

# DIODE MODULE (F.R.D.)

# FRD100CA100/120

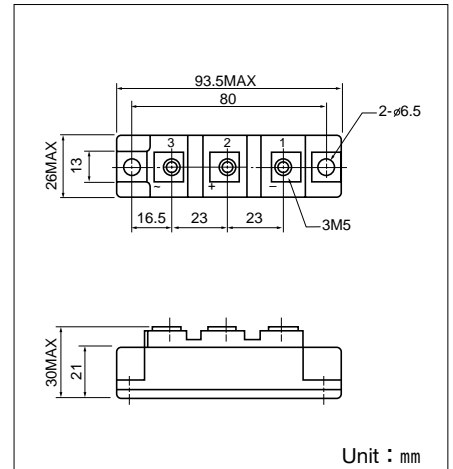
UL;E76102 (M)

FRD100CA is a high speed (fast recovery) dual diode module designed for high power switching application. FRD100CA is suitable for high frequency application requiring low loss and high speed control.

- High Speed  $t_{rr} \leq 300\text{ns}$
- $I_{F(AV)}$  100A (each device)
- Isolated mounting construction.
- High Surge Capability

### (Applications)

Switching Power Supply. Inverter Welding Power Supply  
Power Supply for Telecommunication



Unit : mm

### Maximum Ratings

( $T_j = 25^\circ\text{C}$  unless otherwise specified)

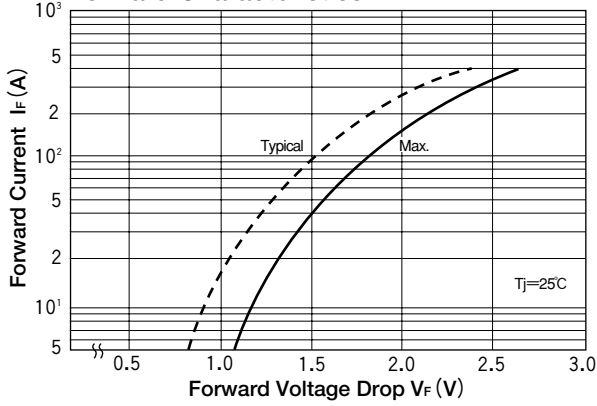
| Symbol      | Item                            | Ratings     |             | Unit |
|-------------|---------------------------------|-------------|-------------|------|
|             |                                 | FRD100CA100 | FRD100CA120 |      |
| $V_{RRM}$   | Repetitive Peak Reverse Voltage | 1000        | 1200        | V    |
| $V_{R(DC)}$ | D.C. Reverse Voltage            | 800         | 960         | V    |

| Symbol    | Item                                 | Conditions  | Ratings                           | Unit                 |                 |
|-----------|--------------------------------------|---|-----------------------------------|----------------------|-----------------|
| $I_F$     | Forward Current                      | D.C. $T_c = 78^\circ\text{C}$                         | 100                               | A                    |                 |
| $I_{FSM}$ | Surge Forward Current                | $\frac{1}{2}$ cycle, 60Hz, peak value, non-repetitive | 2000                              | A                    |                 |
| $I^2t$    | $I^2t$                               | Value for one cycle of surge current                  | 16600                             | $\text{A}^2\text{S}$ |                 |
| $T_j$     | Operating Junction Temperature       |   | -40 to +150                       | $^\circ\text{C}$     |                 |
| $T_{stg}$ | Storage Temperature                  |   | -40 to +125                       | $^\circ\text{C}$     |                 |
| $V_{iso}$ | Isolation Breakdown Voltage (R.M.S.) | A.C. 1 minute   | 2500                              | V                    |                 |
|           | Mounting Torque                      | Mounting (M6)   | Recommended Value 2.5-3.9 (25-40) | 4.7 (48)             | N·m<br>(kgf·cm) |
|           |                                      | Terminal (M5)   | Recommended Value 1.5-2.5 (15-25) | 2.7 (28)             |                 |
|           | Mass                                 | Typical Value   | 170                               | g                    |                 |

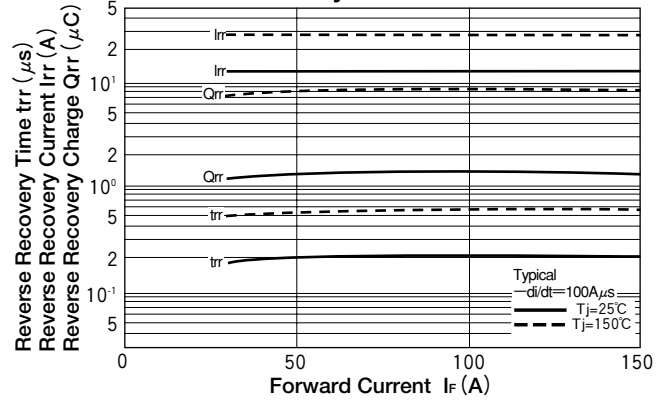
### Electrical Characteristics

| Symbol        | Item                            | Conditions   | Ratings |      |      | Unit                      |
|---------------|---------------------------------|--|---------|------|------|---------------------------|
|               |                                 |  | Min.    | Typ. | Max. |                           |
| $I_{RRM}$     | Repetitive Peak Reverse Current | $V_R = V_{RRM}$ , $T_j = 150^\circ\text{C}$              |         |      | 5.0  | mA                        |
| $V_{FM}$      | Forward Voltage Drop            | $I_F = 100\text{A}$ , Inst. measurement                  |         |      | 1.8  | V                         |
| $t_{rr}$      | Reverse Recovery Time           | $I_F = 100\text{A}$ , $-di/dt = 100\text{A}/\mu\text{s}$ |         |      | 300  | ns                        |
| $R_{th(j-c)}$ | Thermal Impedance               | Junction to case   |         |      | 0.4  | $^\circ\text{C}/\text{W}$ |

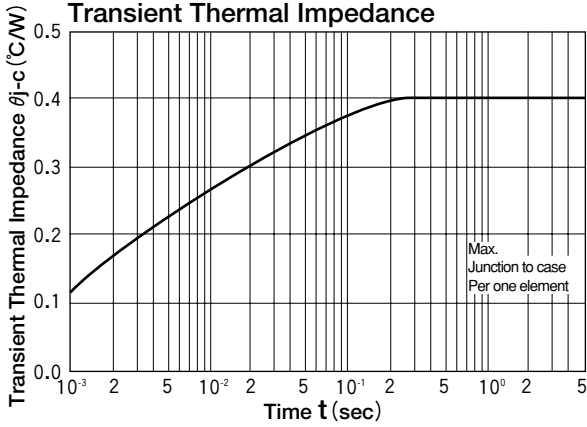
### Forward Characteristics



### Reverse Recovery Characteristics



### Transient Thermal Impedance



### Reverse Recovery Characteristics

