

Ultra-Fast Soft Recovery Diode Module

Description

Ultra-FRD module devices are optimized to reduce losses and EMI/RFI in high frequency power conditioning electrical systems. These diode modules are ideally suited for power converters, motors drives and other applications where switching losses are significant portion of the total losses.

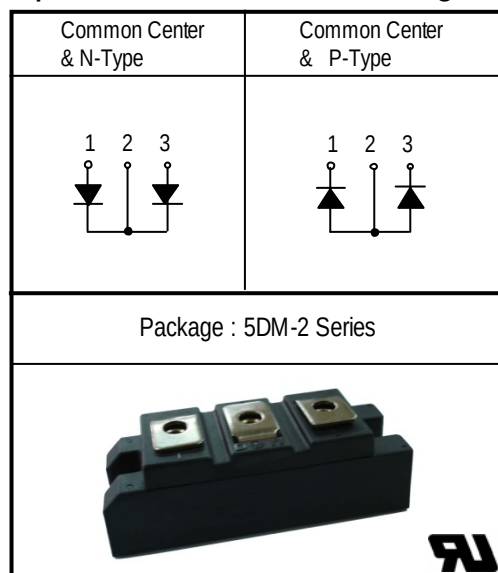
Features

- ☞ Repetitive Reverse Voltage : $V_{RRM} = 600V$
- ☞ Low Forward Voltage Drop : $V_F(\text{typ.}) = 1.5V$
- ☞ Average Forward Current : $I_F(\text{AV.}) = 200A$ @ $T_c = 100^\circ C$
- ☞ Ultra-Fast Reverse Recovery Time : $t_{rr}(\text{typ.}) = 180 \text{ ns}$
- ☞ Extensive Characterization of Recovery Parameters
- ☞ Reduced EMI and RFI
- ☞ Isolation Type Package

Applications

Motor Drives, Free wheel use, High Power Converters, Welders, Various Switching and Telecommunication Power Supply.

Equivalent Circuit and Package



Please see the package Out line information

Ordering Information

Device Name	DBC2F200N6S	DBC2F200P6S
Optional Information	Common Center & N-Type	Common Center & P-Type

Absolute Maximum Ratings @ $T_J = 25^\circ C$ (Per Leg)

Symbol	Parameter	Conditions	Ratings	Unit
V_{RRM}	Repetitive Peak Reverse Voltage		600	V
$V_{R(DC)}$	Reverse DC Voltage		480	V
$I_{F(AV)}$	Average Forward Current	@ $T_c = 25^\circ C$ @ $T_c = 100^\circ C$	400 200	A A
I_{FSM}	Surge(non-repetitive) Forward Current	One Half Cycle at 60Hz, Peak Value	3300	A
I^2_t	I^2t for Fusing	Value for One Cycle Current, $t_w = 8.3ms$, $T_j = 25^\circ C$ Start	45.0×10^3	A^2s
T_j	Junction Temperature		$-40 \sim 150$	$^\circ C$
T_{sta}	Storage Temperature		$-40 \sim 125$	$^\circ C$
V_{isol}	Isolation Voltage	@ AC 1 minutes	2500	V
P_d	Maximum Power Dissipation		700	W
-	Mounting Torque		4.0	N.m
-	Terminal Torque		3.0	N.m
-	Weight	Typical Including Screws	180	g

Thermal Characteristics

Symbol	Parameter	Conditions	Values			Unit
			Min.	Typ.	Max.	
$R_{th(j-c)}$	Thermal Resistance	Junction to Case	-	-	0.15	°C/W

Electrical Characteristics @ $T_J=25^{\circ}\text{C}$ (unless otherwise specified)

Symbol	Parameter	Conditions		Values			Unit
				Min.	Typ.	Max.	
V _R	Cathode Anode Breakdown Voltage	I _R = 100uA		600	-	-	V
V _{FM}	Maximum Forward Voltage	I _{FM} = 200A, T _c = 25 °C		-	1.5	1.7	V
		I _{FM} = 200A, T _c =100 °C		-	1.3	1.5	V
I _{RRM}	Repetitive Peak Reverse Current	T _C = 100 °C, V _{RRM} applied		-	-	8.5	mA
T _{rr}	Reverse Recovery Time	I _{FM} = 200A, V _R = 300V di/dt=-100A/us	T _C = 25 °C	-	180	220	ns
			T _C = 100 °C	-	220	-	ns

Performance Curves

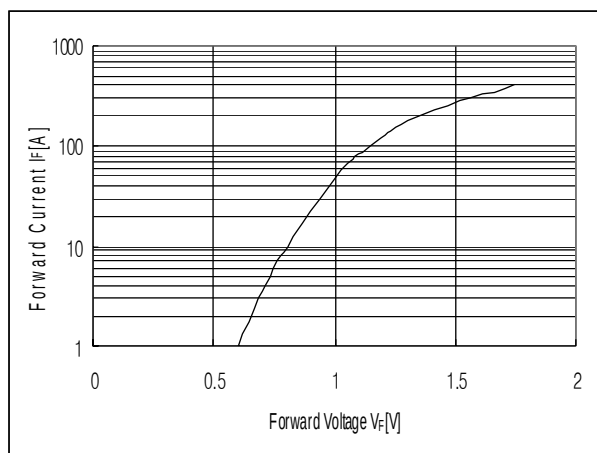


Fig. 1 : Typical Forward Voltage Drop
vs. Instantaneous Forward Current

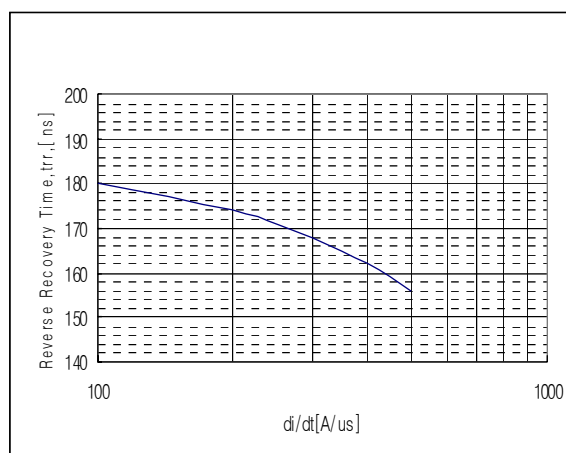


Fig. 2 : Typical Reverse Recovery Time
vs. $-di/dt$

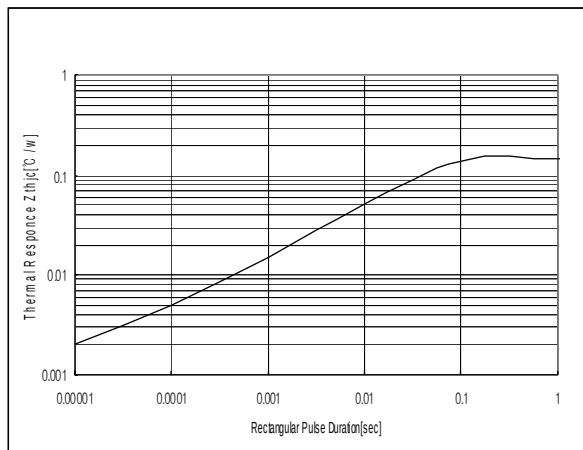


Fig. 3 : Transient Thermal Impedance (Z_{thjc})
Characteristics

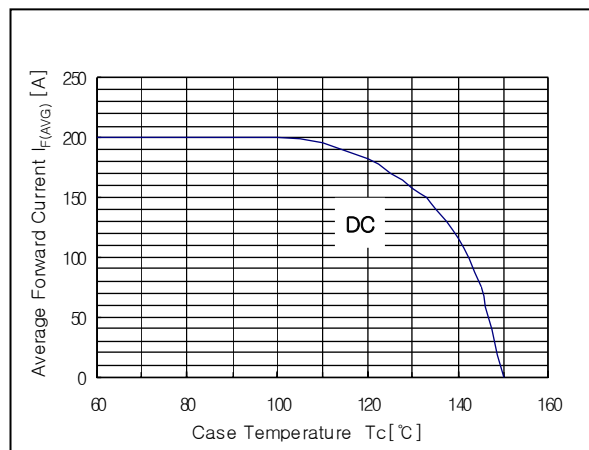


Fig. 4 : Forward Current Derating Curve

Package Out Line Information

5DM-2 Series



UNIT : mm

