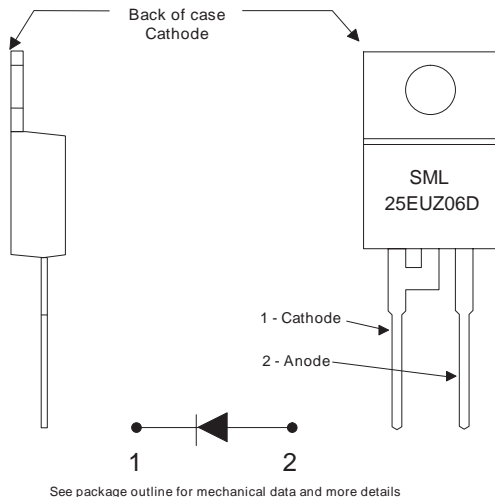


Enhanced Ultrafast Recovery Diode 600 Volt, 25 Amp



TO220 Package

Key Parameters

| | | |
|----------|-------|------|
| V_R | (max) | 600V |
| V_F | (typ) | 2.2V |
| I_F | (max) | 25A |
| t_{rr} | (max) | 35ns |

TECHNOLOGY

The planar passivated and enhanced ultrafast recovery diode features a triple charge control action utilising Semelab's Graded Buffer Zone technology combined with low emitter efficiency and local lifetime control techniques.

BENEFITS

- Very fast recovery for low switching losses
- Ultra soft recovery with low EMI generation
- High dynamic ruggedness under all conditions
- Low temperature dependency
- Low on-state losses with positive temperature coefficient
- Stable blocking voltage and low leakage current
- Avalanche rated for high reliability circuit operation

APPLICATIONS

- Freewheeling Diode for IGBTs and MOSFETs
- Uninterruptible Power Supplies UPS
- Switch Mode Power Supplies SMPS
- Inverse and Clamping Diode
- Snubber Diode
- Fast Switching Rectification

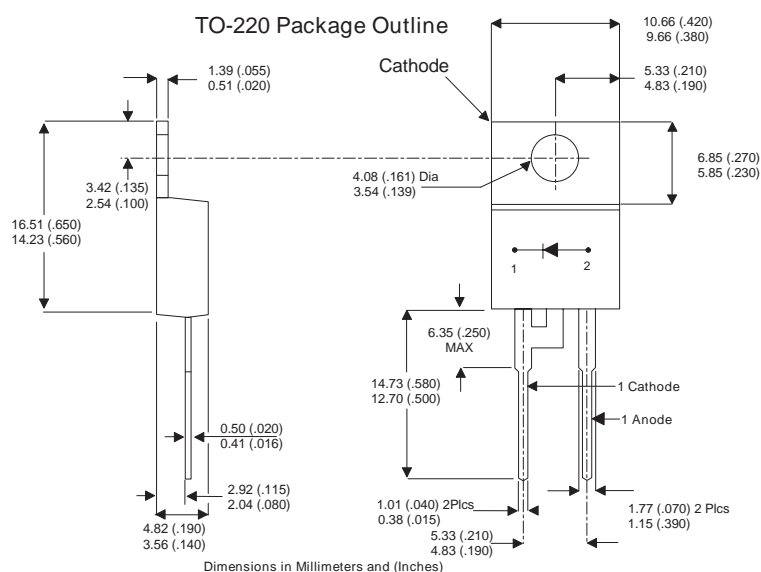
ABSOLUTE MAXIMUM RATINGS ($T_{case} = 25^\circ C$ unless otherwise stated)

| | | |
|------------------|--|----------------------|
| V_{RRM} | Peak Repetitive Reverse Voltage | 600V |
| V_R | DC Reverse Blocking Voltage | 600V |
| I_{FAV} | Average Forward Current @ $T_C = 85^\circ C$ | 25A |
| $I_{FSM(surge)}$ | Repetitive Forward Current | 70A |
| $I_{FS(surge)}$ | Non-Repetitive Forward Current | 250A |
| P_D | Power Dissipation @ $T_C = 85^\circ C$ | 60W |
| W_{AVL} | Avalanche Energy (L=40mH) | 20mJ |
| T_J, T_{STG} | Operating & Storage Junction Temperature | -55 to $150^\circ C$ |

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ELECTRICAL CHARACTERISTICS (T_{case} = 25°C unless otherwise stated)

| Parameter | Test Conditions | Min. | Typ. | Max. | Unit | |
|---|-------------------------------------|--|------|------|------|------|
| STATIC ELECTRICAL CHARACTERISTIC | | | | | | |
| V _F | Forward Voltage Drop | I _F = 25A T _j = 25°C | | 2.2 | 2.5 | V |
| | | I _F = 25A T _j = 125°C | | 2.3 | | |
| | | I _F = 15A T _j = 25°C | | 1.85 | | |
| I _R | Leakage Current | V _R = 600V T _j = 25°C | | 0.6 | 200 | μA |
| | | V _R = 600V T _j = 125°C | | 0.4 | 2 | mA |
| C _T | Junction Capacitance | V _R = 200V T _j = 25°C | | 22 | | pF |
| DYNAMIC ELECTRICAL CHARACTERISTIC | | | | | | |
| Q _{rr} | Reverse Recovery Charge | V _R = 300V I _F = 25A d _i / d _t = 800A/μs T _J = 25°C | | 0.43 | | μC |
| I _{rr} | Reverse Recovery Current | | | 20 | | A |
| t _{rr} | Reverse Recovery Time | | | 43 | | nsec |
| Q _{rr} | Reverse Recovery Charge | V _R = 300V I _F = 25A d _i / d _t = 800A/μs T _J = 125°C | | 0.62 | | μC |
| I _{rr} | Reverse Recovery Current | | | 24 | | A |
| t _{rr} | Reverse Recovery Time | | | 52 | | nsec |
| t _{rr} | Reverse Recovery Time | V _R = 50V I _F = 1A d _i / d _t = 100A/μs T _J = 25°C | | 35 | | nsec |
| THERMAL AND MECHANICAL CHARACTERISTICS | | | | | | |
| R _{θjc} | Junction to Case Thermal Resistance | | | 1.4 | | °C/W |
| T _L | Lead Temperature | | | 300 | | °C |
| L _S | Stray Inductance | | 10 | | | nH |
| Torque | Mounting Torque | | | 1.1 | | N.m |



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