

Pb Free Plating Product

DPG80C300HB



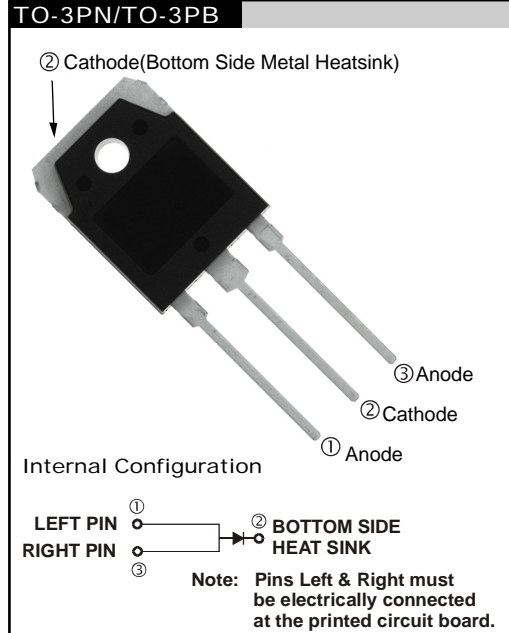
80 Ampere, 300 Volt Planar Passivation Ultra Fast Recovery Epitaxial Diode

**APPLICATION**

- Freewheeling, Snubber, Clamp
- Inversion Welder
- PFC
- Plating Power Supply
- Ultrasonic Cleaner and Welder
- Converter & Chopper
- UPS

**PRODUCT FEATURE**

- Ultrafast Recovery Time
- Soft Recovery Characteristics
- Low Recovery Loss
- Low Forward Voltage
- High Surge Current Capability
- Low Leakage Current



**GENERAL DESCRIPTION**

DPG80C300HB using latest FRED FAB process(planar passivation chip) with ultrafast and soft recovery characteristic.

**ABSOLUTE MAXIMUM RATINGS**

$T_C = 25^\circ\text{C}$  unless otherwise specified

| Symbol          | Parameter/Test Conditions            |   | Values      | Unit                      |
|-----------------|--------------------------------------|---|-------------|---------------------------|
| $V_R$           | Maximum D.C. Reverse Voltage         |   | 300         | V                         |
| $V_{RRM}$       | Maximum Repetitive Reverse Voltage   |   |             |                           |
| $I_{F(AV)}$     | Average Forward Current              | $T_C = 100^\circ\text{C}$   | 80          | A                         |
| $I_{F(RMS)}$    | RMS Forward Current                  | $T_C = 100^\circ\text{C}$   | 110         |                           |
| $I_{FSM}$       | Non-Repetitive Surge Forward Current | $T_J = 45^\circ\text{C}, t = 10\text{ms}, 50\text{Hz}, \text{Sine}$ | 640         |                           |
| $P_D$           | Power Dissipation                    |   | 250         | W                         |
| $T_J$           | Junction Temperature                 |   | -55 to +150 | $^\circ\text{C}$          |
| $T_{STG}$       | Storage Temperature Range            |   | -55 to +150 | $^\circ\text{C}$          |
| <b>Torque</b>   | Module-to-Sink                       | Recommended (M3)  | 1.1         | N.m                       |
| $R_{\theta JC}$ | Junction-to-Case Thermal Resistance  |   | 0.5         | $^\circ\text{C}/\text{W}$ |
| <b>Weight</b>   |                                      |   | 6           | g                         |

**ELECTRICAL CHARACTERISTICS**

$T_C = 25^\circ\text{C}$  unless otherwise specified

| Symbol    | Parameter/Test Conditions  |  | Min. | Typ.               | Max.   | Unit          |
|-----------|--|--|------|--------------------|--|---------------|
| $I_{RM}$  | Maximum Reverse Leakage Current  |  |      |                    | 10   | $\mu\text{A}$ |
|           |  |  |      |                    | $V_R = 300\text{V}, T_J = 125^\circ\text{C}$ | 10            |
| $V_F$     | Forward Voltage  |  |      | 1.35               | 1.5  | V             |
|           |  |  |      | $I_F = 80\text{A}$ | 1.25   |               |
| $t_{rr}$  | Reverse Recovery Time ( $I_F = 1\text{A}, diF/dt = -200\text{A}/\mu\text{s}, V_R = 30\text{V}$ ) |  |      | 30                 |  | ns            |
| $t_{rr}$  | Reverse Recovery Time  |  |      | 50                 |  | ns            |
| $I_{RRM}$ | Maximum Reverse Recovery Current   |  |      | 5                  |  | A             |
| $t_{rr}$  | Reverse Recovery Time  |  |      | 95                 |  | ns            |
| $I_{RRM}$ | Maximum Reverse Recovery Current   |  |      | 9                  |  | A             |
| <b>S</b>  |  |  |      | 0.6                |  |               |

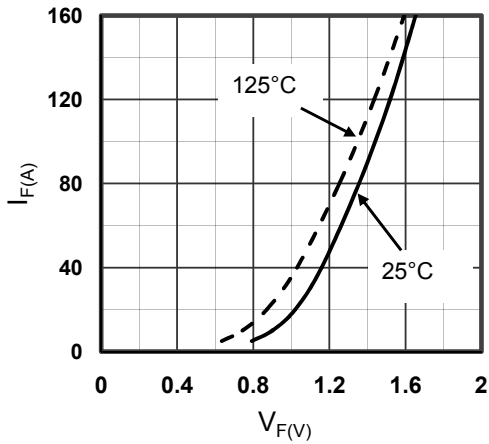


Figure1. Forward Voltage Drop vs Forward Current

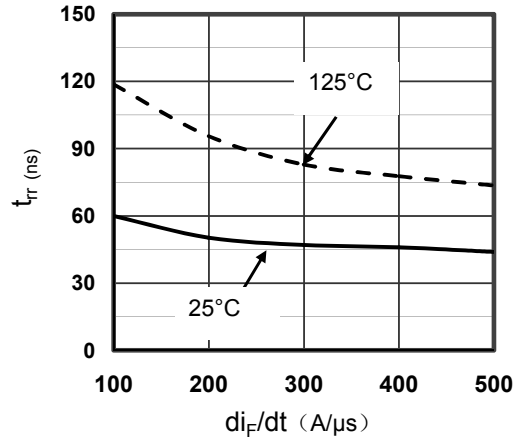


Figure2. Reverse Recovery Time vs diF/dt

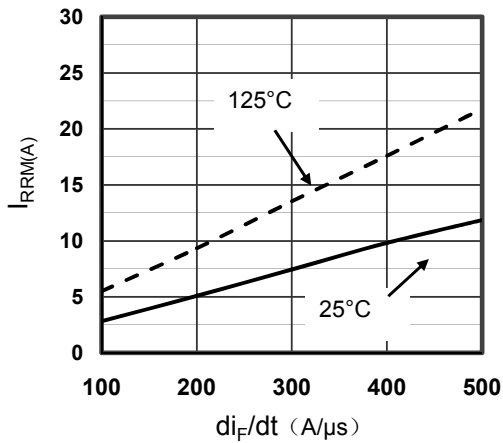


Figure3. Reverse Recovery Current vs diF/dt

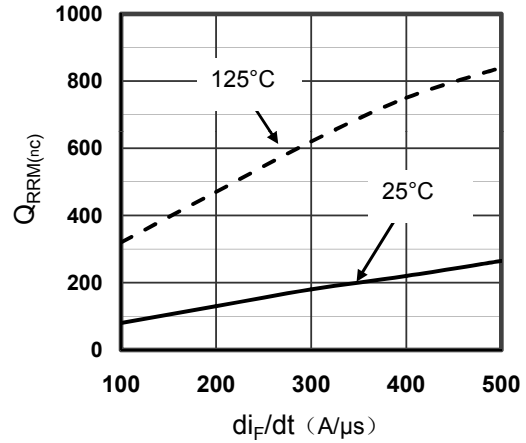


Figure4. Reverse Recovery Charge vs diF/dt

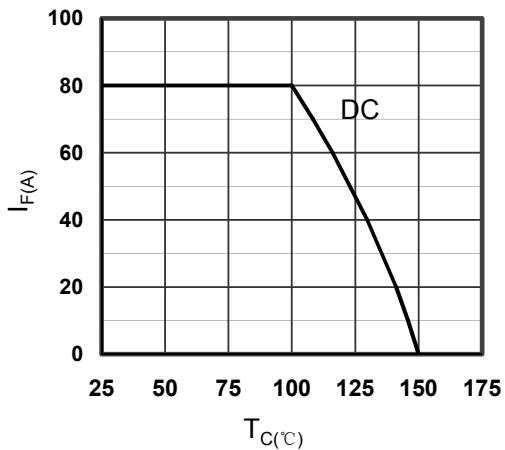


Figure5. Forward current vs Case temperature

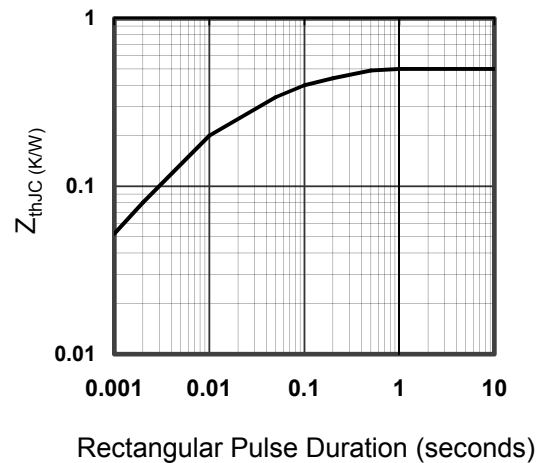


Figure6. Transient Thermal Impedance

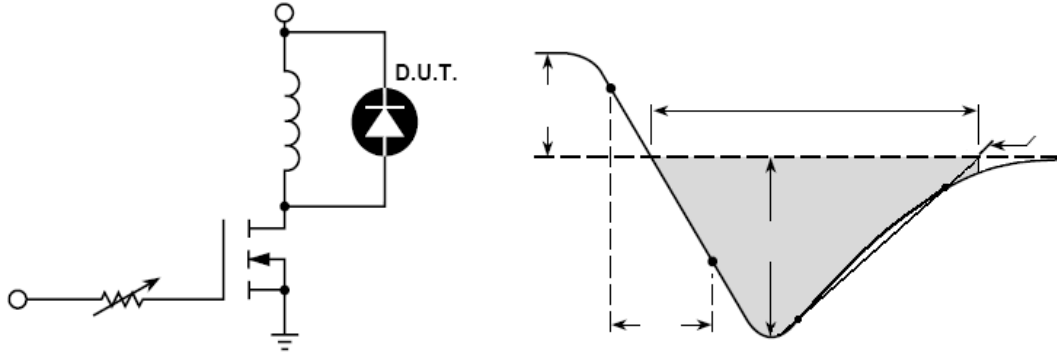


Figure7. Diode Reverse Recovery Test Circuit and Waveform

