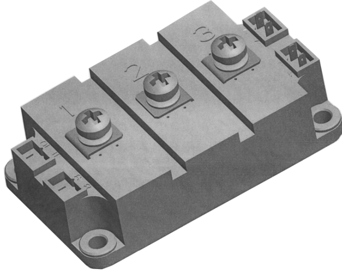
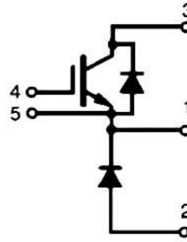
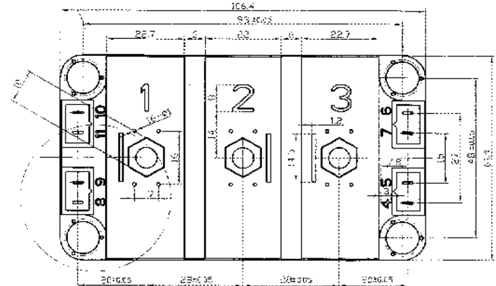
SDI400N12

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	400(330)	A
I_{CRM}	T_C= 25(80)°C, t_P =1ms	800(660)	A
V_{GES}		±20	V
T_{Vj},(T_{stg})	$T_{OPERATION} \leq T_{stg}$	−40...+150(125)	°C
V_{isol}	AC, 1min	4000	V
Inverse Diode			
I_F=-I_C	T_C= 25(80)°C	390(260)	A
I_{FRM}	T_C= 25(125)°C, t_P =1ms	800(660)	A
I_{FSM}	t_P =10ms; sin.;T_j=150 °C	2900	A

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SDI400N12

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 = 12mA	4.8	5.5	6.45	V
I_{CES}	V_{GE} = 0; $V_{CE} = V_{CES}$; $T_j = 25^oC$		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, $T_j = 25(125)^oC$		3.66(5)	4.66(6.33)	mΩ
$V_{CE(sat)}$	I_C =300A; V_{GE} = 15V; chip level		2.5(3.1)	3(3.7)	V
C_{ies}	under following conditions		22	30	
C_{oes}	V_{GE} = 0, V_{CE} = 25V, f = 1MHz		3.3	4	nF
C_{res}			1.2	1.6	
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 = 300A		200	400	ns
t_r	$R_{Gon} = R_{Goff}$ =3.3Ω, $T_j = 125^oC$		115	220	ns
$t_{d(off)}$	V_{GE} = ± 15V		720	900	ns
t_f			80	100	ns
$E_{on}(E_{off})$			38(40)		mJ
Inverse Diode	under following conditions:				
$V_F = V_{EC}$	I_F = 300A; V_{GE} = 0V; $T_j = 25(125)^oC$		2(1.8)	2.5	V
$V_{(TO)}$	$T_j = 125^oC$			1.2	V
r_T	$T_j = 125^oC$		2.5	3.5	mΩ
I_{RRM}	I_F = 300A; $T_j = 25(125)^oC$		85(140)		A
Q_{rr}	di/dt = 2000A/us		13(40)		uC
E_{rr}	V_{GE} = V				mJ
Thermal Characteristics					
$R_{th(j-c)}$	per IGBT			0.05	K/W
$R_{th(j-c)D}$	per Inverse Diode			0.125	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				Nm
w				325	g

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