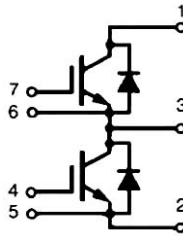
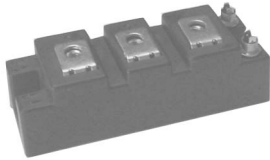
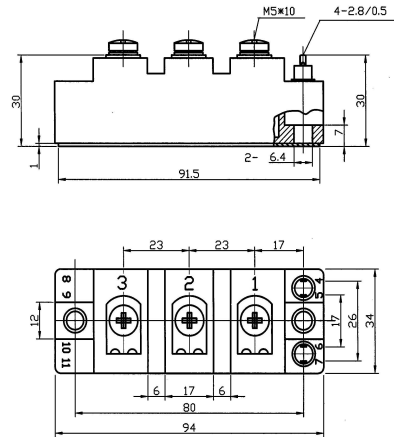


# SII75S12

## 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
$I_c$	$T_c = 25(80)^\circ\text{C}$	100(70)	A
$I_{CRM}$	$T_c = 25(80)^\circ\text{C}$ , $t_P = 1\text{ms}$	200(140)	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>			
$I_{F=-I_c}$	$T_c = 25(80)^\circ\text{C}$	75(50)	A
$I_{FRM}$	$T_c = 25(80)^\circ\text{C}$ , $t_P = 1\text{ms}$	200(140)	A
$I_{FSM}$	$t_P = 10\text{ms}$ ; sin.; $T_j = 150^\circ\text{C}$	550	A

# SII75S12

## 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> = 4mA	4.8	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(0.9)	1.15(1.05)	V
r <sub>CE</sub>	V <sub>GE</sub> = 20V, T <sub>j</sub> = 25(125)°C		18(24)	24(30)	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		4.5		nF
C <sub>oes</sub>	V <sub>GE</sub> = 0, V <sub>CE</sub> = 25V, f = 1MHz		0.6		
C <sub>res</sub>			0.55		
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		90		ns
t <sub>r</sub>	R <sub>Gon</sub> = R <sub>Goff</sub> = 15Ω, T <sub>j</sub> = 125°C		55		ns
t <sub>d(off)</sub>	V <sub>GE</sub> = ± 15V		400		ns
t <sub>f</sub>			40		ns
E <sub>on(Eoff)</sub>			5.7(4.7)		mJ
<b>Inverse Diode</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		2(1.8)	2.5	V
V <sub>(TO)</sub>	T <sub>j</sub> = 25(125)°C		1.1	1.2	V
r <sub>T</sub>	T <sub>j</sub> = 25(125)°C		18	26	mΩ
I <sub>RRM</sub>	I <sub>F</sub> = 50A; T <sub>j</sub> = 125°C		80		A
Q <sub>rr</sub>	di/dt = 2100A/us		8.5		uC
E <sub>rr</sub>	V <sub>GE</sub> = V		3.1		mJ
<b>Thermal Characteristics</b>					
R <sub>th(j-c)</sub>	per IGBT			0.3	K/W
R <sub>th(j-c)D</sub>	per Inverse Diode			0.6	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