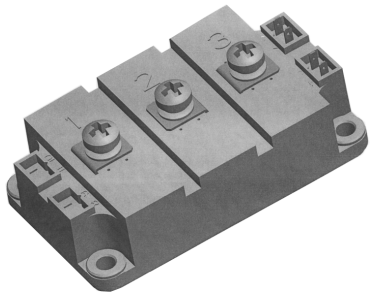
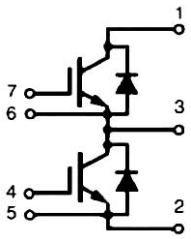
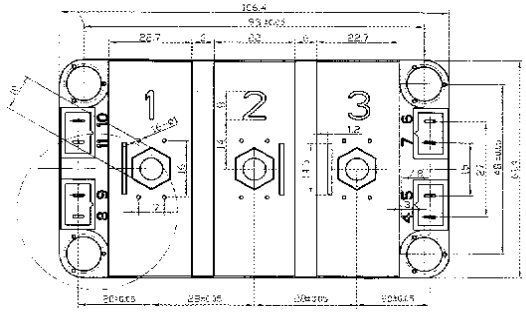
SII300S12

SPT IGBT Modules

Dimensions in mm (1mm = 0.0394")







Absolute Maximum Ratings $T_C = 25^oC$, unless otherwise specified

Symbol	Conditions	Values	Units
IGBT			
V_{CES}		1200	V
I_C	T_C= 25(80)^{o}C	370(265)	A
I_{CRM}	T_C= 25(80)^{o}C, t_P =1ms	740(530)	A
V_{GES}		±20	V
T_{Vj},(T_{stg})	$T_{OPERATION} \leq T_{stg}$	−40...+150(125)	^{o}C
V_{isol}	AC, 1min	4000	V
Inverse Diode			
I_F = -I_C	T_C= 25(80)^{o}C	260(180)	A
I_{FRM}	T_C= 25(80)^{o}C, t_P =1ms	690(500)	A
I_{FSM}	t_P =10ms; sin.;T_j=150°C	1800	A
Freewheeling diode			
I_F = -I_C	T_C= 25(80)^{o}C	260(180)	A
I_{FRM}	T_C= 25(80)^{o}C, t_P =1ms	690(500)	A
I_{FSM}	t_P =10ms; sin.;T_j=150°C	1800	A

SII300S12

SPT IGBT Modules

Characteristics $T_C = 25^oC$, unless otherwise specified

Symbol	Conditions	min.	typ.	max.	Units
IGBT					
$V_{GE(th)}$	$V_{GE} = V_{CE}$, I_C =8mA	4.5	5.5	6.5	V
I_{CES}	V_{GE} = 0; $V_{CE} = V_{CES}$; $T_j = 25(125)^oC$		0.2	0.6	mA
$V_{CE(TO)}$	$T_j = 25^oC$		1(0.9)	1.15(1.05)	V
r_{CE}	V_{GE} = 15V, $T_j = 25(125)^oC$		4.5(6)	6(7.5)	mΩ
$V_{CE(sat)}$	I_C =200A; V_{GE} = 15V; chip level		1.9(2.1)	2.35(2.55)	V
C_{ies}	under following conditions		17		
C_{oes}	V_{GE} = 0, V_{CE} = 25V, f = 1MHz		2		nF
C_{res}			1.9		
L_{CE}				20	nH
$R_{CC'+EE'}$	res., terminal-chip $T_C = 25(125)^oC$		0.35(0.5)		mΩ
	under following conditions:				
$t_{d(on)}$	V_{CC} = 600V, I_C = 200A		170		ns
t_r	$R_{Gon} = R_{Goff}$ = 5 Ω $T_j = 125^oC$		55		ns
$t_{d(off)}$	V_{GE} = ± 15V		660		ns
t_f			60		ns
$E_{on}(E_{off})$			22(22)		mJ
Inverse Diode	under following conditions:				
$V_F = V_{EC}$	I_F =200A; V_{GE} = 0V; $T_j = 25(125)^oC$		2(1.8)	2.5	V
$V_{(TO)}$	$T_j = 25(125)^oC$		1.1	1.2	V
r_T	$T_j = 25(125)^oC$		4.5	6.5	mΩ
I_{RRM}	I_F = 200A; $T_j = 125^oC$		280		A
Q_{rr}	di/dt = 6300A/us		33		uC
E_{rr}	V_{GE} = V		11		mJ
FWD	under following conditions:				
$V_F = V_{EC}$	I_F = 100A; V_{GE} = 0V; $T_j = 25(125)^oC$		2.1(1.8)	2.5	V
$V_{(TO)}$	$T_j = 25(125)^oC$		1.1	1.2	V
r_T	$T_j = 25(125)^oC$		4.5	6.5	mΩ
I_{RRM}	I_F = 200A; $T_j = 25(125)^oC$		280		A
Q_{rr}	di/dt = A/us		33		uC
E_{rr}	V_{GE} = V		11		mJ
Thermal Characteristics					
$R_{th(j-c)}$	per IGBT			0.085	K/W
$R_{th(j-c)D}$	per Inverse Diode			0.18	K/W
$R_{th(c-s)}$	per module			0.038	K/W
Mechanical Data					
M_s	to heatsink M6	3		5	Nm
M_t	to terminals M6	2.5		5	Nm
w				325	g