

Pb Free Plating Product

DPG80C300HB



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

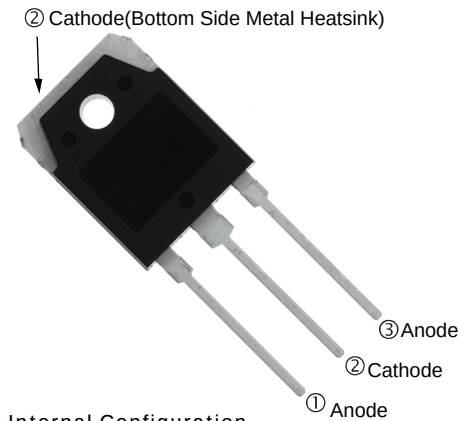
APPLICATION

- 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

TO-3PN/TO-3PB



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	$^\circ\text{C}$
Torque	Module-to-Sink	Recommended (M3)	1.1	N.m
$R_{\theta JC}$	Junction-to-Case Thermal Resistance		0.5	$^\circ\text{C}/\text{W}$
Weight			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	$V_R = 300\text{V}$			10	μA
		$V_R = 300\text{V}, T_J = 125^\circ\text{C}$			10	mA
V_F	Forward Voltage	$I_F = 80\text{A}$		1.35	1.5	V
		$I_F = 80\text{A}, T_J = 125^\circ\text{C}$		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	$I_F = 80\text{A}, V_R = 150\text{V}, diF/dt = -200\text{A}/\mu\text{s}$		50		ns
I_{RRM}	Maximum Reverse Recovery Current			5		A
t_{rr}	Reverse Recovery Time	$I_F = 80\text{A}, V_R = 150\text{V}, diF/dt = -200\text{A}/\mu\text{s}$		95		ns
I_{RRM}	Maximum Reverse Recovery Current			9		A
S		$T_J = 125^\circ\text{C}$		0.6		

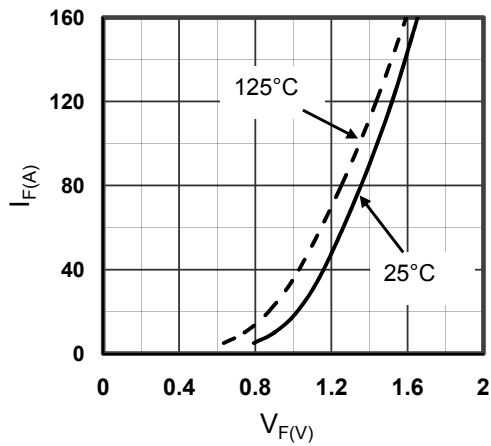


Figure1. Forward Voltage Drop vs Forward Current

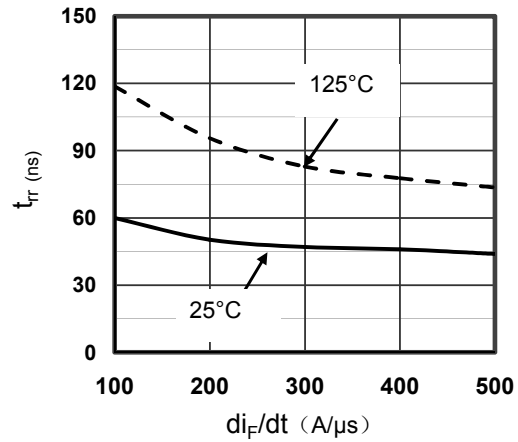


Figure2. Reverse Recovery Time vs di_F/dt

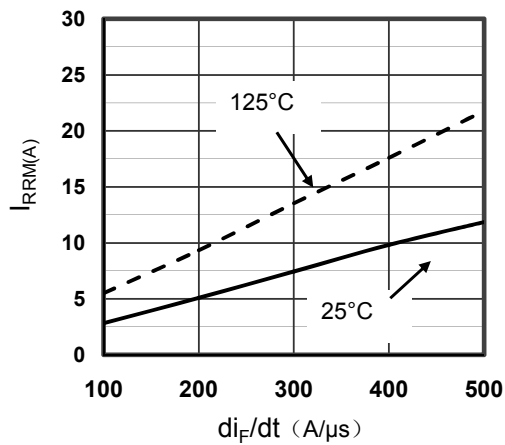


Figure3. Reverse Recovery Current vs di_F/dt

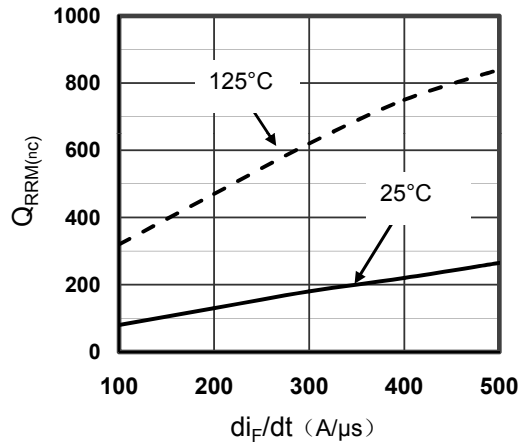


Figure4. Reverse Recovery Charge vs di_F/dt

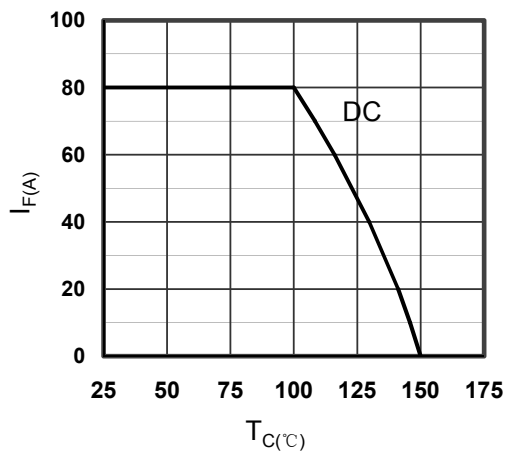
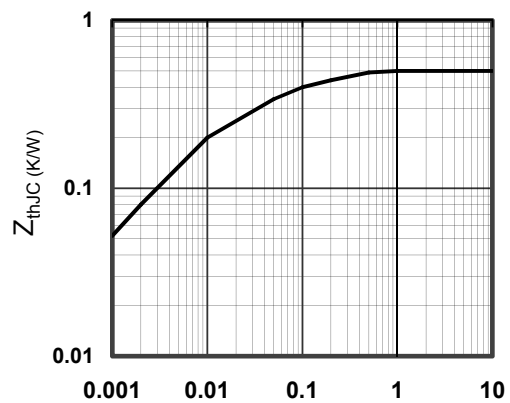


Figure5. Forward current vs. Case temperature



Rectangular Pulse Duration (seconds)

Figure6. Transient Thermal Impedance

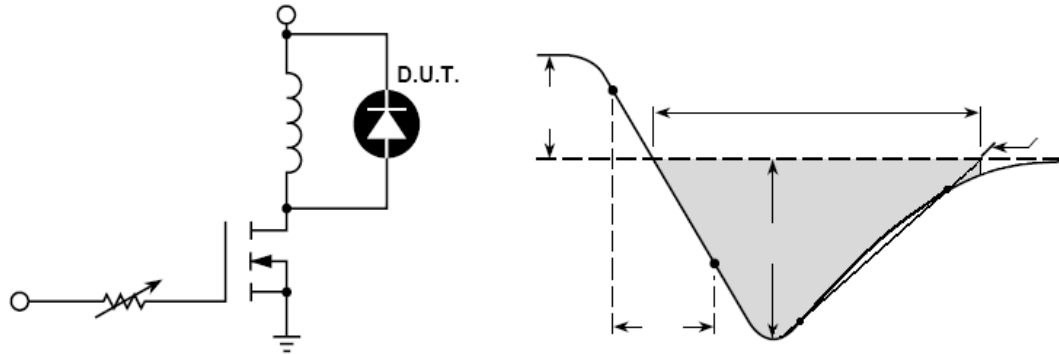
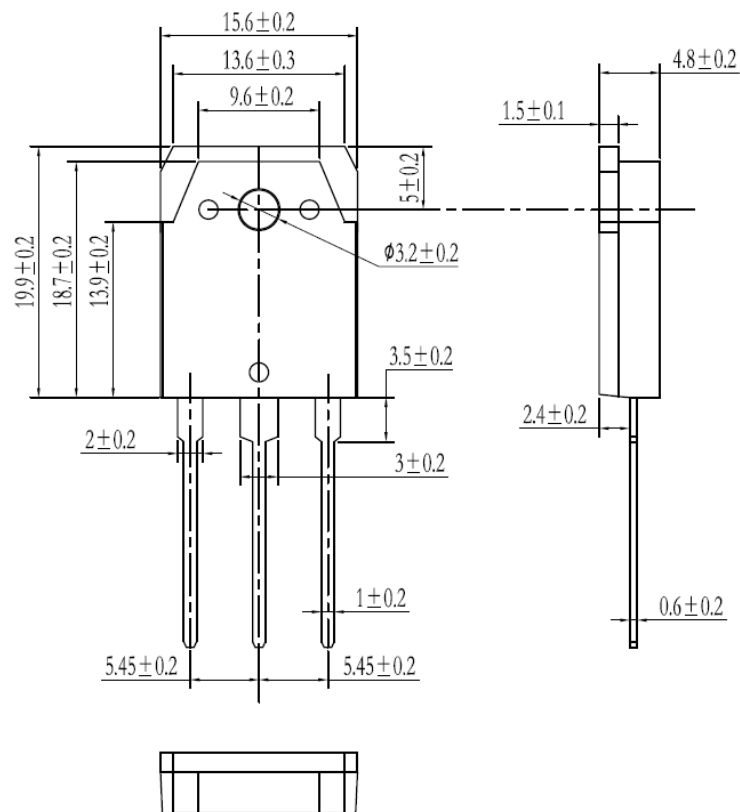


Figure7. Diode Reverse Recovery Test Circuit and Waveform



Dimensions in Millimeters
Fig8. Package Outline