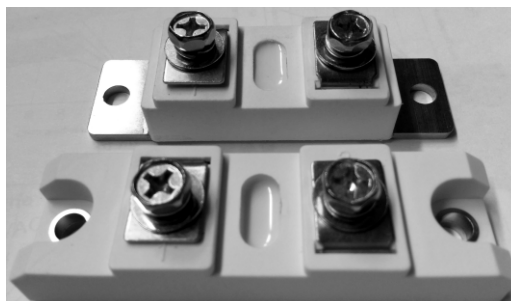


FAST RECOVER MODULE (FRED)

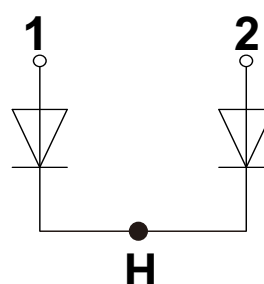
PRODUCT FEATURES

- ☑ Ultrafast Reverse Recovery Time
- ☑ Soft Reverse Recovery Characteristics
- ☑ Low Reverse Recovery Loss
- ☑ Low Forward Voltage
- ☑ High Surge Current Capability
- ☑ Low Inductance Package



APPLICATIONS

- ☑ Inversion Welder
- ☑ Uninterruptible Power Supply
- ☑ Plating Power Supply
- ☑ Ultrasonic Cleaner and Welder
- ☑ Converter & Chopper
- ☑ Power Factor Correction (PFC) Circuit



ABSOLUTE MAXIMUM RATINGS

$T_c=25^{\circ}\text{C}$ unless otherwise specified

Symbol	Parameter	Test Conditions	Values	Unit
V_R	Maximum D.C. Reverse Voltage		400	V
V_{RRM}	Maximum Repetitive Reverse Voltage		400	V
$I_{F(AV)}$	Average Forward Current	$T_c=110^{\circ}\text{C}$, Per Diode	100	A
		$T_c=110^{\circ}\text{C}$, Per Moudle	200	A
		$T_c=110^{\circ}\text{C}$, 20KHz, Per Moudle	100	A
$I_{F(RMS)}$	RMS Forward Current	$T_c=110^{\circ}\text{C}$, Per Diode	150	A
I_{FSM}	Non-Repetitive Surge Forward Current	$T_J=45^{\circ}\text{C}$, $t=10\text{ms}$, 50Hz, Sine	1200	A
		$T_J=45^{\circ}\text{C}$, $t=8.3\text{ms}$, 60Hz, Sine	1310	A
I^2t	I^2t (For Fusing)	$T_J=45^{\circ}\text{C}$, $t=10\text{ms}$, 50Hz, Sine	7200	A^2s
		$T_J=45^{\circ}\text{C}$, $t=8.3\text{ms}$, 60Hz, Sine	7122	A^2s
P_D	Power Dissipation		625	W
T_J	Junction Temperature		-40 to +150	$^{\circ}\text{C}$
T_{STG}	Storage Temperature Range		-40 to +125	$^{\circ}\text{C}$
Torque	Module-to-Sink	Recommended (M6)	3~4.7	N.m
Torque	Module Electrodes	Recommended (M6)	3~4.7	N.m
$R_{\theta C}$	Thermal Resistance	Junction-to-Case, Per Diode	0.2	$^{\circ}\text{C} / \text{W}$
Weight			92	g

ELECTRICAL CHARACTERISTICS

$T_C=25^\circ\text{C}$ unless otherwise specified

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I_{RM}	Reverse Leakage Current	$V_R=400\text{V}$	--	--	0,5	mA
		$V_R=400\text{V}, T_J=125^\circ\text{C}$	--	--	10	mA
V_F	Forward Voltage	$I_F=100\text{A}$	--	1.5	2.0	V
		$I_F=100\text{A}, T_J=125^\circ\text{C}$	--	1.2	--	V
t_{rr}	Reverse Recovery Time	$I_F=1\text{A}, V_R=30\text{V}, di_F/dt=-200\text{A}/\mu\text{s}$	--	35	--	ns
t_{rr}	Reverse Recovery Time	$V_R=200\text{V}, I_F=100\text{A}$	--	60	--	ns
I_{RRM}	Max. Reverse Recovery Current	$di_F/dt=-200\text{A}/\mu\text{s}, T_J=25^\circ\text{C}$	--	9	--	A
t_{rr}	Reverse Recovery Time	$V_R=200\text{V}, I_F=100\text{A}$	--	85	--	ns
I_{RRM}	Max. Reverse Recovery Current	$di_F/dt=-200\text{A}/\mu\text{s}, T_J=125^\circ\text{C}$	--	15	--	A

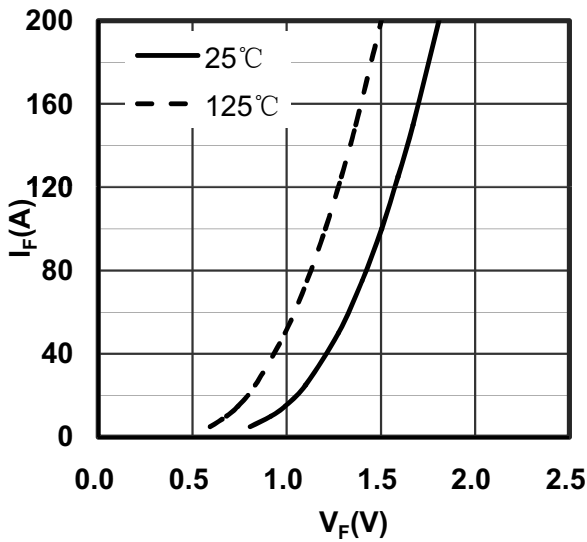


Figure 1. Forward Voltage Drop vs Forward Current

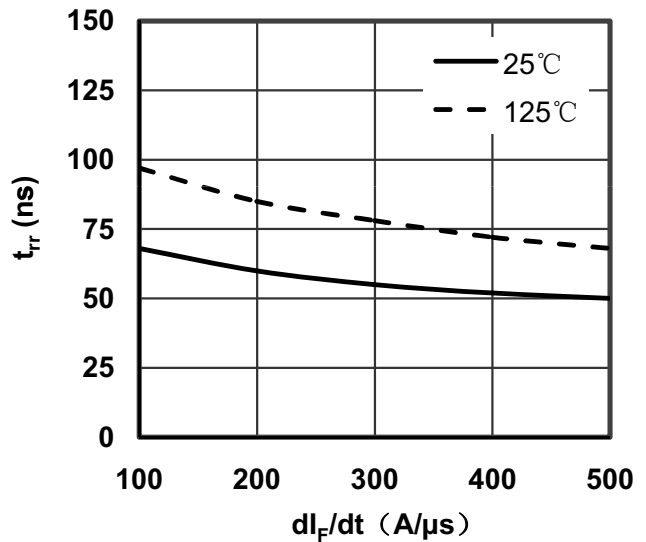


Figure 2. Reverse Recovery Time vs di/dt

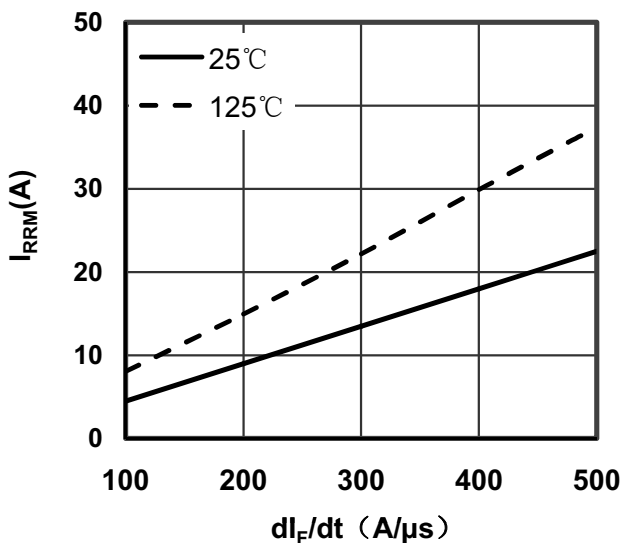


Figure 3. Reverse Recovery Current vs di/dt

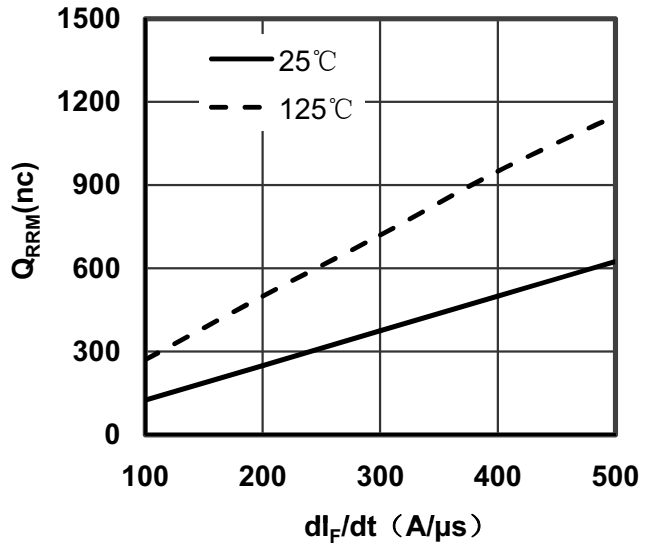


Figure 4. Reverse Recovery Charge vs di/dt

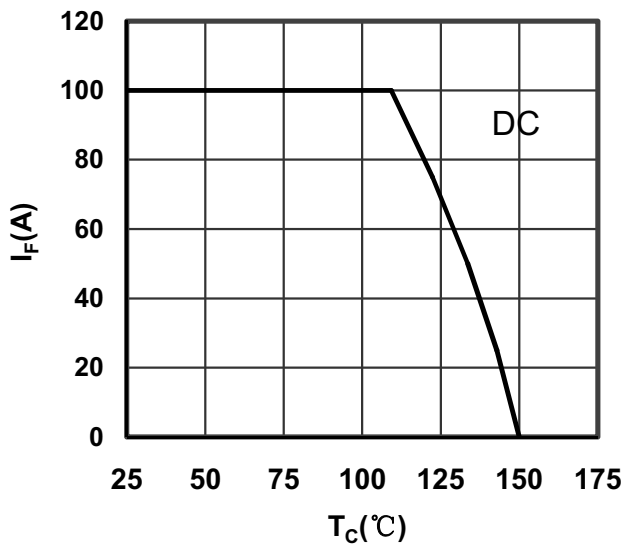


Figure 5. Forward current vs Case temperature

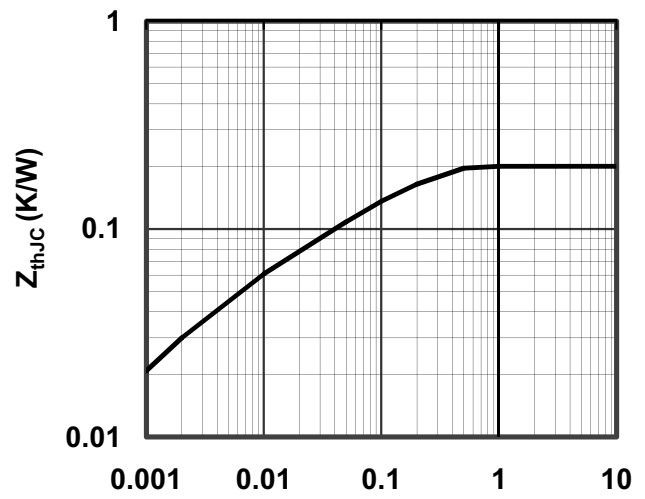
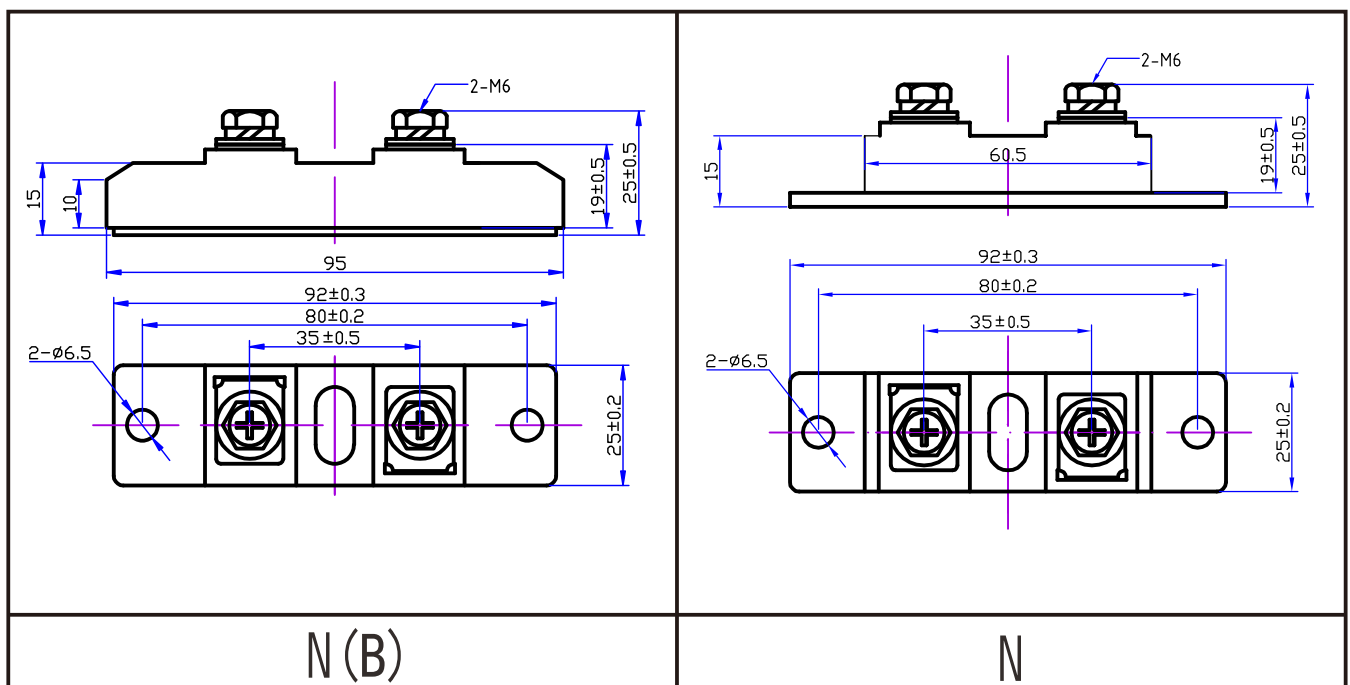


Figure 6. Transient Thermal Impedance

Package Outlines



Unit:mm