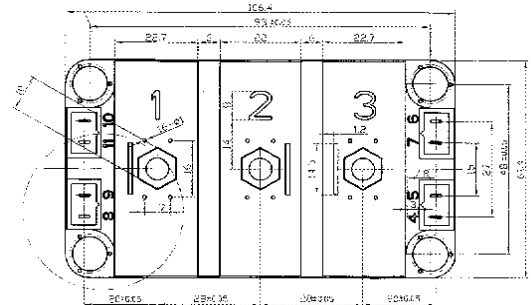
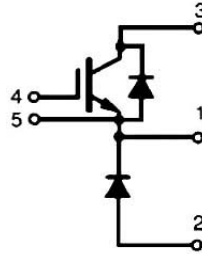
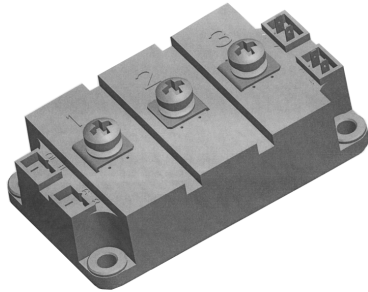


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NPT IGBT Modules

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



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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 = 12mA	4.8	5.5	6.45	V
I _{CES}	V _{GE} = 0; V _{CE} = V _{CE(s)} ; T _j = 25°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		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)°C		0.35(0.5)		mΩ
t _{d(on)}	under following conditions: V _{CC} = 600V, I _c = 300A		200	400	ns
t _r	R _{Gon} = R _{Goff} = 3.3Ω, T _j = 125°C		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)°C		2(1.8)	2.5	V
V _(TO)	T _j = 125°C			1.2	V
r _T	T _j = 125°C		2.5	3.5	mΩ
I _{RRM}	I _F = 300A; T _j = 25(125)°C		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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