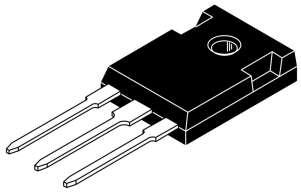
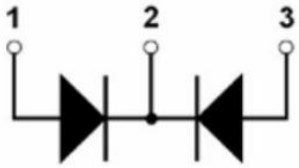
## Features

- Planar passivated chips
- Very low leakage current
- Very short recovery time
- Improved thermal behaviour
- Very low Irm-values
- Avalanche voltage rated for reliable operation
- Soft reverse recovery for low EMI/RFI
- Low Irm reduces:
  - Power dissipation within the diode
  - Turn-on loss in the commutating switch



## Applications

- Anti parallel diode for high frequency switching devices
- Anti saturation diode
- Snubber diode
- Free wheeling diode
- Rectifiers in switch mode power supplies (SMPS)
- Uninterruptible power supplies (UPS)




## Absolute Maximum Ratings vs.Electrical Characteristics

($T_C$=25°C unless otherwise specified)

| Parameter | Symbol | Test Conditions | | Values | Unit |
|---|---|---|---|---|---|
| Maximum Repetitive Reverse Voltage | $V_{RRM}$ | | | 300 | V |
| Reverse current | $I_R$ | $V_R$=300V | Tvj=25℃<br>Tvj=150℃ | 1<br>0.06 | μA<br>mA |
| Forward voltage | $V_F$ | $I_F$=10A<br>$I_F$=20A | Tvj=25℃ | 1.27<br>1.45 | V |
| | | $I_F$=10A<br>$I_F$=20A | Tvj=150℃ | 0.98<br>1.17 | |
| Average Forward Current | $I_{F(AV)}$ | Rectangular<br>d=0.5,$T_C$=145°C | | 10X2 | A |
| Threshold Voltage | $V_{F0}$ | Power loss calculation only，Tvj=175℃ | | 0.74 | V |
| Slope resistance | $r_F$ | | | 17.7 | mΩ |

| | | | | | |
|---|---|---|---|---|---|
| Thermal resistance junction to case | $R_{thJC}$ | | | 2.30 | K/W |
| Virtual junction temperature | $T_{vj}$ | | | -55~175 | ℃ |
| Total power dissipation | $P_{tot}$ | $T_C$=25°C | | 65 | W |
| Max.forward surge current | $I_{FSM}$ | T=10ms(50Hz),sine, Tvj=45℃ | | 140 | A |
| Max.reverse recovery current | $I_{RM}$ | | Tvj=25℃ | 3 | A |
| | | $I_F$=10A, $V_R$=200V | Tvj=150℃ | 5.5 | |
| Reverse recovery time | $t_{rr}$ | | Tvj=25℃ | 35 | ns |
| | | -di$_F$/dt= 200A/μS | Tvj=150℃ | 45 | |
| Junction capacitance | C= | VR=150V,f=1MHz, Tvj=25℃ | | 15 | pF |
| RMS current | $I_{RMS}$ | Per pin [1] | | 35 | A |
| Thermal resistance case to heatsink | $R_{thCH}$ | | | 0.50 | K/W |
| Storage temperature | $T_{stg}$ | | | -55~150 | ℃ |
| Weight | | | | 2 | g |
| Mounting torque | $M_D$ | | | 0.4~0.6 | Nm |
| Mounting force with clip | $F_C$ | | | 20~60 | N |

1. is typically limited by: 1. pin-to-chip resistance; or by 2. current capability of the chip. In case of 1, a common cathode/anode configuration and a non-isolated backside, the whole current capability can be used by connecting the backside.

# Electrical characteristics(Curves)

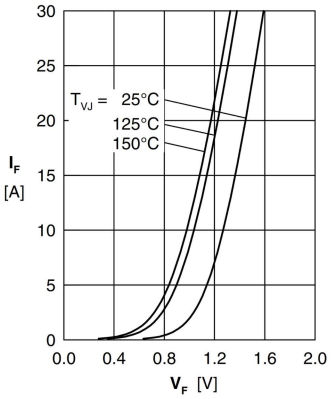



Fig. 1 Forward current $I_F$ versus forward voltage drop $V_F$

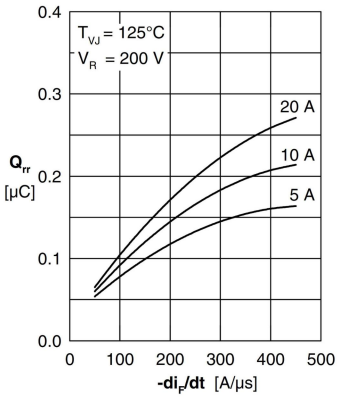



Fig. 2 Typ. reverse recovery charge $Q_{rr}$ versus -$di_F$/dt

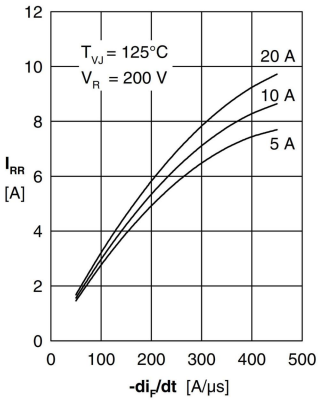



Fig. 3 Typ. reverse recovery current $I_{RR}$ versus -$di_F$/dt

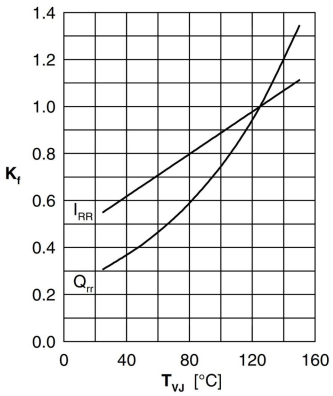



Fig. 4 Dynamic parameters $Q_{rr}$, $I_{RR}$ versus $T_{VJ}$

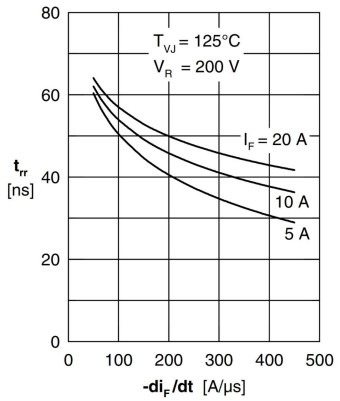



Fig. 5 Typ. reverse recovery time $t_{rr}$ versus -$di_F$/dt

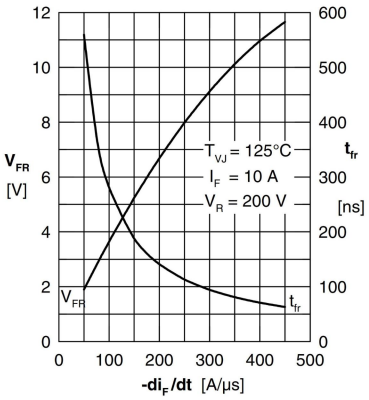



Fig. 6 Typ. forward recovery voltage $V_{FR}$ and $t_{fr}$ versus $di_F$/dt

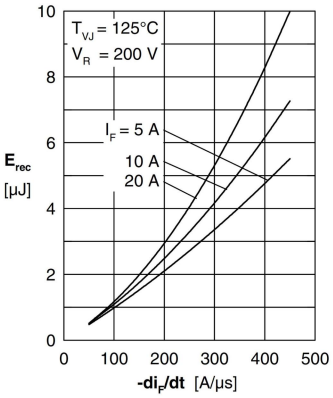
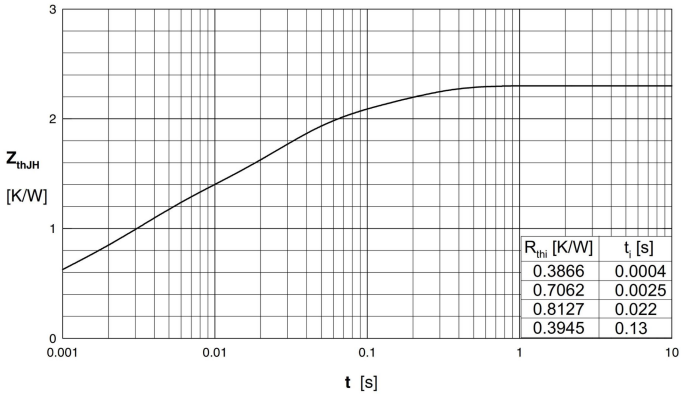


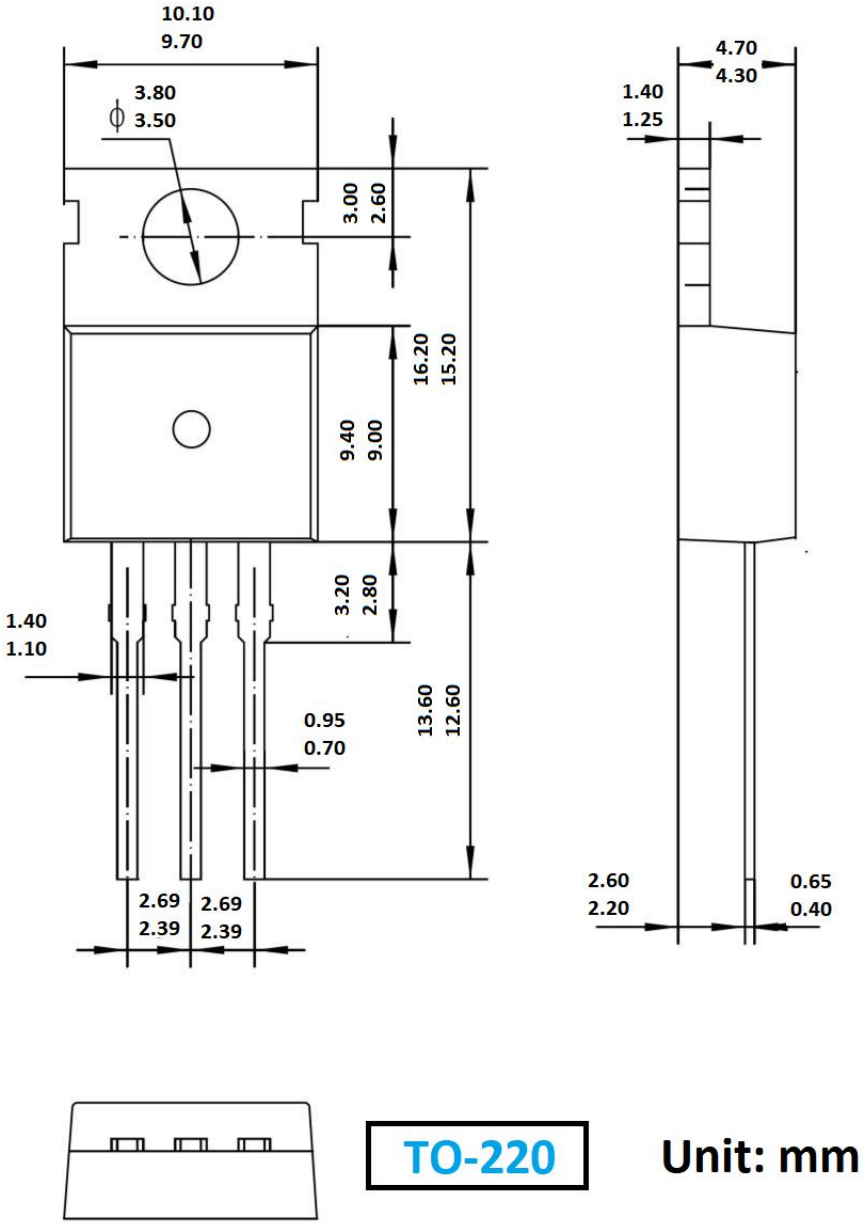

Fig. 7 Typ. recovery energy $E_{rec}$ versus -$di_F$/dt




| $R_{thi}$ [K/W] | $t_i$ [s] |
|---|---|
| 0.3866 | 0.0004 |
| 0.7062 | 0.0025 |
| 0.8127 | 0.022 |
| 0.3945 | 0.13 |

Fig. 8 Transient thermal resistance junction to case

## Package outline dimension






TO-220

Unit: mm