SEMIKRON

Absolute Maximum Ratings

T_{case} = 25 °C, unless otherwise specified

Symbol	Conditions	Values	Units
IGBT			
V_{CES}		1700	V
I_C	T_{case} = 25 (80) °C	890 (630)	A
I_{CRM}	T_{case} = 25 (80) °C, t_p =1 ms	1780 (1260)	A
V_{GES}		± 20	V
T_{vj}, (T_{stg})	$T_{OPERATION} \leq T_{stg}$	– 40 ... +150 (125)	°C
V_{isol}	AC, 1 min.	4000	V
Inverse Diode			
$I_{FAV} = -I_C$	T_{case} = 25 (80) °C	720 (500)	A
I_{FRM}	T_{case} = 25 (80) °C, t_p < 1 ms	1780 (1260)	A
I_{FSM}	t_p = 10 ms; sin.; T_j = 150 °C	3600	A
Freewheeling Diode			
$I_{FAV} = -I_C$	T_{case} = 25 (80) °C		A
I_{FRM}	T_{case} = 25 (80) °C, t_p < 1 ms		A
I_{FSM}	t_p = 10 ms; sin.; T_j = 150 °C		A

Characteristics

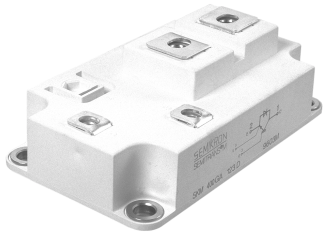
T_{case} = 25 °C, unless otherwise specified

Symbol	Conditions	min.	typ.	max.	Units
IGBT					
$V_{GE(TO)}$	$V_{GE} = V_{CE}$, I_C = 24 mA	5,2	5,8	6,4	V
I_{CES}	V_{GE} = 0, $V_{CE} = V_{CES}$, T_j = 25 (125) °C			2,4	mA
$V_{CE(TO)}$	T_j = 25 (125) °C		1,0 (0,9)	1,2 (1,1)	V
r_{CE}	V_{GE} = 15 V, T_j = 25 (125) °C		1,7 (2,5)	2,1	mΩ
$V_{CE(sat)}$	I_C = 600 A, V_{GE} = 15 V, chip level		2,0 (2,4)	2,45	V
C_{ies}			40		nF
C_{oes}	V_{GE} = 0, V_{CE} = 25 V, f = 1 MHz		2,2		nF
C_{res}			1,8		nF
L_{CE}				20	nH
$R_{CC'+EE'}$	resistance, terminal-chip 25 (125) °C		0,18(0,22)		mΩ
	under following conditions:				
$t_{d(on)}$	V_{CC} = 1200 V, I_C = 600 A,		tbd		ns
t_r	$R_{Gon} = R_{Goff}$ = 3 Ω, T_j = 125 °C,		tbd		ns
$t_{d(off)}$	V_{GE} ± 15 V		tbd		ns
t_f			tbd		ns
E_{on} (E_{off})			413 (207)		mJ
Inverse Diode	under following conditions:				
$V_F = V_{EC}$	I_F = 600 A; V_{GE} = 0 V; T_j = 25 (125) °C		1,6 (1,6)	1,9	V
$V_{T(TO)}$	T_j = 25 (125) °C		1,1 (tbd)	1,3	V
r_T	T_j = 25 (125) °C		1,5 (tbd)	2,2 (tbd)	mΩ
I_{RRM}	I_F = 600 A; T_j = 125 °C		tbd		A
Q_{rr}	di/dt = 4000 A/µs		tbd		µC
E_{rr}	V_{GE} = 0 V, V_{CC} = 1200 V		tbd		mJ
FWD	under following conditions:				
$V_F = V_{EC}$	I_F = 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				mΩ
I_{RRM}	I_F = A; T_j = 125 °C				A
Q_{rr}	V_{GE} = 0 V				µC
E_{rr}					mJ
Thermal Characteristics					
$R_{th(j-c)}$	per IGBT			0,035	K/W
$R_{th(j-c)D}$	per Inverse Diode			0,075	K/W
$R_{th(j-c)FD}$	per FWD				K/W
$R_{th(c-s)}$	per module			0,038	K/W
Mechanical Data					
M_s	to heatsink (M6)	3		5	Nm
M_t	for terminals (M5)	2,5		5	Nm
w				330	g

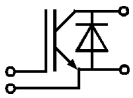
SEMITRANS™ M
Trench IGBT Module

SKM 800 GA 176 D

Target Data



SEMITRANS 4



GA

Features

- Homogeneous Si
- Trench = Trenchgate technology
- $V_{CE(sat)}$ with positive temperature coefficient
- High short circuit capability, self limiting to 6 x I_C

Typical Applications

- AC inverter drives mains 575 - 750V AC
- Public transport (auxiliary syst.)
- Wind power

$I_{DC} \leq$ 500 A for $T_{Terminal}$ = 100 °C

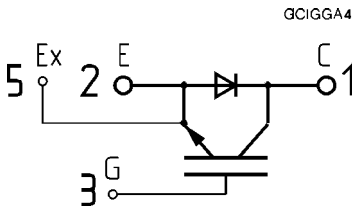
This is an electrostatic discharge sensitive device (ESDS).

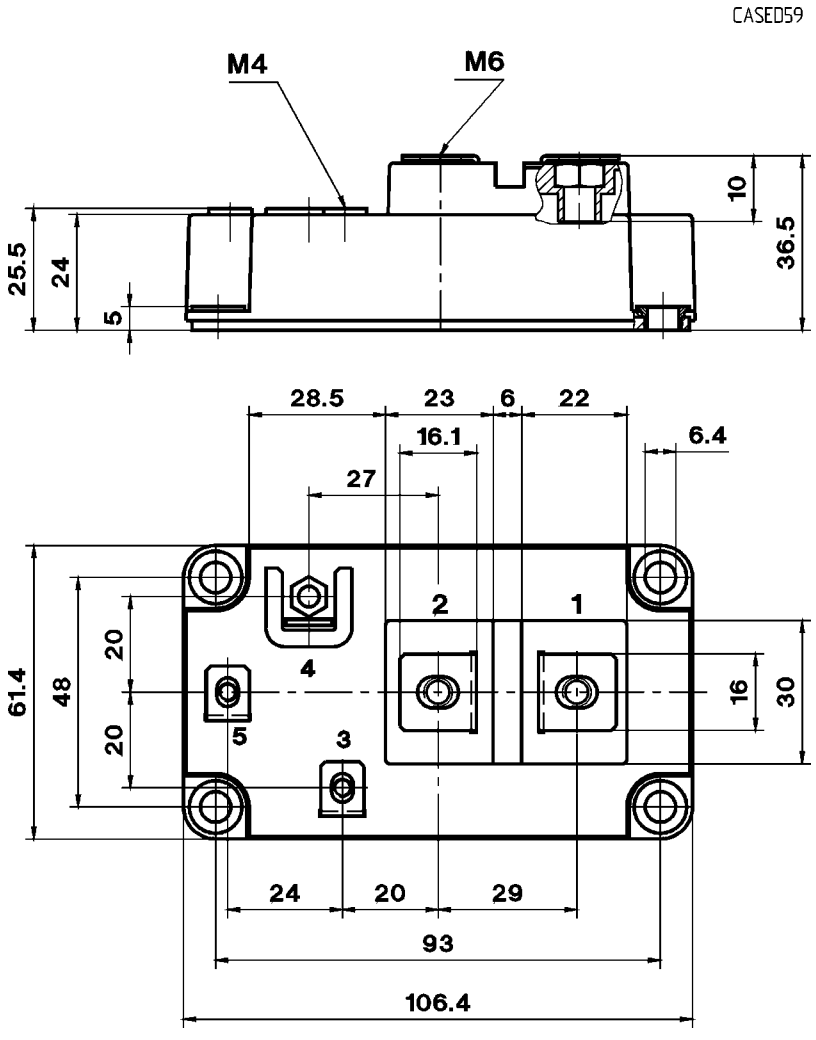
Please observe the international standard IEC 60747-1, Chapter IX.

Packing Unit	3 pcs	SEMIBOX B
Mounting Kit	10 pcs	Ident-No. 33321100

SEMITRANS 4
Case D 59
UL Recognized
File no. E 63 532

SKM 800 GA 176 D





Dimensions in mm

Case outline and circuit diagrams