



# SDI200N12

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## NPT IGBT Modules

### Characteristics

T<sub>c</sub> = 25°C, unless otherwise specified

Symbol	Conditions	min.	typ.	max.	Units
<b>IGBT</b>					
V <sub>GE(th)</sub>	V <sub>GE</sub> = V <sub>CE</sub> , I <sub>C</sub> = 6mA	4.5	5.5	6.5	V
I <sub>CES</sub>	V <sub>GE</sub> = 0; V <sub>CE</sub> = V <sub>CE(sat)</sub> ; T <sub>j</sub> = 25(125)°C		0.1	0.3	mA
V <sub>CE(TO)</sub>	T <sub>j</sub> = 25(125)°C		1.4(1.6)	1.6(1.8)	V
r <sub>CE</sub>	V <sub>GE</sub> = 15V, T <sub>j</sub> = 25(125)°C		7.33(10)	9.3(12.6)	mΩ
V <sub>CE(sat)</sub>	I <sub>C</sub> = 150A; V <sub>GE</sub> = 15V; chip level		2.5(3.1)	3(3.7)	V
C <sub>ies</sub>	under following conditions		10	13	
C <sub>oes</sub>	V <sub>GE</sub> = 0, V <sub>CE</sub> = 25V, f = 1MHz		1.5	2	nF
C <sub>res</sub>			0.8	1.2	
L <sub>CE</sub>				20	nH
R <sub>CC'+EE'</sub>	res., terminal-chip T <sub>c</sub> = 25(125)°C		0.35(0.5)		mΩ
t <sub>d(on)</sub>	under following conditions: V <sub>CC</sub> = 600V, I <sub>C</sub> = 150A		220	400	ns
t <sub>r</sub>	R <sub>Gon</sub> = R <sub>Goff</sub> = 5.6Ω, T <sub>j</sub> = 125°C		100	200	ns
t <sub>d(off)</sub>	V <sub>GE</sub> = ± 15V		600	800	ns
t <sub>f</sub>			70	100	ns
E <sub>on</sub> (E <sub>off</sub> )			24(17)		mJ
<b>Inverse Diode</b> under following conditions:					
V <sub>F</sub> = V <sub>EC</sub>	I <sub>F</sub> = 150A; V <sub>GE</sub> = 0V; T <sub>j</sub> = 25(125)°C		2(1.8)	2.5	V
V <sub>(TO)</sub>	T <sub>j</sub> = 125°C			1.2	V
r <sub>T</sub>	T <sub>j</sub> = 125°C		5	7	mΩ
I <sub>RRM</sub>	I <sub>F</sub> = 100A; T <sub>j</sub> = 25(125)°C		55(80)		A
Q <sub>rr</sub>	di/dt = A/us		8(20)		uC
E <sub>rr</sub>	V <sub>GE</sub> = V				mJ
<b>FWD</b> under following conditions:					
V <sub>F</sub> = V <sub>EC</sub>	I <sub>F</sub> = 100A; V <sub>GE</sub> = 0V; T <sub>j</sub> = 25(125)°C		1.85(1.6)	2.2	V
V <sub>(TO)</sub>	T <sub>j</sub> = 125°C			1.2	V
r <sub>T</sub>	T <sub>j</sub> = 125°C		3	5.5	mΩ
I <sub>RRM</sub>	I <sub>F</sub> = 150A; T <sub>j</sub> = 25°C		60(90)		A
Q <sub>rr</sub>	di/dt = A/us		8(23)		uC
E <sub>rr</sub>	V <sub>GE</sub> = V				mJ
<b>Thermal Characteristics</b>					
R <sub>th(j-c)</sub>	per IGBT			0.09	K/W
R <sub>th(j-c)D</sub>	per Inverse Diode			0.25	K/W
R <sub>th(j-c)FD</sub>	per FWD			0.18	K/W
R <sub>th(c-s)</sub>	per module			0.038	K/W
<b>Mechanical Data</b>					
M <sub>s</sub>	to heatsink M6	3		5	Nm
M <sub>t</sub>	to terminals M6	2.5		5	Nm
w				325	g

