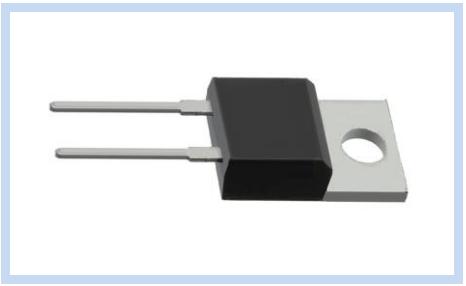
# Fast Recovery Rectifier
# 1200V 15A TO-220-2

FRED15120T2202

MERITEK

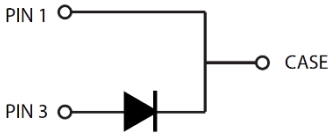
## FEATURES

- Hyperfast and Optimized $Q_{RR}$
- Optimized for High Speed Operation
- Suppressed switching loss with low $T_{RR}$
- Soft Recovery Characteristic for Better EMI
- Application: Switching Power Supply, Power Switching Circuits, PFC and Output Rectification of Battery Charge Station



## MECHANICAL DATA

- Case: TO-220-2, Molded Plastic
- Flammability Rating: UL94V-0
- Terminals: Solderable per MIL-STD-750, Method 2026




RoHS

## MAXIMUM RATINGS AND THERMAL CHARACTERISTICS

| Parameter | Symbol | Value | Units |
|---|---|---|---|
| Maximum Recurrent Peak Reverse Voltage | $V_{RRM}$ | 1200 | V |
| Maximum DC Blocking Voltage | $V_{DC}$ | 1200 | |
| Average Forward Rectified Current at $T_L$=100°C | $I_{F(AV)}$ | 15 | A |
| Repetitive Peak Surge Current, 8.3ms, Sine-Wave, D=0.5 | $I_{FRM}$ | 30 | |
| Peak Forward Surge Current, 8.3ms Single Half-Sine-Wave Superimposed on Rated Load | $I_{FSM}$ | 100 | |
| Maximum Power Dissipation | $P_{TOT}$ | 83 | W |
| Typical Thermal Resistance | $R_{\theta JC}$ | 1.5 | °C/W |
| Operating Junction and Storage Temperature Range | $T_J$, $T_{STG}$ | -55~+150 | °C |

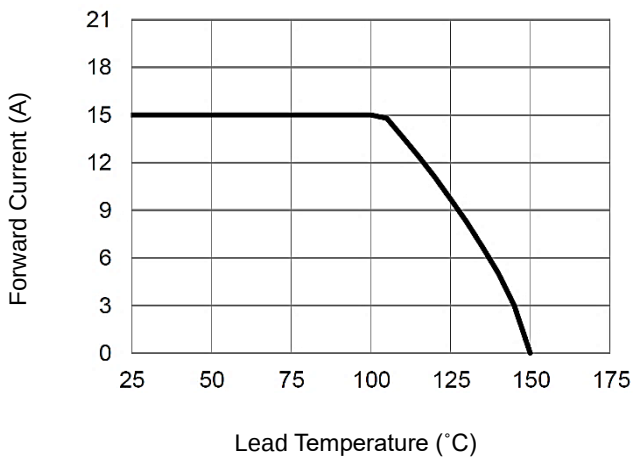
Notes: $T_C$ =25°C unless otherwise noted

## ELECTRICAL CHARACTERISTICS

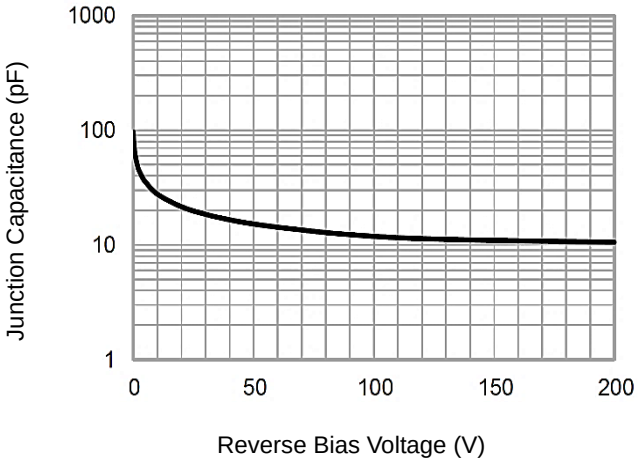
| Parameter | Conditions | Symbol | Min | Typ. | Max | Unit |
|---|---|---|---|---|---|---|
| Instantaneous Forward Voltage | $I_F$= 15A, $T_J$=25°C | $V_F$ | -- | 3.0 | 3.5 | V |
| | $I_F$= 15A, $T_J$=125°C | | -- | 2.2 | -- | |
| Reverse Leakage Current | $V_R$=1200V, $T_J$=25°C | $I_R$ | -- | -- | 100 | µA |
| | $V_R$=1200V, $T_J$=125°C | | -- | -- | 500 | µA |
| Maximum Reverse Recovery Time $T_J$=25°C | $I_F$= 0.5A, $I_R$= 1A, $I_{RR}$= 0.25A | $T_{RR}$ | -- | -- | 35 | nS |
| | $I_F$= 1A, $V_R$= 30V, di/dt= 300A/µs | | -- | -- | 35 | |
| Reverse Recovery Time | $I_F$= 15A, $V_R$= 400V, di/dt= 300A/µs, $T_J$=25°C | $T_{RR}$ | -- | 70 | 105 | nS |
| Peak Recovery Current | | $I_{RRM}$ | -- | 4.2 | -- | A |
| Reverse Recovery Charge | | $Q_{RR}$ | -- | 155 | -- | nC |
| Softness factor = $t_b/t_a$ | | S | -- | 2.4 | -- | -- |
| Reverse Recovery Time | I $I_F$= 15A, $V_R$= 400V, di/dt= 300A/µs, $T_J$=125°C | $T_{RR}$ | -- | 145 | -- | nS |
| Peak Recovery Current | | $I_{RRM}$ | -- | 8.5 | -- | A |
| Reverse Recovery Charge | | $Q_{RR}$ | -- | 650 | -- | nC |
| Softness factor = $t_b/t_a$ | | S | -- | 1.2 | -- | -- |

## CHARACTERISTIC CURVES

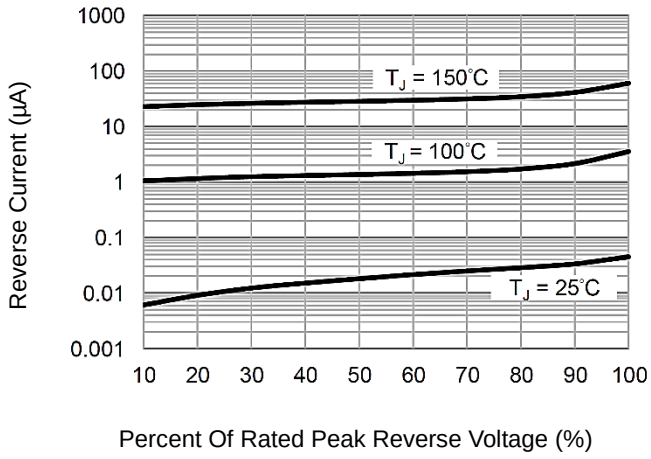
### Forward Current Derating Curve



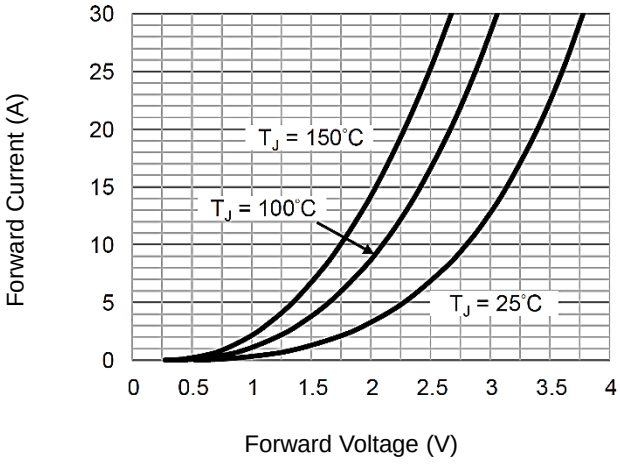

### Typical Junction CApacitance



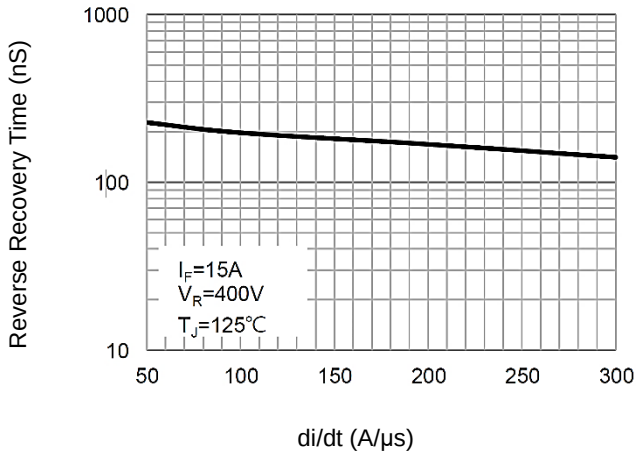

### Typical Reverse Characteristics



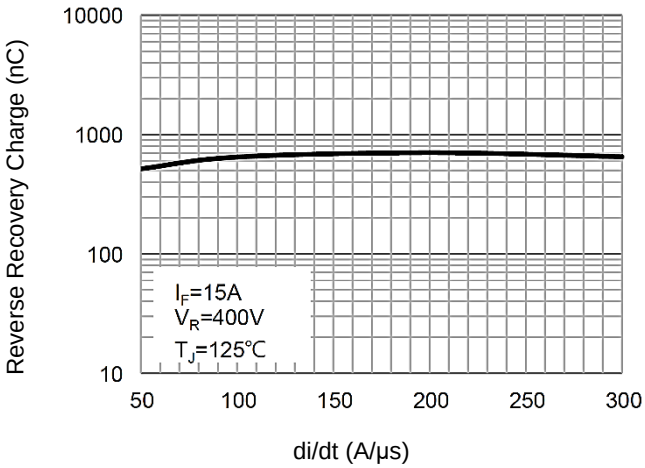

### Typical Forward Characteristics




### Typical Reverse Recovery Time




### Typical Reverse Recovery Charge



## DIMENSIONS

| Item | Min (mm) | Max (mm) |
|---|---|---|
| **A** | 4.16 | 5.00 |
| **A1** | 1.15 | 1.39 |
| **A2** | 2.03 | 2.92 |
| **b** | 0.50 | 0.96 |
| **b2** | 1.07 | 1.47 |
| **c** | - | 0.65 |
| **D** | 13.93 | 15.87 |
| **E** | 9.85 | 10.66 |
| **e1** | | |
| **H1** | 5.75 | 6.85 |
| **L** | 12.70 | - |
| **L1** | - | 4.5 |
| **P** | 3.75 | 3.95 |
| **Q** | 2.25 | 3.15 |