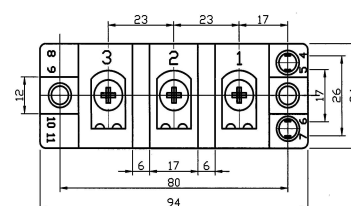
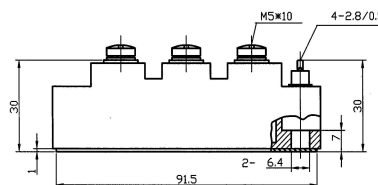
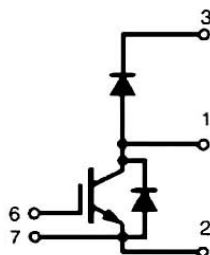
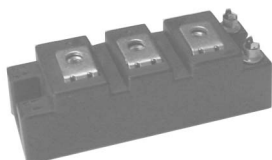


SID145S12

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	$T_c = 25(80)^\circ\text{C}$	190(135)	A
I_{CRM}	$T_c = 25(80)^\circ\text{C}$, $t_P = 1\text{ms}$	380(270)	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			
$I_F = -I_C$	$T_c = 25(80)^\circ\text{C}$	130(90)	A
I_{FRM}	$T_c = 25(80)^\circ\text{C}$, $t_P = 1\text{ms}$	380(270)	A
I_{FSM}	$t_P = 10\text{ms}$; sin.; $T_j = 150^\circ\text{C}$	1100	A
Freewheeling diode			
$I_F = -I_C$	$T_c = 25(80)^\circ\text{C}$	130(90)	A
I_{FRM}	$T_c = 25(80)^\circ\text{C}$, $t_P = 1\text{ms}$	350(260)	A
I_{FSM}	$t_P = 10\text{ms}$; sin.; $T_j = 150^\circ\text{C}$	1100	A

SID145S12

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 = 2mA	4.5	5.5	6.5	V
I _{CES}	V _{GE} = 0; V _{CE} = V _{CE(sat)} ; T _j = 25(125)°C		0.1	0.3	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		9(12)	12(15)	mΩ
V _{CE(sat)}	I _c = 100A; V _{GE} = 15V; chip level		1.9(2.1)	2.35(2.55)	V
C _{ies}	under following conditions		9		
C _{oes}	V _{GE} = 0, V _{CE} = 25V, f = 1MHz		1		nF
C _{res}			1		
L _{CE}				25	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 = 100A		190		ns
t _r	R _{Gon} = R _{Goff} = 9 Ω, T _j = 125°C		50		ns
t _{d(off)}	V _{GE} = ± 15V		590		ns
t _f			50		ns
E _{on} (E _{off})			11.5(9.5)		mJ
Inverse Diode under following conditions:					
V _F = V _{EC}	I _F = 100A; V _{GE} = 0V; T _j = 25(125)°C		2(1.8)	2.5	V
V _(TO)	T _j = 25(125)°C		1.1	1.4	V
r _T	T _j = 25(125)°C		9	13	mΩ
I _{RRM}	I _F = 100A; T _j = 125°C		130		A
Q _{rr}	di/dt = 3500A/us		14		uC
E _{rr}	V _{GE} = V		4.8		mJ
FWD under following conditions:					
V _F = V _{EC}	I _F = 100A; V _{GE} = 0V; T _j = 25(125)°C		2.1(1.8)	2.5	V
V _(TO)	T _j = 25(125)°C		1.1	1.4	V
r _T	T _j = 25(125)°C		9	13	mΩ
I _{RRM}	I _F = 100A; T _j = 25(125)°C		130		A
Q _{rr}	di/dt = A/us		14		uC
E _{rr}	V _{GE} = V		4.8		mJ
Thermal Characteristics					
R _{th(j-c)}	per IGBT			0.165	K/W
R _{th(j-c)D}	per Inverse Diode			0.36	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