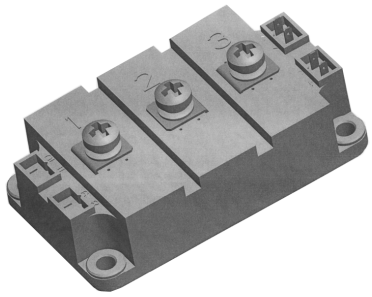
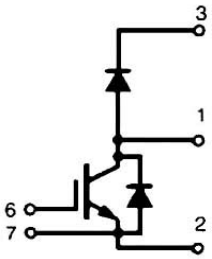
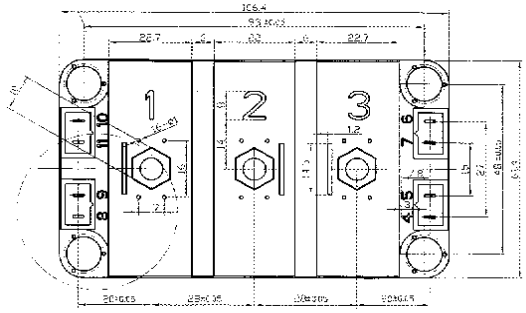
SID300N12

NPT IGBT Modules

Dimensions in mm (1mm = 0.0394")







Absolute Maximum Ratings T_C = 25°C, unless otherwise specified

Symbol	Conditions	Values	Units
IGBT			
V_{CES}		1200	V
I_C	T_C= 25(80)°C	300(220)	A
I_{CRM}	T_C= 25(80)°C, t_P =1ms	600(440)	A
V_{GES}		±20	V
T_{Vj},(T_{stg})	$T_{OPERATION} \leq T_{stg}$	−40...+150(125)	°C
V_{isol}	AC, 1min	2500	V
Inverse Diode			
I_F = -I_C	T_C= 25(80)°C	260(180)	A
I_{FRM}	T_C= 25(80)°C, t_P =1ms	600(440)	A
I_{FSM}	t_P =10ms; sin.;T_j=150°C	2200	A
Freewheeling diode			
I_F = -I_C	T_C= 25(80)°C	350(230)	A
I_{FRM}	T_C= 25(80)°C, t_P =1ms	600(440)	A
I_{FSM}	t_P =10ms; sin.;T_j=150°C	2900	A

SID300N12

NPT 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 =6mA	4.5	5.5	6.5	V
I_{CES}	V_{GE} = 0; $V_{CE} = V_{CES}$; $T_j = 25(125)^oC$		0.1	0.3	mA
$V_{CE(TO)}$	$T_j = 25(125)^oC$		1.4(1.6)	1.6(1.8)	V
r_{CE}	V_{GE} = 15V, $T_j = 25(125)^oC$		5.5(7.5)	7(9.5)	mΩ
$V_{CE(sat)}$	I_C =150A; V_{GE} = 15V; chip level		2.5(3.1)	3(3.7)	V
C_{ies}	under following conditions		18	24	
C_{oes}	V_{GE} = 0, V_{CE} = 25V, f = 1MHz		2.5	3.2	nF
C_{res}			1	1.3	
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 = 150A		250	400	ns
t_r	$R_{Gon} = R_{Goff}$ =4.7Ω, $T_j = 125^oC$		90	160	ns
$t_{d(off)}$	V_{GE} = ± 15V		550	700	ns
t_f			70	100	ns
$E_{on}(E_{off})$			28(26)		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
$V_{(TO)}$	$T_j = 125^oC$		1.1	1.2	V
r_T	$T_j = 125^oC$		3	5.5	mΩ
I_{RRM}	I_F = 200A; $T_j = 25(125)^oC$		70(105)		A
Q_{rr}	di/dt = A/us		10(26)		uC
E_{rr}	V_{GE} = V				mJ
FWD	under following conditions:				
$V_F = V_{EC}$	I_F = 100A; V_{GE} = 0V; $T_j = 25(125)^oC$		1.9(1.7)	2.4	V
$V_{(TO)}$	$T_j = 125^oC$			1.2	V
r_T	$T_j = 125^oC$		3	3.5	mΩ
I_{RRM}	I_F = 200A; $T_j = 25(125)^oC$		80(140)		A
Q_{rr}	di/dt = A/us		10(34)		uC
E_{rr}	V_{GE} = V				mJ
Thermal Characteristics					
$R_{th(j-c)}$	per IGBT			0.075	K/W
$R_{th(j-c)D}$	per Inverse Diode			0.18	K/W
$R_{th(j-c)FD}$	per FWD			0.15	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

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