

T-39-31

## 2.6 IGBT Module Range with Soft and Fast (SFD) Free-Wheeling Diodes

In order to maintain switching losses to minimal, improving Free Wheeling Diodes, (FWD), is essential and Hitachi's version of this is the Soft and Fast Recovery (SFD) Free Wheeling Diode. Basically, improvements have been achieved in the following key requirements.

- High speed ... small recovery time,  $t_r$
- Low loss ... small reverse-peak current,  $I_{rp}$
- Low noise ... small rate of charge of recovery current,  $di/dt$

Ultimately reducing your energy losses,  $Q_{rr}$ .

## 2.7 IGBT Modules Electrical Characteristics

Voltage Series	Type Number	Absolute Maximum Ratings					Typical Electrical Characteristics																	
		Package	V <sub>CES</sub> (V)	V <sub>GES</sub> (V)	I <sub>C</sub> (A)	P <sub>C</sub> (W)	V <sub>CE(sat)</sub> (V)	C <sub>ies</sub> (pF)	t <sub>r</sub> (μs)	t <sub>on</sub> (μs)	t <sub>f</sub> (μs)	t <sub>off</sub> (μs)	t <sub>rr</sub> (μs)											
600V	MBN200A6	Single Arm	600	± 20	300	1200	2.5	18000	0.35	0.45	0.3	0.85	0.3											
	MBN400A6				400	1300					0.35													
	MBM50A6	Single Phase (Dual Pack)	600	± 20	50	250	3	2400	0.3	0.35	0.3	0.55	0.1											
	MBM75A6				75	325		3700					0.4	0.45	0.7									
	MBM100A6				100	400		4500																
	MBM150A6				150	600		7400																
	MBM200A6				200	730		9000																
	MBM300A6				300	1000		17000																
	MBB50A6				Three Phase (Six Pack)	600		± 20								50	250	3	2700	0.3	0.35	0.3	0.55	0.1
	MBB75A6															75	300		3700					0.15
	MBB100A6	100	400	4500																				
	1200V	MBN200F12	Single Arm	1200	± 20	200	1200	3	19000	0.4	0.5	0.4	1	0.3										
MBN300F12		300				1700	33000																	
MBM50F12		Single Phase (Dual Pack)	1200	± 20	50	400	3	4800	0.4	0.5	0.4	0.75	0.25											
MBM75F12					75	700		8900				1	0.3											
MBM100F12					100	800		9300																
MBM150F12					150	-		18000																
MBB50F12					Three Phase (Six Pack)	1200		± 20						50	-	-	-	-	-	-				