

SDI300S12

SPT IGBT Modules

Characteristics

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

Symbol	Conditions	min.	typ.	max.	Units
IGBT					
$V_{GE(th)}$	$V_{GE} = V_{CE}, I_c = 8\text{mA}$	4.5	5.5	6.5	V
I_{CES}	$V_{GE} = 0; V_{CE} = V_{CES}; T_j = 25(125)^\circ\text{C}$		0.2	0.6	mA
$V_{CE(TO)}$	$T_j = 25^\circ\text{C}$		1(0.9)	1.15(1.05)	V
r_{CE}	$V_{GE} = 15\text{V}, T_j = 25(125)^\circ\text{C}$		4.5(6)	6(7.5)	$\text{m}\Omega$
$V_{CE(sat)}$	$I_c = 200\text{A}; V_{GE} = 15\text{V}; \text{chip level}$		1.9(2.1)	2.35(2.55)	V
C_{ies}	under following conditions		17		
C_{oes}	$V_{GE} = 0, V_{CE} = 25\text{V}, f = 1\text{MHz}$		2		nF
C_{res}			1.9		
L_{CE}				20	nH
R_{CC+EE}	res., terminal-chip $T_c = 25(125)^\circ\text{C}$		0.35(0.5)		$\text{m}\Omega$
$t_{d(on)}$	under following conditions: $V_{CC} = 600\text{V}, I_c = 200\text{A}$		170		ns
t_r	$R_{Gon} = R_{Goff} = 5\Omega, T_j = 125^\circ\text{C}$		55		ns
$t_{d(off)}$	$V_{GE} = \pm 15\text{V}$		660		ns
t_f			60		ns
$E_{on}(E_{off})$			22(22)		mJ
Inverse Diode under following conditions:					
$V_F = V_{EC}$	$I_F = 200\text{A}; V_{GE} = 0\text{V}; T_j = 25(125)^\circ\text{C}$		2(1.8)	2.5	V
$V_{(TO)}$	$T_j = 25(125)^\circ\text{C}$		1.1	1.2	V
r_T	$T_j = 25(125)^\circ\text{C}$		4.5	6.5	$\text{m}\Omega$
I_{RRM}	$I_F = 200\text{A}; T_j = 125^\circ\text{C}$		280		A
Q_{rr}	$di/dt = 6300\text{A/us}$		33		μC
E_{rr}	$V_{GE} = V$		11		mJ
FWD under following conditions:					
$V_F = V_{EC}$	$I_F = 100\text{A}; V_{GE} = 0\text{V}; T_j = 25(125)^\circ\text{C}$		2.1(1.8)	2.5	V
$V_{(TO)}$	$T_j = 25(125)^\circ\text{C}$		1.1	1.2	V
r_T	$T_j = 25(125)^\circ\text{C}$		4.5	6.5	$\text{m}\Omega$
I_{RRM}	$I_F = 200\text{A}; T_j = 25(125)^\circ\text{C}$		280		A
Q_{rr}	$di/dt = \text{A/us}$		33		μC
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