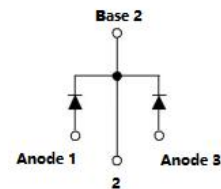


F80D22U

Features

- Ultra-fast recovery
- Very low I_{rrm}
- Very low Q_{rr}
- Specified at operating conditions
- Designed and qualified for industrial level



Benefits

- Reduced RFI and EMI
- Reduced power loss in diode and switching transistor
- Higher frequency operation
- Reduced snubbing

Applications

- Switching mode power supplies
- UPS
- DC/DC converters
- Free wheeling diodes
- Inverter
- Motor drives

Product Summary

| | |
|-----------------------|----------|
| V_R | 200V |
| V_F at 40A at 25 °C | 1.05 V |
| $I_{F(AV)}$ | 2 x 40 A |
| t_{rr} (typical) | 22 ns |
| T_J (maximum) | 150 °C |
| Q_{rr} (typical) | 50 nC |
| I_{RRM} (typical) | 3.5 A |

Absolute Maximum Ratings

| Parameter | Symbol | Test Conditions | Values | UNIT |
|-------------------------------------------------------------|-------------------------------|-------------------------|---------------|------|
| Cathode to anode voltage | V_R | | 200 | V |
| Reverse DC Voltage | $V_{R(D)}$ | | 200 | |
| Average Forward Current | $I_{F(AV)}$ Resistive Load | $T_C=25^\circ\text{C}$ | 160 | A |
| | | $T_C=115^\circ\text{C}$ | 80 | |
| Maximum continuous forward current | I_F | per leg | 40 | |
| | | per device | 60 | |
| Single pulse forward current (Peak forward current per leg) | I_{FSM} | | 150 | |
| Maximum repetitive forward current (per leg) | I_{FRM} | | 60 | |
| Operating junction and storage temperature range | T_J, T_{Stg} | | - 55 to + 150 | |

Electrical Specifications (T_J = 25 °C unless otherwise specified)

| Parameter | Symbol | Test Conditions | Min | Typ | Max | UNIT |
|------------------------------------|-----------------|----------------------------------------------------------------|-----|------|------|------|
| Cathode to anode breakdown voltage | V _{BR} | I _R = 100 μA | 260 | - | - | V |
| Maximum forward voltage | V _{FM} | I _F = 20 A | - | 0.87 | 0.95 | |
| | | I _F = 40 A | - | 1.05 | 1.15 | |
| Maximum reverse leakage current | I _{RM} | V _R = V _R rated | - | - | 15 | μA |
| | | T _J = 125 °C, V _R = V _R rated | - | - | 250 | |

Dynamic recovery characteristics perleg (T_J=25 °C unless otherwise specified)

| Parameter | Symbol | Test Conditions | Min | Typ | Max | UNIT | |
|-----------------------|------------------|------------------------------------------------------------------------------------------------------|---------------------|-----|-----|------|---|
| Reverse recovery time | t _{rr} | I _F = 0.5A, I _R = 1.0A, I _{RR} = 250mA (RG#1 CKT) | - | 22 | 30 | ns | |
| | | I _F = 1.0 A, dI _F /dt = 50 A/μs, V _R = 30 V, T _J = 25 °C | - | - | 30 | | |
| | t _{rr1} | T _J = 25 °C | I _F =20A | - | 22 | | - |
| | t _{rr2} | T _J = 125 °C | | - | 36 | | - |
| | Q _{rr} | T _J = 125 °C | | - | 60 | | - |

Fig.1 Maximum forward voltage drop characteristics

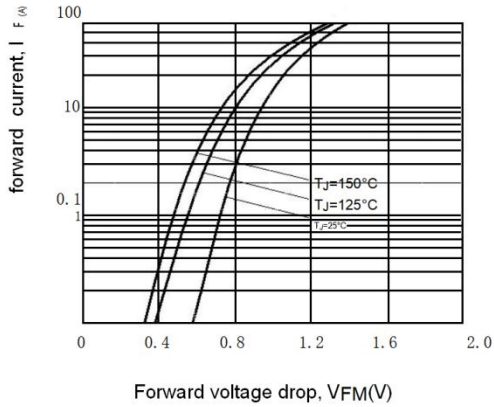


Fig.2 Typical values of reverse current vs. reverse voltage

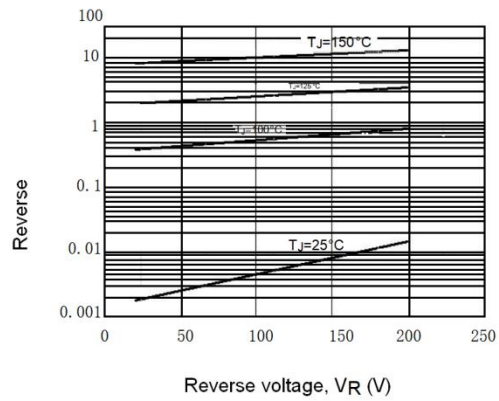


Fig.3 Maximum allowable case temperature vs. average forward current

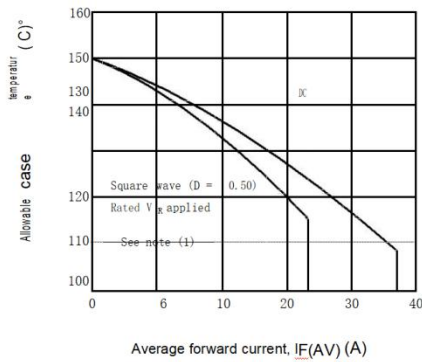


Fig.4 Maximum thermal impedance $R_{th(j-c)}$ characteristics

