



# SDI75N12

## 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> = 2mA	4.5	5.5	6.5	V
I <sub>CES</sub>	V <sub>GE</sub> = 0; V <sub>CE</sub> = V <sub>CES</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		22(30)	28(38)	mΩ
V <sub>CE(sat)</sub>	I <sub>C</sub> = 100A; V <sub>GE</sub> = 15V; chip level		2.5(3.1)	3(3.7)	V
C <sub>ies</sub>	under following conditions		3.3	4.3	nF
C <sub>oes</sub>	V <sub>GE</sub> = 0, V <sub>CE</sub> = 25V, f = 1MHz		0.5	0.6	nF
C <sub>res</sub>			0.22	0.3	nF
L <sub>CE</sub>				30	nH
R <sub>CC+EE'</sub>	res., terminal-chip T <sub>c</sub> = 25(125)°C		0.75(1)		mΩ
under following conditions:					
t <sub>d(on)</sub>	V <sub>CC</sub> = 600V, I <sub>C</sub> = 75A		44	100	ns
t <sub>r</sub>	R <sub>Gon</sub> = R <sub>Goff</sub> = 22Ω, T <sub>j</sub> = 125°C		56	100	ns
t <sub>d(off)</sub>	V <sub>GE</sub> = ± 15V		380	500	ns
t <sub>f</sub>			70	100	ns
E <sub>on(Eoff)</sub>			8(5)		mJ
<b>Inverse Diode</b> under following conditions:					
V <sub>F</sub> = V <sub>EC</sub>	I <sub>F</sub> = 75A; 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		18	22	mΩ
I <sub>RRM</sub>	I <sub>F</sub> = 50A; T <sub>j</sub> = 25(125)°C		23(35)		A
Q <sub>rr</sub>	di/dt = 800A/us				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> = 50A; 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		12	15	mΩ
I <sub>RRM</sub>	I <sub>F</sub> = 50A; T <sub>j</sub> = 25°C		27(40)		A
Q <sub>rr</sub>	di/dt = A/us				uC
E <sub>rr</sub>	V <sub>GE</sub> = V				mJ
<b>Thermal Characteristics</b>					
R <sub>th(j-c)</sub>	per IGBT			0.27	K/W
R <sub>th(j-c)D</sub>	per Inverse Diode			0.6	K/W
R <sub>th(j-c)FD</sub>	per FWD			0.5	K/W
R <sub>th(c-s)</sub>	per module			0.05	K/W
<b>Mechanical Data</b>					
M <sub>s</sub>	to heatsink M6	3		5	Nm
M <sub>t</sub>	to terminals M5	2.5		5	Nm
w				160	g

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