

产品规格书

Specifcation of products

产品名称:快恢复二极管

产品型号: MFDK300A1200V-K4

浙江世菱半导体有限公司
ZHEJIANG SHILING SEMICONDUCTOR CO., LTD.

地址: 浙江省 丽水市 莲都区

电话: (0578) 3012571 3615078

传真: (0578) 3611180

邮编: 323000

E-mail: smrshiling01@163.com

Http://www.smrshiling.com

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| 拟制 | 审核 | 核准 |
| 林益龙 | 曹剑龙 | 宗瑞 |

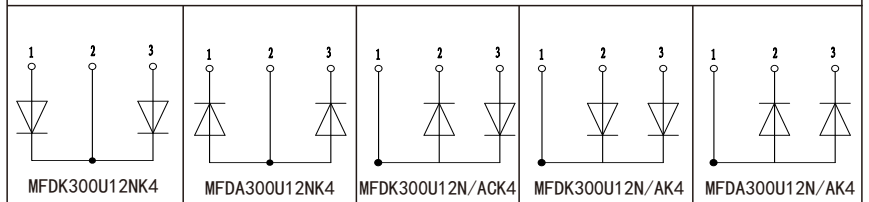
PRODUCT FEATURES

- ☑ 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 (UPS)
- ☑ 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 | | 1200 | V |
| V_{RRM} | Maximum Repetitive Reverse Voltage | | 1200 | V |
| $I_{F(AV)}$ | Average Forward Current | $T_C=110^{\circ}\text{C}$, Per Diode | 300 | A |
| | | $T_C=120^{\circ}\text{C}$, 20KHz, Per Moudle | 200 | A |
| $I_{F(RMS)}$ | RMS Forward Current | $T_C=110^{\circ}\text{C}$, Per Diode | 420 | A |
| I_{FSM} | Non-Repetitive Surge Forward Current | $T_J=45^{\circ}\text{C}$, $t=10\text{ms}$, 50Hz, Sine | 2700 | A |
| | | $T_J=45^{\circ}\text{C}$, $t=8.3\text{ms}$, 60Hz, Sine | 2850 | A |
| I^2t | I^2t (For Fusing) | $T_J=45^{\circ}\text{C}$, $t=10\text{ms}$, 50Hz, Sine | 36450 | A^2s |
| | | $T_J=45^{\circ}\text{C}$, $t=8.3\text{ms}$, 60Hz, Sine | 40612 | A^2s |
| P_D | Power Dissipation | | 893 | W |
| T_J | Junction Temperature | | -40 to +150 | $^{\circ}\text{C}$ |
| T_{STG} | Storage Temperature Range | | -40 to +125 | $^{\circ}\text{C}$ |
| V_{isol} | Insulation Test Voltage | AC, $t=1\text{min}$ | 3000 | V |
| Torque | Module-to-Sink | Recommended (M6) | 3~5 | N.M |
| Torque | Module Electrodes | Recommended (M6) | 3~5 | N.M |
| $R_{\theta JC}$ | Thermal Resistance | Junction-to-Case | 0.14 | $^{\circ}\text{C}/\text{W}$ |
| Weight | | | 160 | 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 | $V_R=1200\text{V}$ | -- | -- | 2 | mA |
| | | $V_R=1200\text{V}, J=125^\circ\text{C}$ | -- | -- | 10 | mA |
| V_F | Forward Voltage | $I_F=300\text{A}$ | -- | 2.8 | 3.1 | V |
| | | $I_F=300\text{A}, T_J=125^\circ\text{C}$ | -- | 2.1 | 2.4 | V |
| t_{rr} | Reverse Recovery Time | $I_F=1\text{A}, V_R=30\text{V}, di_F/dt=-200\text{A}/\mu\text{s}$ | -- | 65 | -- | ns |
| t_{rr} | Reverse Recovery Time | $V_R=600\text{V}, I_F=300\text{A}$ | -- | 135 | -- | ns |
| I_{RRM} | Max. Reverse Recovery Current | $di_F/dt=-200\text{A}/\mu\text{s}, T_J=25^\circ\text{C}$ | -- | 10 | -- | A |
| t_{rr} | Reverse Recovery Time | $V_R=600\text{V}, I_F=300\text{A}$ | -- | 385 | -- | ns |
| I_{RRM} | Max. Reverse Recovery Current | $di_F/dt=-200\text{A}/\mu\text{s}, T_J=125^\circ\text{C}$ | -- | 25 | -- | A |

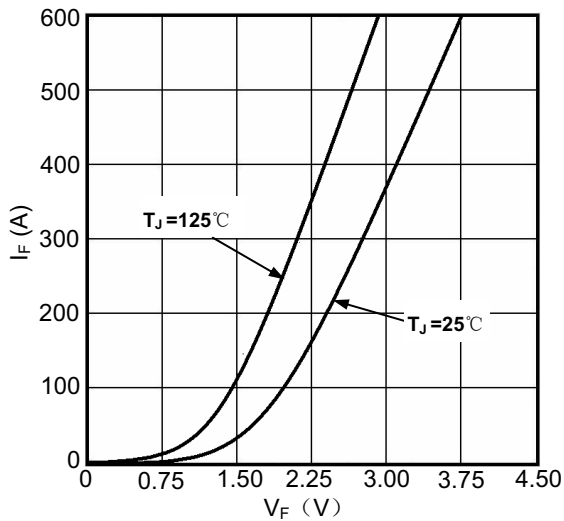


Figure1. Forward Voltage Drop vs Forward Current

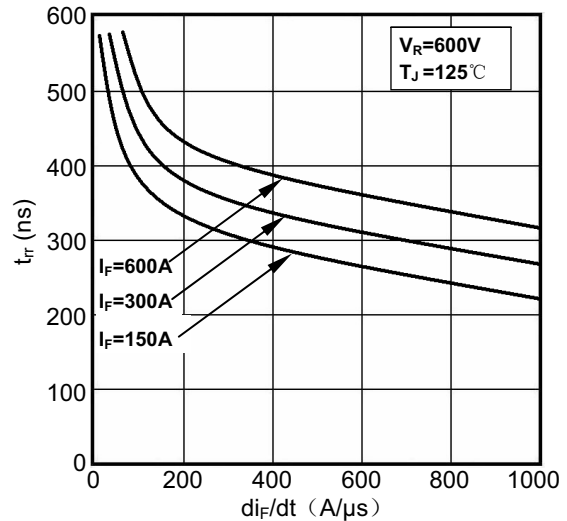


Figure2. Reverse Recovery Time vs di_F/dt

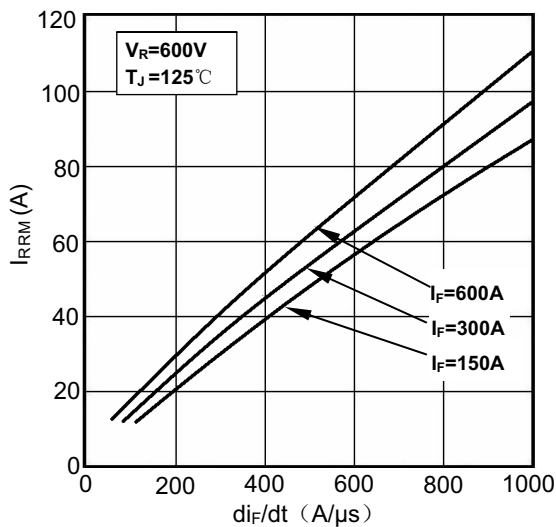


Figure3. Reverse Recovery Current vs di_F/dt

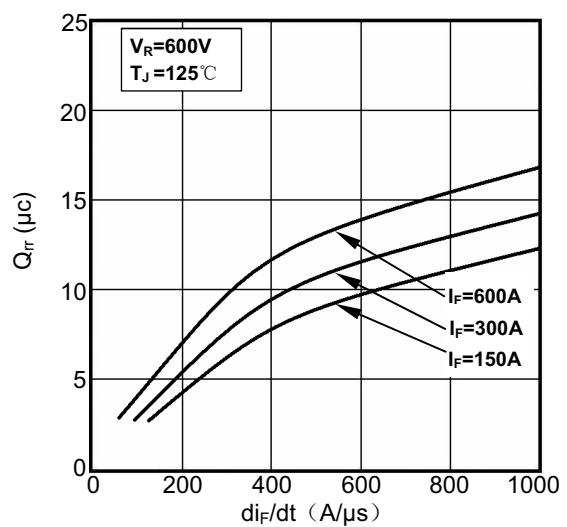


Figure4. Reverse Recovery Charge vs di_F/dt

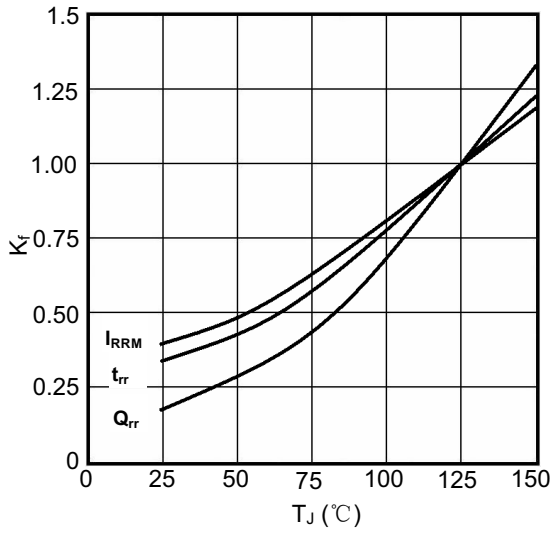


Figure5. Dynamic Parameters vs Junction Temperature

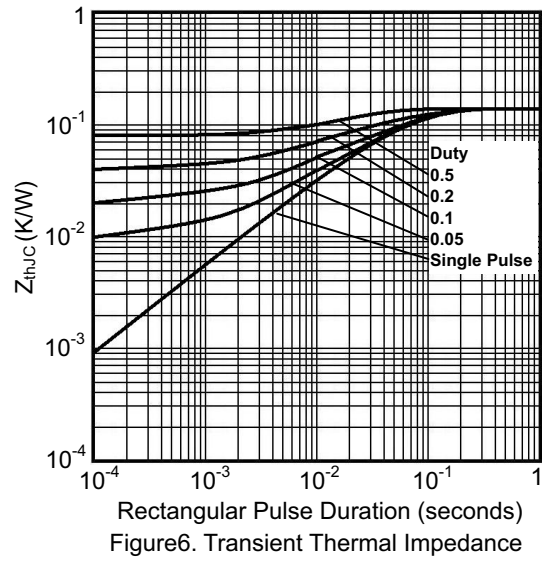
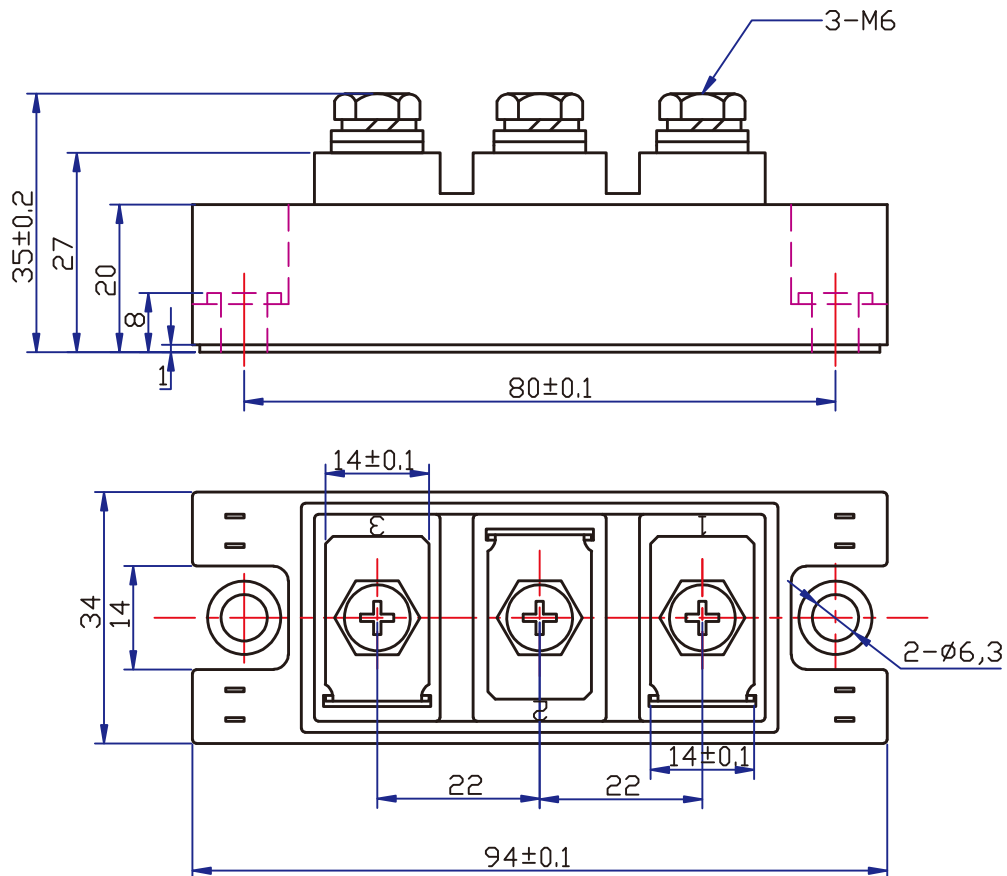


Figure6. Transient Thermal Impedance

Package Outlines



Unit:mm