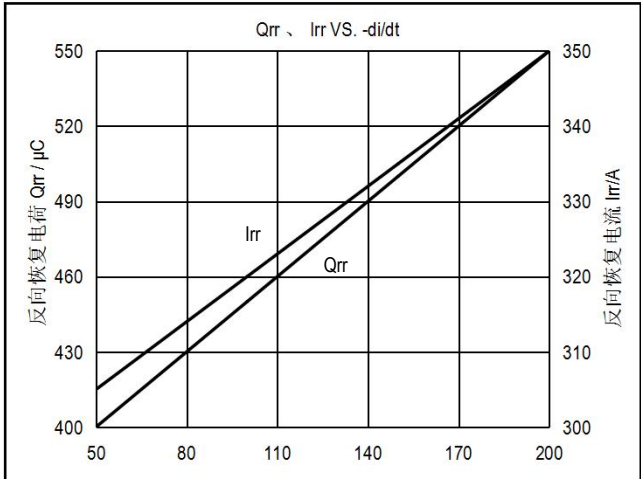


图4. 反向恢复电荷、电流与关断 di/dt 的关系曲线

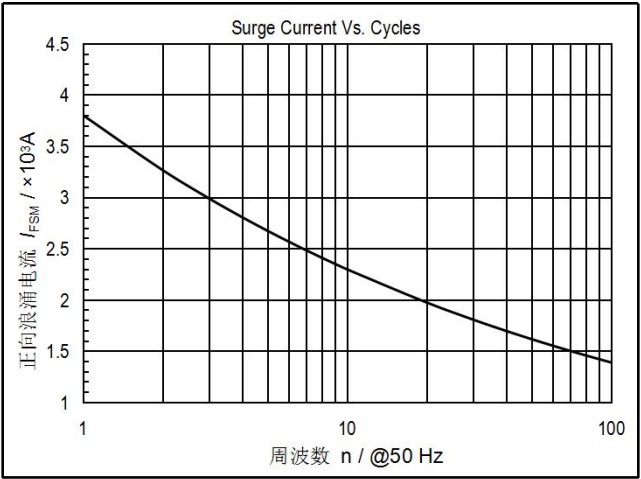


图5. 正向浪涌电流与周波数的关系曲线

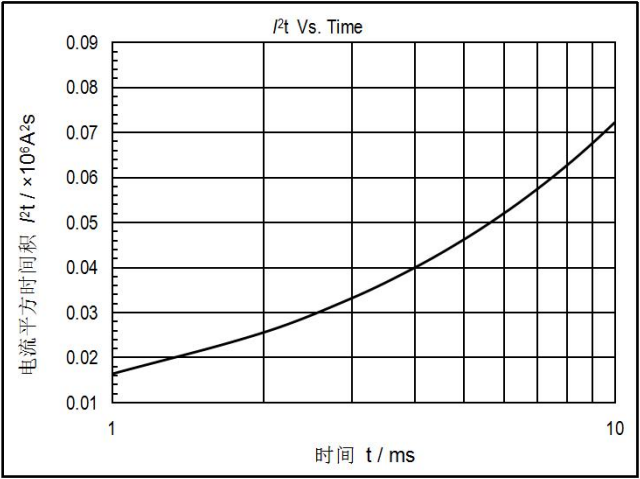


图6. I^2t 特性曲线

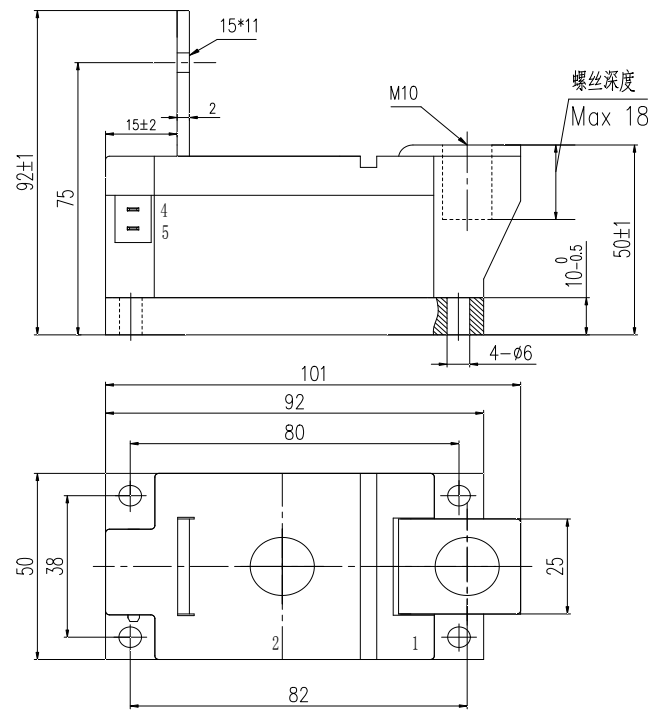


图7. 外形图 (DCL)