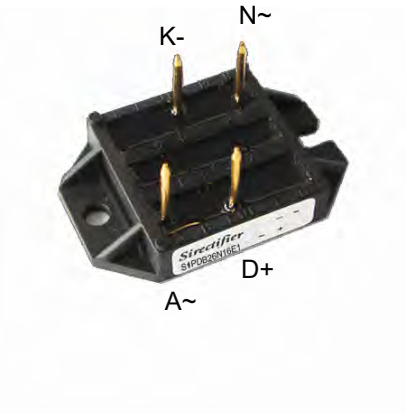
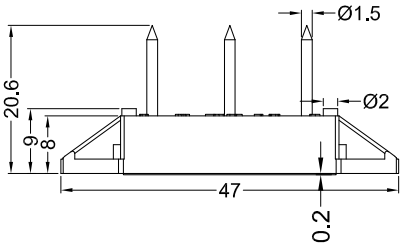
# S1PDBF26N06E1

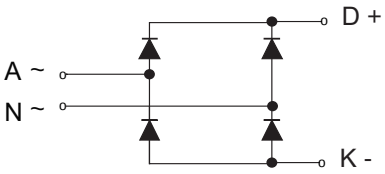
## Single Phase Rectifier Bridge With FRED

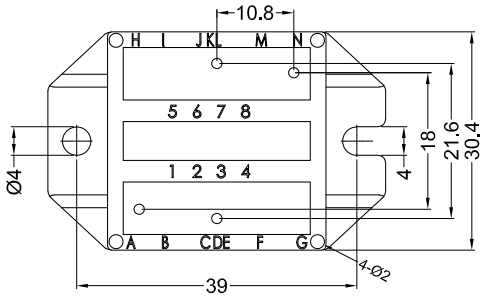



| Type | $V_{RSM}$ V | $V_{RRM}$ V |
|---|---|---|
| **S1PDBF26N06E1** | 600 | 600 |

**Dimensions in mm (1mm=0.0394")**




| Symbol | Test Conditions | | Maximum Ratings | Unit |
|---|---|---|---|---|
| $I_{dav}$<br>$I_{davm}$ | $T_C$=100°C, module<br>$T_A$=45°C ($R_{thCA}$=0.6K/W), module | | 44<br>90 | A |
| $I_{FSM}$ | $T_{VJ}$=45°C<br>$V_R$=0 | t=10ms (50Hz), sine<br>t=8.3ms (60Hz), sine | 110<br>120 | A |
| | $T_{VJ}$=$T_{VJM}$<br>$V_R$=0 | t=10ms(50Hz), sine<br>t=8.3ms(60Hz), sine | 95<br>105 | |
| $I^2t$ | $T_{VJ}$=45°C<br>$V_R$=0 | t=10ms (50Hz), sine<br>t=8.3ms (60Hz), sine | 60<br>60 | $A^2s$ |
| | $T_{VJ}$=$T_{VJM}$<br>$V_R$=0 | t=10ms(50Hz), sine<br>t=8.3ms(60Hz), sine | 45<br>45 | |
| $T_{VJ}$<br>$T_{VJM}$<br>$T_{stg}$ | | | -40...+150<br>150<br>-40...+150 | °C |
| $V_{ISOL}$ | 50/60Hz, RMS<br>$I_{ISOL}$≤1mA | t=1min<br>t=1s | 3000<br>3600 | V~ |
| $M_d$ | Mounting torque (M4)<br>Terminal connection torque (M4) | | 1.5-2.0<br>1.5-2.0 | Nm |
| Weight | typ. | | 19 | g |



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| Symbol | Test Conditions | Characteristic Values | | Unit |
|---|---|---|---|---|
| | | Typ. | Max | |
| $I_R$ | $V_R=V_{RRM}$; $T_{VJ}=25^oC$<br>$V_R=V_{RRM}$; $T_{VJ}=T_{VJM}$ | | 0.1<br>0.5 | mA |
| $V_F$ | $I_F$=15A; $T_{VJ}=25^oC$ | | 2.00 | V |
| $V_{FO}$ | For power-loss calculations only | | 1.13 | V |
| $r_F$ | $T_{VJ}=T_{VJM}$ | | 13 | mΩ |
| $R_{thJC}$ | per diode<br>per module | | 1.60<br>0.40 | K/W |
| $R_{thCH}$ | per diode<br>per module | | 0.30<br>0.075 | K/W |
| $I_{RM}$<br>$t_{rr}$ | $I_F$ = 25 A, -$di_F$/dt = 100 A/µs<br>$V_R$ = 100 V, L = 0.05 mH, $T_{VJ}$ = 100°C<br>$I_F$ = 1 A; -di/dt = 100 A/µs; $V_R$ = 30 V, $T_{VJ}$ = 25°C | 4<br>35 | 4.9 | A<br>ns |
| $d_S$ | Creeping distance on surface | 11.20 | | mm |
| $d_A$ | Creepage distance in air | 9.7 | | mm |
| a | Max. allowable acceleration | 50 | | $m/s^2$ |

### *FEATURES*

- Package with DCB ceramic base plate in low profile
- Isolation voltage 3000 V~
- Planar passivated chips
- Low forward voltage drop
- Leads suitable for PC board soldering

### *APPLICATIONS*

- Supplies for DC power equipment
- Input and output rectifiers for high frequency
- Battery DC power supplies
- Field supply for DC motors

### *ADVANTAGES*

- Space and weight savings
- Improved temperature and power cycling capability
- Small and light weight
- Low noise switching



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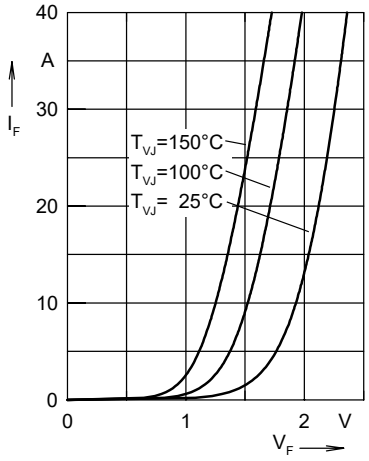


Fig. 1 Forward current $I_F$ versus $V_F$

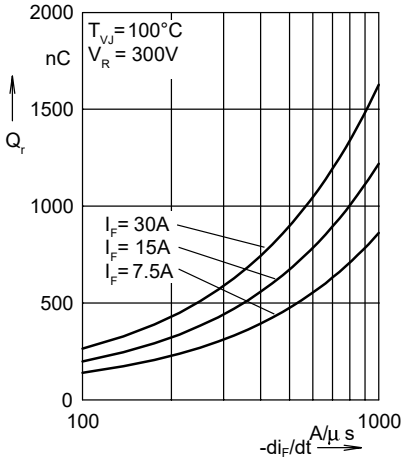


Fig. 2 Reverse recovery charge $Q_r$ versus $-di_F/dt$

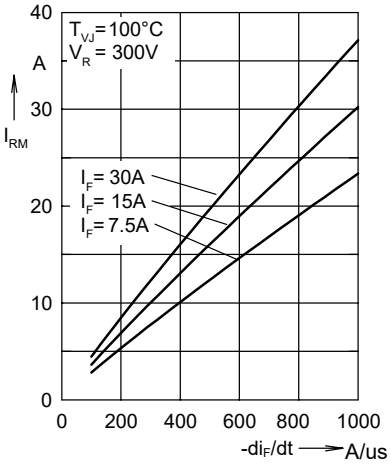


Fig. 3 Peak reverse current $I_{RM}$ versus $-di_F/dt$

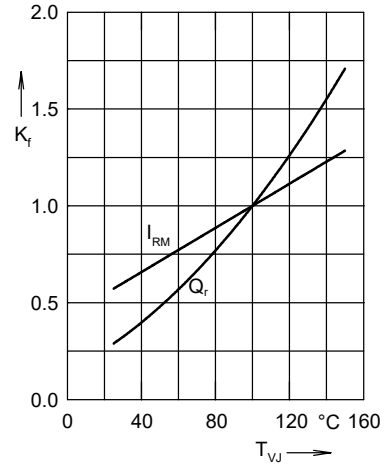


Fig. 4 Dynamic parameters $Q_r$, $I_{RM}$ versus $T_{VJ}$

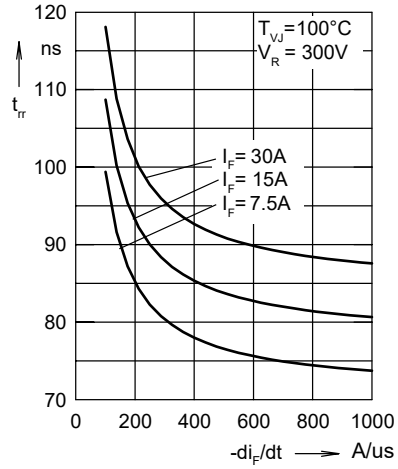


Fig. 5 Recovery time $t_{rr}$ versus $-di_F/dt$

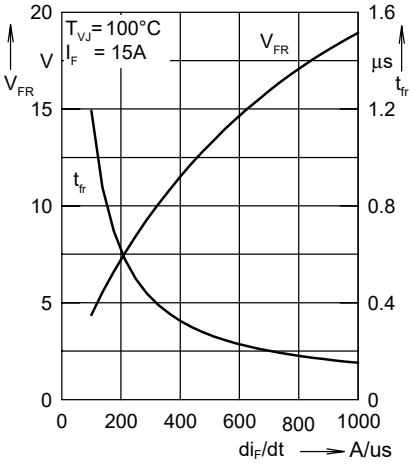


Fig. 6 Peak forward voltage $V_{FR}$ and $t_{fr}$ versus $di_F/dt$

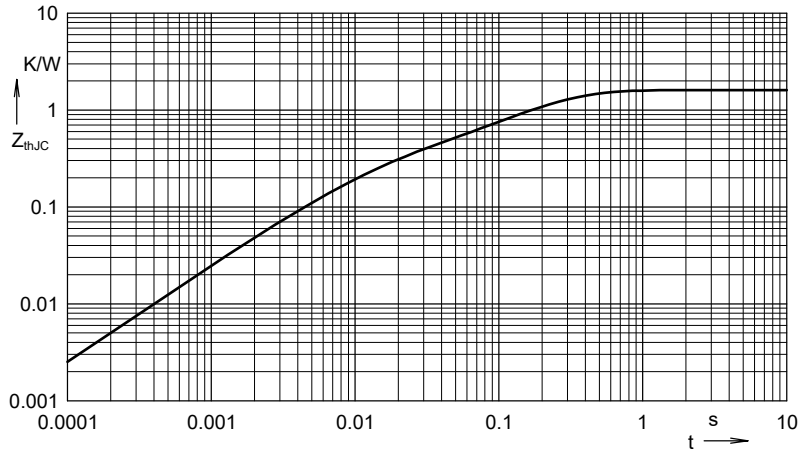


Fig. 7 Transient thermal resistance junction to case

Constants for $Z_{thJC}$ calculation:

| i | $R_{thi}$(K/W) | $t_i$(s) |
|---|---|---|
| 1 | 0.5464 | 0.0052 |
| 2 | 0.2104 | 0.0003 |
| 3 | 0.0432 | 0.0004 |
| 4 | 0.8 | 0.0092 |



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