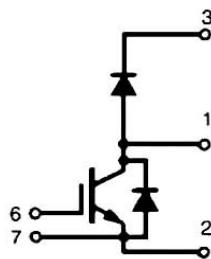
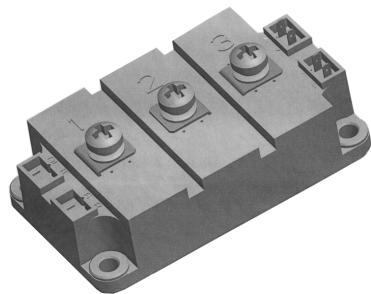
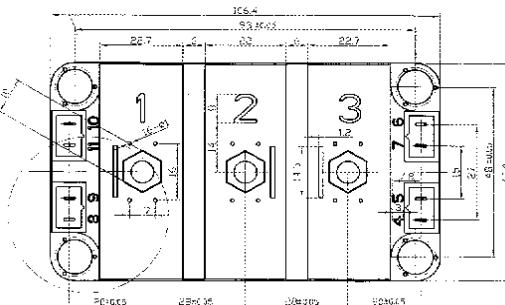


SID200N12

NPT IGBT Modules



Dimensions in mm (1mm = 0.0394")



Absolute Maximum Ratings

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

Symbol	Conditions	Values	Units
IGBT			
V_{CES}		1200	V
I_C	$T_C = 25(80)^\circ\text{C}$	200(180)	A
I_{CRM}	$T_C = 25(80)^\circ\text{C}$, $t_P = 1\text{ms}$	400(360)	A
V_{GES}		± 20	V
$T_{Vj}, (T_{stg})$	$T_{OPERATION} < T_{stg}$	-40...+150(125)	$^\circ\text{C}$
V_{isol}	AC, 1min	2500	V
Inverse Diode			
$I_F = -I_C$	$T_C = 25(80)^\circ\text{C}$	200(130)	A
I_{FRM}	$T_C = 25(80)^\circ\text{C}$, $t_P = 1\text{ms}$	400(360)	A
I_{FSM}	$t_P = 10\text{ms}$; sin.; $T_j = 150^\circ\text{C}$	1450	A
Freewheeling diode			
$I_F = -I_C$	$T_C = 25(80)^\circ\text{C}$	260(180)	A
I_{FRM}	$T_C = 25(80)^\circ\text{C}$, $t_P = 1\text{ms}$	400(360)	A
I_{FSM}	$t_P = 10\text{ms}$; sin.; $T_j = 150^\circ\text{C}$	1800	A

SID200N12

NPT IGBT Modules

Characteristics

T_C = 25°C, 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)°C		0.1	0.3	mA
V _{CE(TO)}	T _j = 25(125)°C		1.4(1.6)	1.6(1.8)	V
r _{CE}	V _{GE} = 15V, T _j = 25(125)°C		7.33(10)	9.3(12.6)	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		10	13	
C _{oes}	V _{GE} = 0, V _{CE} = 25V, f = 1MHz		1.5	2	nF
C _{res}			0.8	1.2	
L _{CE}				20	nH
R _{CC+EE'}	res., terminal-chip T _C = 25(125)°C		0.35(0.5)		mΩ
under following conditions:					
t _{d(on)}	V _{CC} = 600V, I _C = 150A	220	400		ns
t _r	R _{Gon} = R _{Goff} = 5.6Ω, T _j = 125°C	100	200		ns
t _{d(off)}	V _{GE} = ± 15V	600	800		ns
t _f		70	100		ns
E _{on} (E _{off})			24(17)		mJ
Inverse Diode under following conditions:					
V _F = V _{EC}	I _F = 150A; V _{GE} = 0V; T _j = 25(125)°C		2(1.8)	2.5	V
V _(TO)	T _j = 125°C			1.2	V
r _T	T _j = 125°C	5	7		mΩ
I _{IRRM}	I _F = 100A; T _j = 25(125)°C		55(80)		A
Q _{rr}	di/dt = A/us		8(20)		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)°C		1.85(1.6)	2.2	V
V _(TO)	T _j = 125°C			1.2	V
r _T	T _j = 125°C	3	5.5		mΩ
I _{IRRM}	I _F = 150A; T _j = 25°C		60(90)		A
Q _{rr}	di/dt = A/us		8(23)		uC
E _{rr}	V _{GE} = V				mJ
Thermal Characteristics					
R _{th(j-c)}	per IGBT			0.09	K/W
R _{th(j-c)D}	per Inverse Diode			0.25	K/W
R _{th(j-c)FD}	per FWD			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

