

Absolute Maximum Ratings		$T_{case} = 25\text{ }^{\circ}\text{C}$, unless otherwise specified	
Symbol	Conditions	Values	Units
IGBT			
V_{CES}		1700	V
I_C	$T_{case} = 25\text{ (80)}\text{ }^{\circ}\text{C}$	80 (55)	A
I_{CRM}	$T_{case} = 25\text{ (80)}\text{ }^{\circ}\text{C}$, $t_p = 1\text{ ms}$	160 (110)	A
V_{GES}		± 20	V
T_{vj} , (T_{stg})	$T_{OPERATION} \leq T_{stg}$	- 40 ... +150 (125)	$^{\circ}\text{C}$
V_{isol}	AC, 1 min.	4000	V
Inverse Diode			
$I_{FAV} = -I_C$	$T_{case} = 25\text{ (80)}\text{ }^{\circ}\text{C}$	80 (55)	A
I_{FRM}	$T_{case} = 25\text{ (80)}\text{ }^{\circ}\text{C}$, $t_p < 1\text{ ms}$	160 (110)	A
I_{FSM}	$t_p = 10\text{ ms}$; sin.; $T_j = 150\text{ }^{\circ}\text{C}$	550	A
Freewheeling Diode			
$I_{FAV} = -I_C$	$T_{case} = 25\text{ (80)}\text{ }^{\circ}\text{C}$		A
I_{FRM}	$T_{case} = 25\text{ (80)}\text{ }^{\circ}\text{C}$, $t_p < 1\text{ ms}$		A
I_{FSM}	$t_p = 10\text{ ms}$; sin.; $T_j = 150\text{ }^{\circ}\text{C}$		A

SEMITRANS™ M Trench IGBT Module

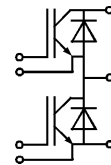
SKM 75 GB 176 DN

Target Data



SEMITRANS 2N

low inductance case



GB

Features

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

Typical Applications

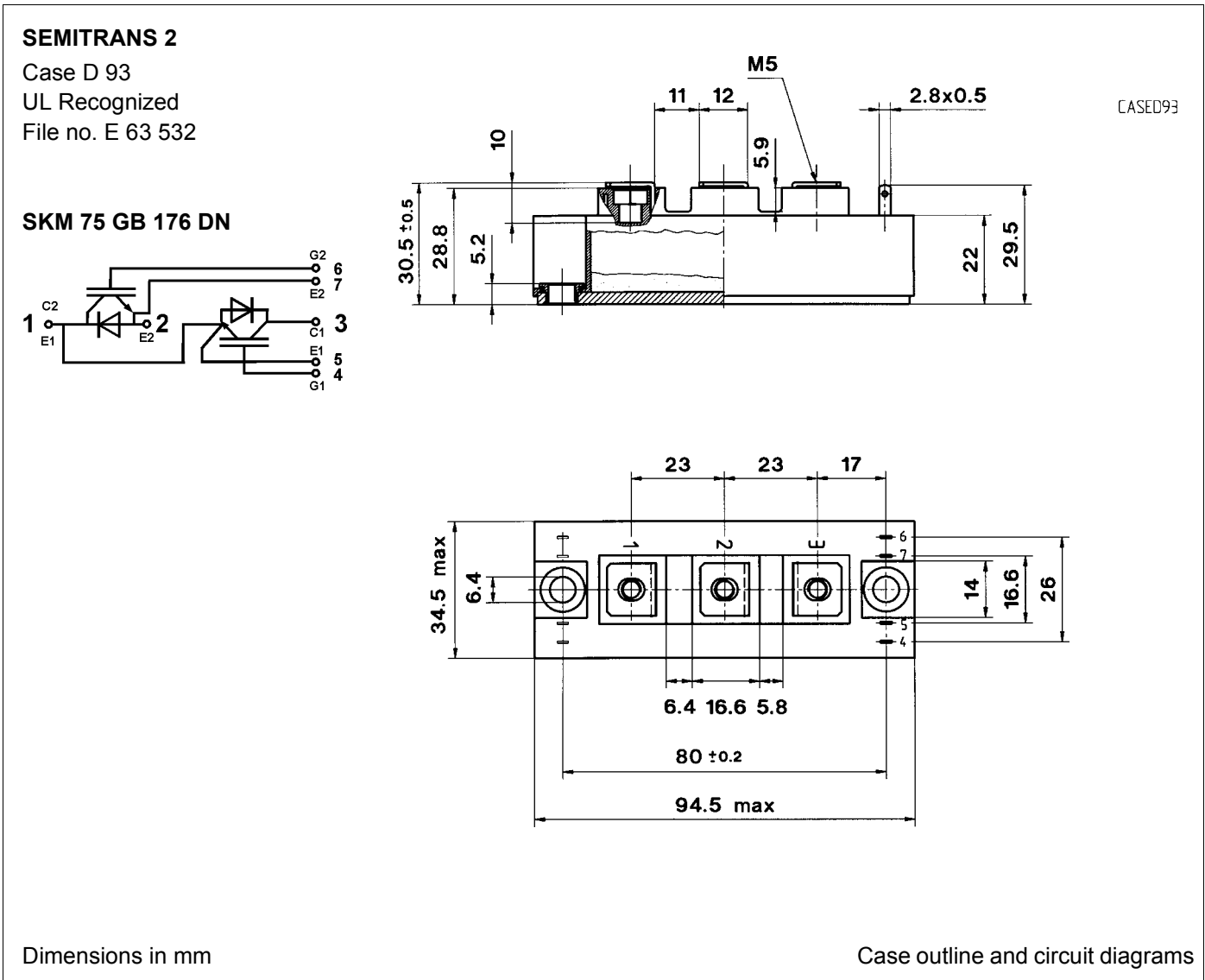
- AC inverter drives
mains 575 - 750V AC
- Public transport (auxiliary syst.)

Characteristics		$T_{case} = 25\text{ }^{\circ}\text{C}$, unless otherwise specified			
Symbol	Conditions	min.	typ.	max.	Units
IGBT					
$V_{GE(To)}$	$V_{GE} = V_{CE}$, $I_C = 2\text{ mA}$	5,2	5,8	6,4	V
I_{CES}	$V_{GE} = 0$, $V_{CE} = V_{CES}$, $T_j = 25\text{ (125)}\text{ }^{\circ}\text{C}$			0,4	mA
$V_{CE(To)}$	$T_j = 25\text{ (125)}\text{ }^{\circ}\text{C}$		1,0 (0,9)	1,2 (1,1)	V
r_{CE}	$V_{GE} = 15\text{ V}$, $T_j = 25\text{ (125)}\text{ }^{\circ}\text{C}$		20 (30)	25	m Ω
$V_{CE(sat)}$	$I_C = 50\text{ A}$, $V_{GE} = 15\text{ V}$, chip level		2,0 (2,4)	2,45	V
C_{ies}			4		nF
C_{oes}	$V_{GE} = 0$, $V_{CE} = 25\text{ V}$, $f = 1\text{ MHz}$		0,2		nF
C_{res}			0,15		nF
L_{CE}				25	nH
$R_{CC'+EE'}$	resistance, terminal-chip $25\text{ (125)}\text{ }^{\circ}\text{C}$		0,75 (1)		m Ω
$t_{d(on)}$	under following conditions: $V_{CC} = 1200\text{ V}$, $I_C = 50\text{ A}$,		tbd		ns
t_r	$R_{Gon} = R_{Goff} = 24\text{ }^{\circ}\Omega$, $T_j = 125\text{ }^{\circ}\text{C}$,		tbd		ns
$t_{d(off)}$	$V_{GE} \pm 15\text{ V}$		tbd		ns
t_f			tbd		ns
$E_{on} (E_{off})$			38 (19)		mJ
Inverse Diode under following conditions:					
$V_F = V_{EC}$	$I_F = 50\text{ A}$; $V_{GE} = 0\text{ V}$; $T_j = 25\text{ (125)}\text{ }^{\circ}\text{C}$		1,6 (1,6)	1,9	V
$V_{T(To)}$	$T_j = 25\text{ (125)}\text{ }^{\circ}\text{C}$		1,1 (0,9)	1,3 (1,1)	V
r_T	$T_j = 25\text{ (125)}\text{ }^{\circ}\text{C}$		10 (14)	12	m Ω
I_{RRM}	$I_F = 50\text{ A}$; $T_j = 125\text{ }^{\circ}\text{C}$		tbd		A
Q_{rr}	$di/dt = 500\text{ A}/\mu\text{s}$		tbd		μC
E_{rr}	$V_{GE} = 0\text{ V}$		tbd		mJ
FWD under following conditions:					
$V_F = V_{EC}$	$I_F = \text{A}$; $V_{GE} = 0\text{ V}$; $T_j = 25\text{ (125)}\text{ }^{\circ}\text{C}$				V
V_{TO}	$T_j = 25\text{ (125)}\text{ }^{\circ}\text{C}$				V
r_T	$T_j = 25\text{ (125)}\text{ }^{\circ}\text{C}$				m Ω
I_{RRM}	$I_F = \text{A}$; $T_j = 125\text{ }^{\circ}\text{C}$				A
Q_{rr}	$V_{GE} = 0\text{ V}$				μC
E_{rr}					mJ
Thermal Characteristics					
$R_{th(j-c)}$	per IGBT			0,4	K/W
$R_{th(j-c)D}$	per FWD			0,6	K/W
$R_{th(j-c)FD}$	per Inverse Diode				K/W
$R_{th(c-s)}$	per module			0,05	K/W
Mechanical Data					
M_s	to heatsink (M6)	3		5	Nm
M_t	for terminals (M5)	2,5		5	Nm
w				160	g

This is an electrostatic discharge sensitive device (ESDS).

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

Packing Unit	8 pcs	SEMIBOX A
Mounting Kit	10 pcs	Ident-No. 33321100



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