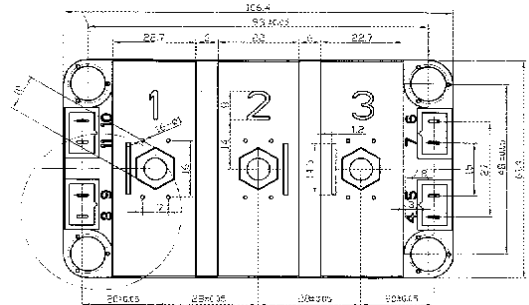
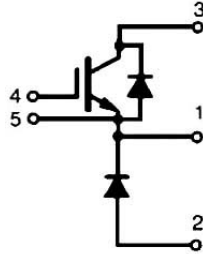
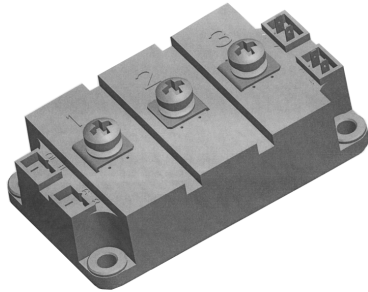


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SPT IGBT Modules

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	$T_c = 25(80)^\circ\text{C}$	565(400)	A
I_{CRM}	$T_c = 25(80)^\circ\text{C}$, $t_P = 1\text{ms}$	1130(800)	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}	$T_c = 25(80)^\circ\text{C}$, $t_P = 1\text{ms}$	1130(800)	A
I_{FSM}	$t_P = 10\text{ms}$; sin.; $T_j = 150^\circ\text{C}$	2900	A

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SPT 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		0.2	0.6	mA
V _{CE(TO)}	T _j = 25(125)°C		1(0.9)	1.15(1.05)	V
r _{CE}	V _{GE} = 15V, T _j = 25(125)°C		3(4)	4(5)	mΩ
V _{CE(sat)}	I _c = 300A; V _{GE} = 15V; chip level		1.9(2.1)	2.35(2.55)	V
C _{ies}	under following conditions		26		nF
C _{oes}	V _{GE} = 0, V _{CE} = 25V, f = 1MHz		3		
C _{res}			3		
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		110		ns
t _r	R _{Gon} = R _{Goff} = 4.7Ω, T _j = 125°C		60		ns
t _{d(off)}	V _{GE} = ± 15V		800		ns
t _f			60		ns
E _{on(Eoff)}			32(31)		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 = 25(125)°C		1.1	1.2	V
r _T	T _j = 25(125)°C		3	4.3	mΩ
I _{RRM}	I _F = 300A; T _j = 125°C		176		A
Q _{rr}	di/dt = 2400A/us		40		uC
E _{rr}	V _{GE} = V		16		mJ
Thermal Characteristics					
R _{th(j-c)}	per IGBT			0.055	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	2.5		5	Nm
w				325	g

