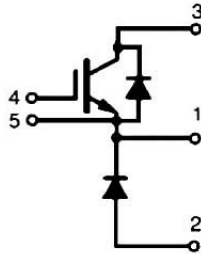
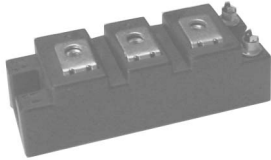


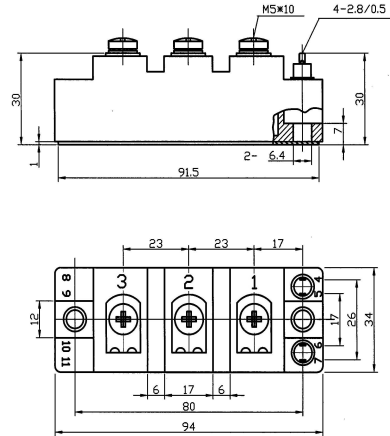
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NPT IGBT Modules



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	$T_c = 25(80)^{\circ}\text{C}$	75(60)	A
I_{CRM}	$T_c = 25(80)^{\circ}\text{C}$, $t_P = 1\text{ms}$	150(120)	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	2500	V
Inverse Diode			
$I_F = -I_C$	$T_c = 25(80)^{\circ}\text{C}$	75(50)	A
I_{FRM}	$T_c = 25(80)^{\circ}\text{C}$, $t_P = 1\text{ms}$	150(120)	A
I_{FSM}	$t_P = 10\text{ms}$; sin.; $T_j = 150^{\circ}\text{C}$	550	A
Freewheeling diode			
$I_F = -I_C$	$T_c = 25(80)^{\circ}\text{C}$	95(65)	A
I_{FRM}	$T_c = 25(80)^{\circ}\text{C}$, $t_P = 1\text{ms}$	150(120)	A
I_{FSM}	$t_P = 10\text{ms}$; sin.; $T_j = 150^{\circ}\text{C}$	720	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 = 2mA	4.5	5.5	6.5	V
I _{CES}	V _{GE} = 0; V _{CE} = V _{CE(s)} ; 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		22(30)	28(38)	mΩ
V _{CE(sat)}	I _C = 100A; V _{GE} = 15V; chip level		2.5(3.1)	3(3.7)	V
C _{ies}	under following conditions		3.3	4.3	
C _{oes}	V _{GE} = 0, V _{CE} = 25V, f = 1MHz		0.5	0.6	nF
C _{res}			0.22	0.3	
L _{CE}				30	nH
R _{CC+EE'}	res., terminal-chip T _c = 25(125)°C		0.75(1)		mΩ
t _{d(on)}	under following conditions: V _{CC} = 600V, I _C = 75A		44	100	ns
t _r	R _{Gon} = R _{Goff} = 22Ω, T _j = 125°C		56	100	ns
t _{d(off)}	V _{GE} = ± 15V		380	500	ns
t _f			70	100	ns
E _{on} (E _{off})			8(5)		mJ
Inverse Diode under following conditions:					
V _F = V _{EC}	I _F = 75A; 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		18	22	mΩ
I _{RRM}	I _F = 50A; T _j = 25(125)°C		23(35)		A
Q _{rr}	di/dt = 800A/us				uC
E _{rr}	V _{GE} = V				mJ
FWD under following conditions:					
V _F = V _{EC}	I _F = 50A; 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		12	15	mΩ
I _{RRM}	I _F = 50A; T _j = 25°C		27(40)		A
Q _{rr}	di/dt = A/us				uC
E _{rr}	V _{GE} = V				mJ
Thermal Characteristics					
R _{th(j-c)}	per IGBT			0.27	K/W
R _{th(j-c)D}	per Inverse Diode			0.6	K/W
R _{th(j-c)FD}	per FWD			0.5	K/W
R _{th(c-s)}	per module			0.05	K/W
Mechanical Data					
M _s	to heatsink M6	3		5	Nm
M _t	to terminals M5	2.5		5	Nm
w				160	g

