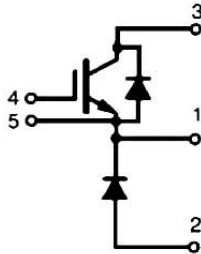
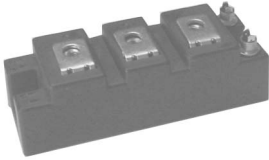


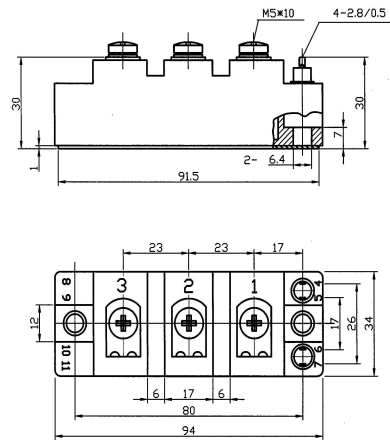
# SDI100S12

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## SPT IGBT Modules



Dimensions in mm (1mm = 0.0394")



### Absolute Maximum Ratings

$T_c = 25^\circ\text{C}$ , unless otherwise specified

Symbol	Conditions	Values	Units
<b>IGBT</b>			
$V_{CES}$		1200	V
$I_c$	$T_c = 25(80)^\circ\text{C}$	145(105)	A
$I_{CRM}$	$T_c = 25(80)^\circ\text{C}$ , $t_P = 1\text{ms}$	290(210)	A
$V_{GES}$		$\pm 20$	V
$T_{Vj}(T_{stg})$	$T_{OPERATION} \leq T_{stg}$	$-40 \dots +150(125)$	$^\circ\text{C}$
$V_{isol}$	AC, 1min	4000	V
<b>Inverse Diode</b>			
$I_{F=-I_c}$	$T_c = 25(80)^\circ\text{C}$	95(65)	A
$I_{FRM}$	$T_c = 25(80)^\circ\text{C}$ , $t_P = 1\text{ms}$	290(210)	A
$I_{FSM}$	$t_P = 10\text{ms}$ ; sin.; $T_j = 150^\circ\text{C}$	720	A

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## SPT 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> = 3mA	4.8	5.5	6.45	V
I <sub>CES</sub>	V <sub>GE</sub> = 0; V <sub>CE</sub> = V <sub>CE(s)</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(0.9)	1.15(1.05)	V
r <sub>CE</sub>	V <sub>GE</sub> = 20V, T <sub>j</sub> = 25(125)°C		13(16)	16(20)	mΩ
V <sub>CE(sat)</sub>	I <sub>c</sub> = 50A; V <sub>GE</sub> = 15V; chip level		1.9(2.1)	2.35(2.55)	V
C <sub>ies</sub>	under following conditions		6.2		nF
C <sub>oes</sub>	V <sub>GE</sub> = 0, V <sub>CE</sub> = 25V, f = 1MHz		0.74		nF
C <sub>res</sub>			0.71		nF
L <sub>CE</sub>				25	nH
R <sub>CC+EE'</sub>	res., terminal-chip T <sub>c</sub> = 25(125)°C		0.75(1)		mΩ
t <sub>d(on)</sub>	under following conditions: V <sub>CC</sub> = 600V, I <sub>c</sub> = 50A		150		ns
t <sub>r</sub>	R <sub>Gon</sub> = R <sub>Goff</sub> = 15Ω, T <sub>j</sub> = 125°C		45		ns
t <sub>d(off)</sub>	V <sub>GE</sub> = ± 15V		560		ns
t <sub>f</sub>			50		ns
E <sub>on(Eoff)</sub>			8.5(7.5)		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> = 25(125)°C		1.05	1.3	V
r <sub>T</sub>	T <sub>j</sub> = 25(125)°C		13	16	mΩ
I <sub>RRM</sub>	I <sub>F</sub> = 75A; T <sub>j</sub> = 125°C		105		A
Q <sub>rr</sub>	di/dt = 3100A/us		10.5		uC
E <sub>rr</sub>	V <sub>GE</sub> = V		3.4		mJ
<b>Thermal Characteristics</b>					
R <sub>th(j-c)</sub>	per IGBT			0.21	K/W
R <sub>th(j-c)D</sub>	per Inverse Diode			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

