



BYD Microelectronics Co., Ltd.

BD150N04FZ

FRD Module

$V_{RRM}=400V$ $I_F=150A$

General Description

BYD FRD Module BD150N04FZ is a fast recovery dual diode module designed for high power switching rectifier circuit. BD150N04FZ can be used in high frequency application requiring low loss and high speed control.

Features

- Two elements in a package
- Dual FRD common cathode construction
- Fast & Soft reverse recovery characteristics
- Low switching losses

Applications

- Inversion welder
- Switching power supply
- Telecommunication power supply



Characteristic values

Parameter	Symbol	Conditions	Temperature	Value	Unit
Absolute Maximum Ratings(Per Leg)					
Repetitive peak reverse voltage	V_{RRM}	—	—	400	V
Reverse DC Voltage	V_R	—	—	320	V
Average forward current	$I_{F(AV)}$	—	—	150	A
No repetitive surge forward current	I_{FSM}	1/2 cycle,60Hz,sine	—	3000	A
I ² t for fusing	I ² t	60Hz,sine,t=8.3ms	—	38000	A ² s
No repetitive surge forward current	I_{FSM}	1/2 cycle,50Hz,sine	—	2850	A
I ² t for fusing	I ² t	50Hz,sine,t=10ms	—	35000	A ² s
Junction temperature	T_{vj}	—	—	- 40~150	°C
Storage temperature range	T_{stg}	—	—	- 40~125	°C



Parameter	Symbol	Conditions	Temperature	Value			Unit
Characteristics							
				Min.	Typ.	Max.	
Reverse leakage current	I_R	$V_R=400V$	$T_{vj}=25^\circ C$	—	5.44	20	μA
Forward voltage	V_F	$I_F=150A$	$T_{vj}=25^\circ C$	—	1.10	1.25	V
Reverse recovery time	t_{rr}	$V_R=200V,$ $I_F=150A$ $di/dt=100A/\mu s,$	$T_{vj}=25^\circ C$	—	102	—	ns
Max. reverse recovery current	I_{RRM}			—	15	—	A
Reverse recovery time	t_{rr}		$T_{vj}=125^\circ C$	—	150	—	ns
Max. reverse recovery current	I_{RRM}			—	18	—	A

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Thermal-Mechanical Specifications						
Diode thermal resistance junction to case	$R_{th(j-c)}$	DC current	—	—	0.13	$^\circ C/W$
Torque	—	Mounting torque	4.0			$N \cdot m$
Torque	—	Terminal torque	4.0			$N \cdot m$
Dimensions	L x W x H	Typical , see outline drawing	92 x 27 x 17			mm
	Term to term	—	—	35	—	
Mass	m	—	—	100	—	g

Thermal and mechanical properties according to IEC 60747 – 15

Characterization curves

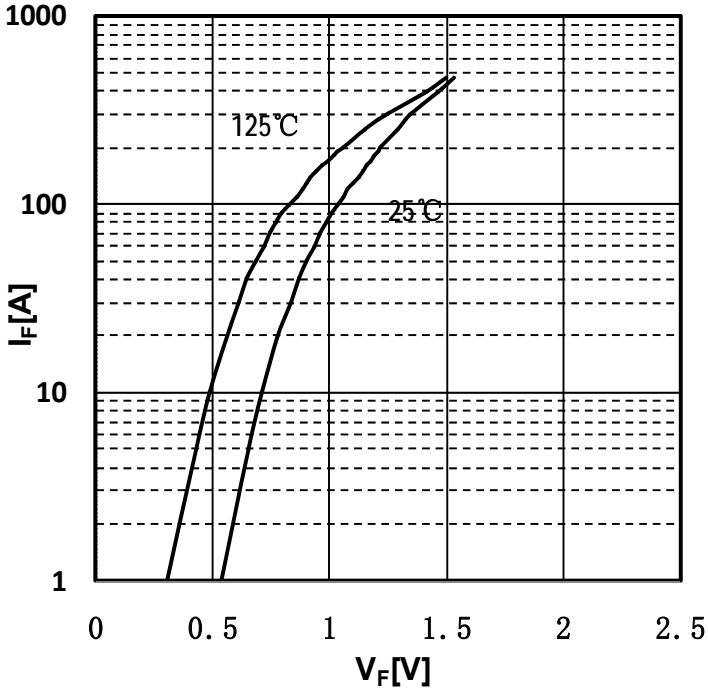


Fig.1 Typical Forward Voltage Drop vs. Instantaneous Forward Current

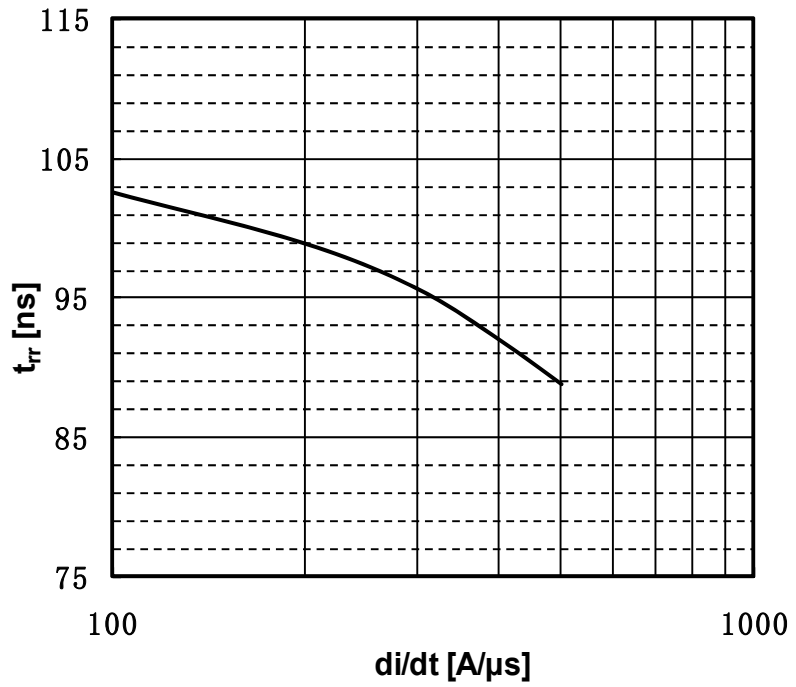


Fig.2 Typical Reverse Recovery Time vs. di/dt

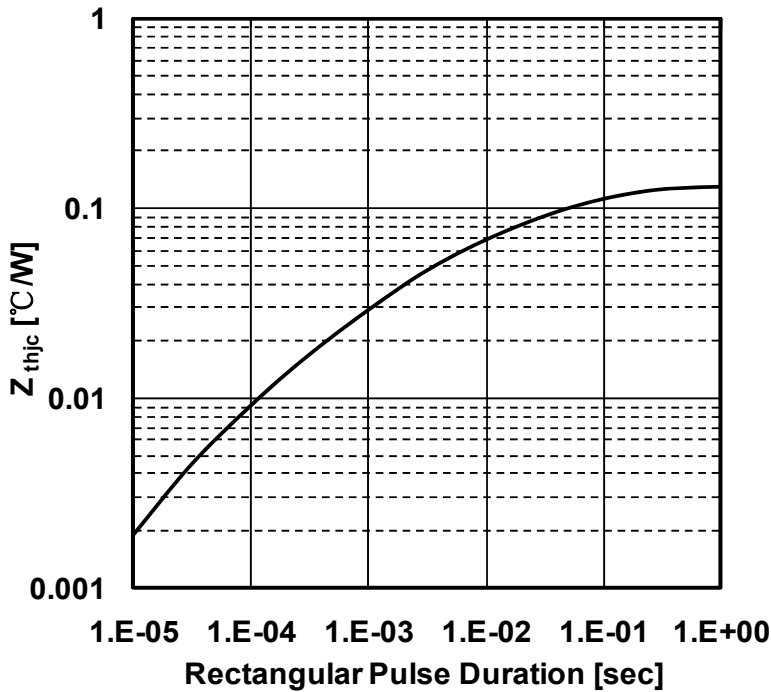


Fig.3 Transient Thermal Impedance (Z_{thjc})

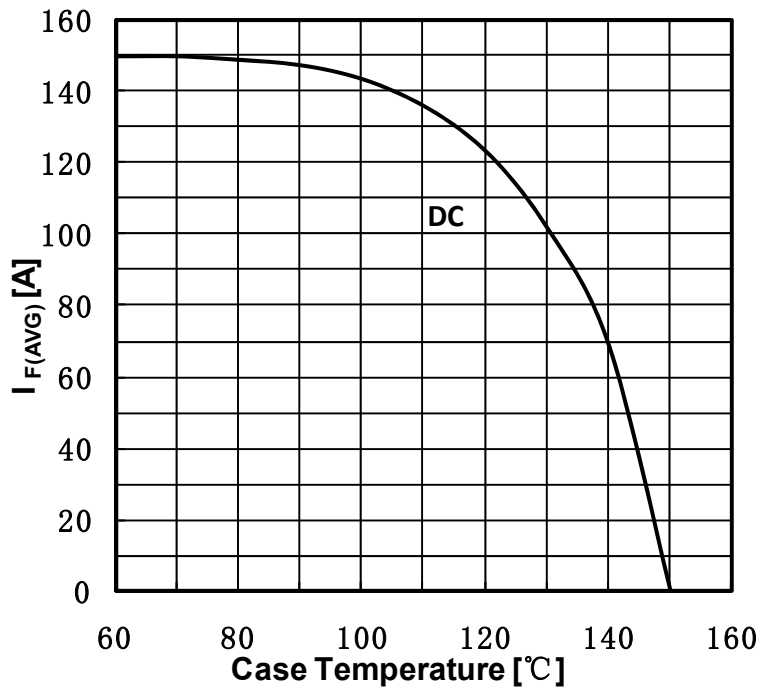
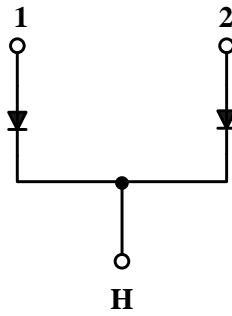
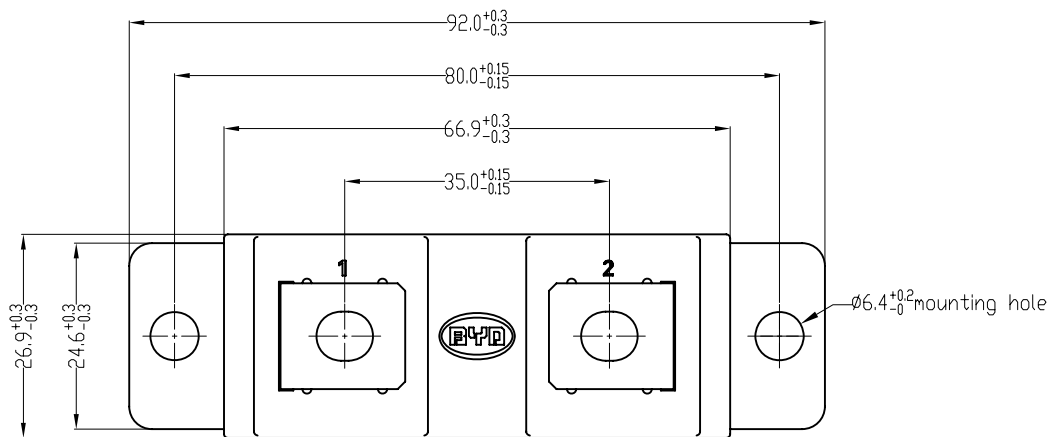
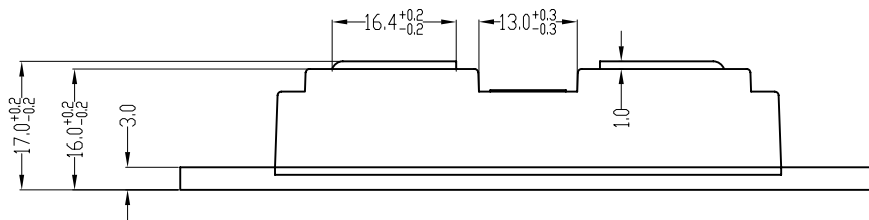


Fig.4 Forward Current Derating Curve Characteristics

Circuit Diagram



Package Outlines Dimensions in mm



Attached (recommended torque):

Mounting torque (M6): 4.0 N • M Terminal torque (M6): 4.0N • M



Attention

1. In order to reduce the contact resistance; we suggest add thermal grease between base and heat-sink, which thickness is about 0.1mm.
2. When installing the module, please wear an electrostatic bracelet to prevent the gate breakdown and the imbalance power may damage the internal chip, even to damage the module.
3. This is an electrostatic sensitive device; please observe the international standard IEC 60747-1, chap. IX.

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