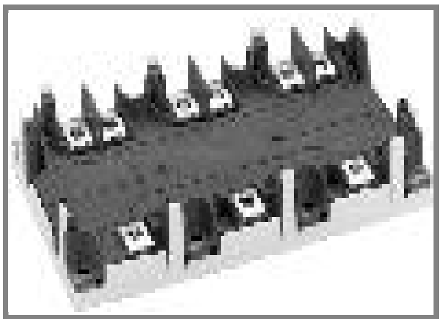


SKiM 5®

Trench IGBT Modules

SKiM 380GD176DM

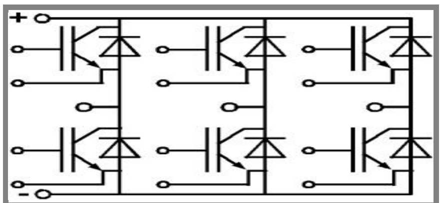
Target Data

Features

- Homogeneous Si
- Trench = Trenchgate Technology
- V_{CEsat} with positive temperature coefficient
- High short circuit capability, limiting to 6x I_C

Typical Applications

- AC inverter drives mains 575 - 750 V AC
- public transport (auxiliary syst.)



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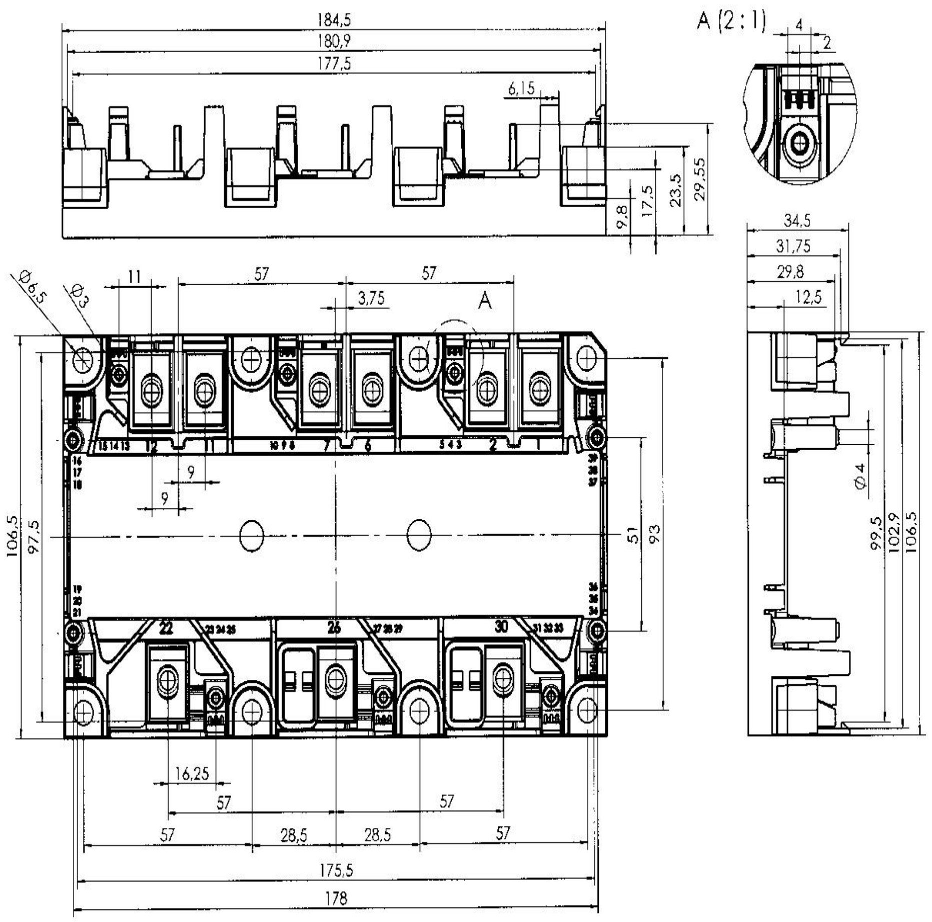
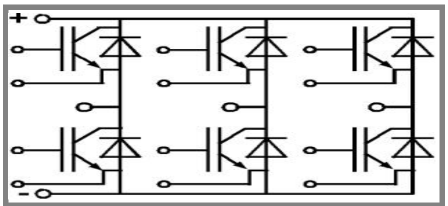
Absolute Maximum Ratings	T_{case} = 25°C, unless otherwise specified		
Symbol	**Conditions**	**Values**	**Units**
IGBT			
V_{CES}		1700	V
I_C	T_h = 25 (70) °C	425 (325)	A
I_{CM}	T_h = 25 (70) °C, t_p = 1 ms	850 (650)	A
V_{GES}		± 20	V
T_j (T_{stg})	$T_{OPERATION} \leq T_{stg}$	-40 ... 125	°C
V_{isol}	AC, 1 min.	4000	V
Inverse diode			
I_F = - I_C	T_h = 25 (70) °C	380 (285)	A
I_{FM} = - I_{CM}	T_h = °C, t_p < ms	850 (650)	A
I_{FSM}	t_p = 10 ms; sin.; T_j = 150 °C	3300	A

Characteristics	T_{case} = 25°C, unless otherwise specified				
Symbol	**Conditions**	**min.**	**typ.**	**max.**	**Units**
IGBT					
$V_{GE(th)}$	V_{GE} = V_{CE}; I_C = 18 mA	5,2	5,8	6,4	V
I_{CES}	V_{GE} = 0; V_{CE} = V_{CES}; T_j = 25 °C			3	mA
V_{CEO}	V_{GE} = V; T_j = °C			1,2 (1,1)	V
r_{CE}	V_{GE} = V; T_j = °C			3,3 (4,8)	mΩ
V_{CEsat}	I_C = 375 A; V_{GE} = 15 V, T_j = 25 (125) °C on chip level	1,6	2 (2,4)	2,45	V
C_{ies}	V_{GE} = 0; V_{CE} = 25 V; f = 1 MHz		33		nF
C_{oes}	V_{GE} = 0; V_{CE} = 25 V; f = 1 MHz		1,4		nF
C_{res}	V_{GE} = 0; V_{CE} = 25 V; f = 1 MHz		1,1		nF
L_{CE}	T_c = 25 °C			20	nH
$R_{CC'+EE'}$			0,9 (1,1)		mΩ
$t_{d(on)}$	V_{CC} = 1200 V				ns
t_r	I_C = 375 A				ns
$t_{d(off)}$	R_{Gon} = R_{Goff} = 3 Ω				ns
t_f	T_j = 125 °C				ns
E_{on} (E_{off})	V_{GE} ± 15 V		225 (150)		mJ
Inverse diode					
V_F = V_{EC}	I_F = 375 A; V_{GE} = 0 V; T_j = 25 (125) °C				V
V_{TO}	T_j = 25 (125) °C				V
r_T	T_j = 25 (125) °C				V
I_{RRM}	I_F = 375 A; T_j = 25 °C				A
Q_{rr}	V_{GE} = 0 V di/dt = A/µs				µC
E_{rr}	R_{Gon} = R_{Goff} =				mJ
Thermal characteristics					
R_{thjh}	per IGBT			0,09	K/W
R_{thjh}	per FWD			0,14	K/W
Temperature Sensor					
R_{TS}	T = 25 (125) °C		1 (1,67)		kΩ
tolerance	T = 25 (125) °C		3 (2)		%
Mechanical data					
M_1	to heatsink (M5)	2		3	Nm
M_2	for terminals (M6)	4		5	Nm
w				460	g

Dimensions in mm





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This is an electrostatic discharge sensitive device (ESDS), international standard IEC 60747-1, Chapter IX.

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