



SEMITOP® 3

Mosfet Module

SK 300MB075

Preliminary Data

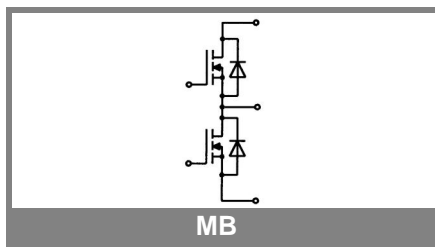
Features

- Compact design
- One screw mounting
- Heat transfer and isolation through direct copper bonded aluminium oxide ceramic (DCB)
- Trench technology
- Short internal connections and low inductance case

Typical Applications*

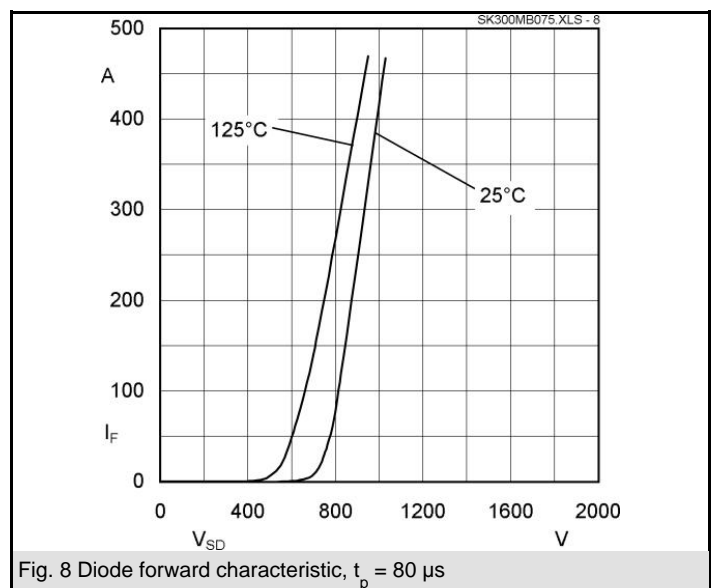
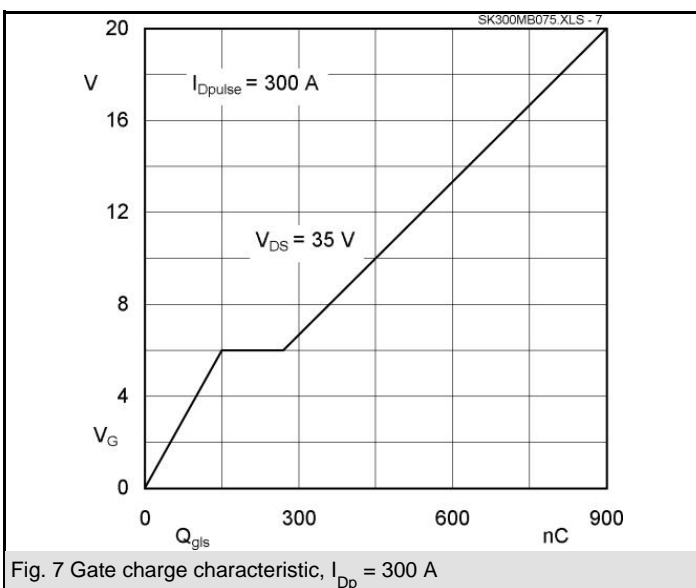
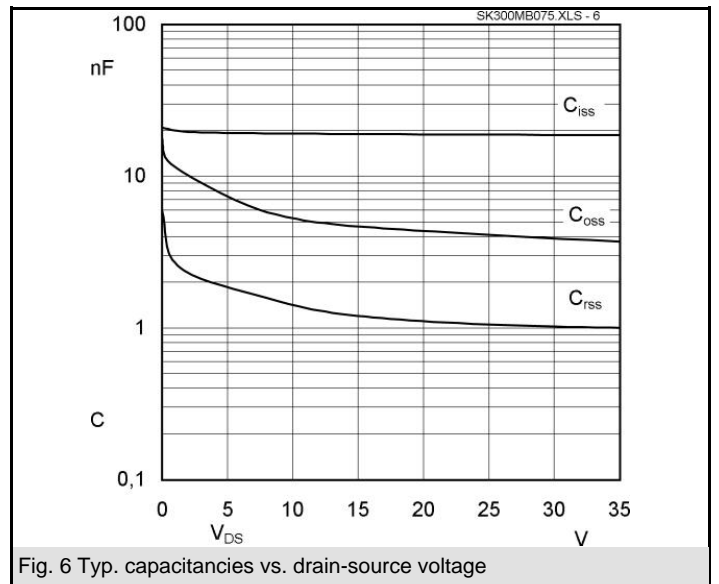
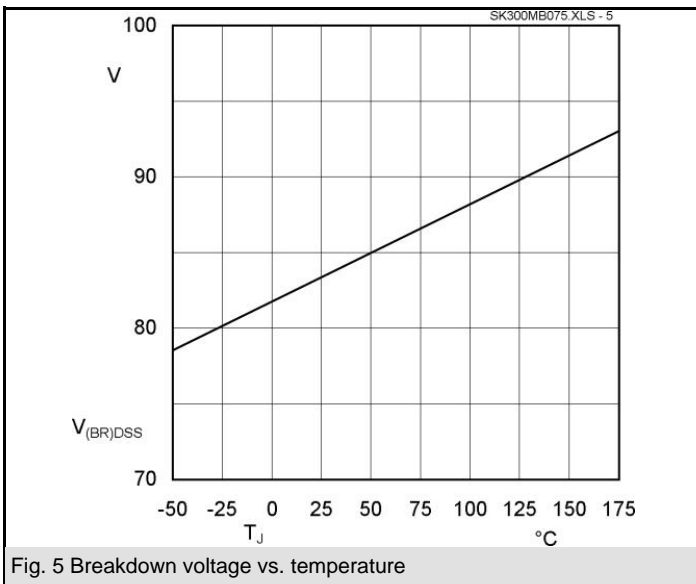
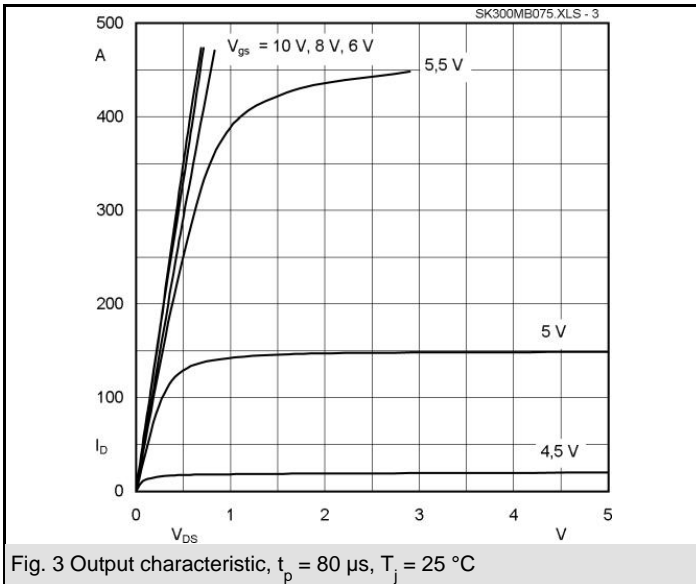
- Low switched mode power supplies
- DC servo drives
- UPS

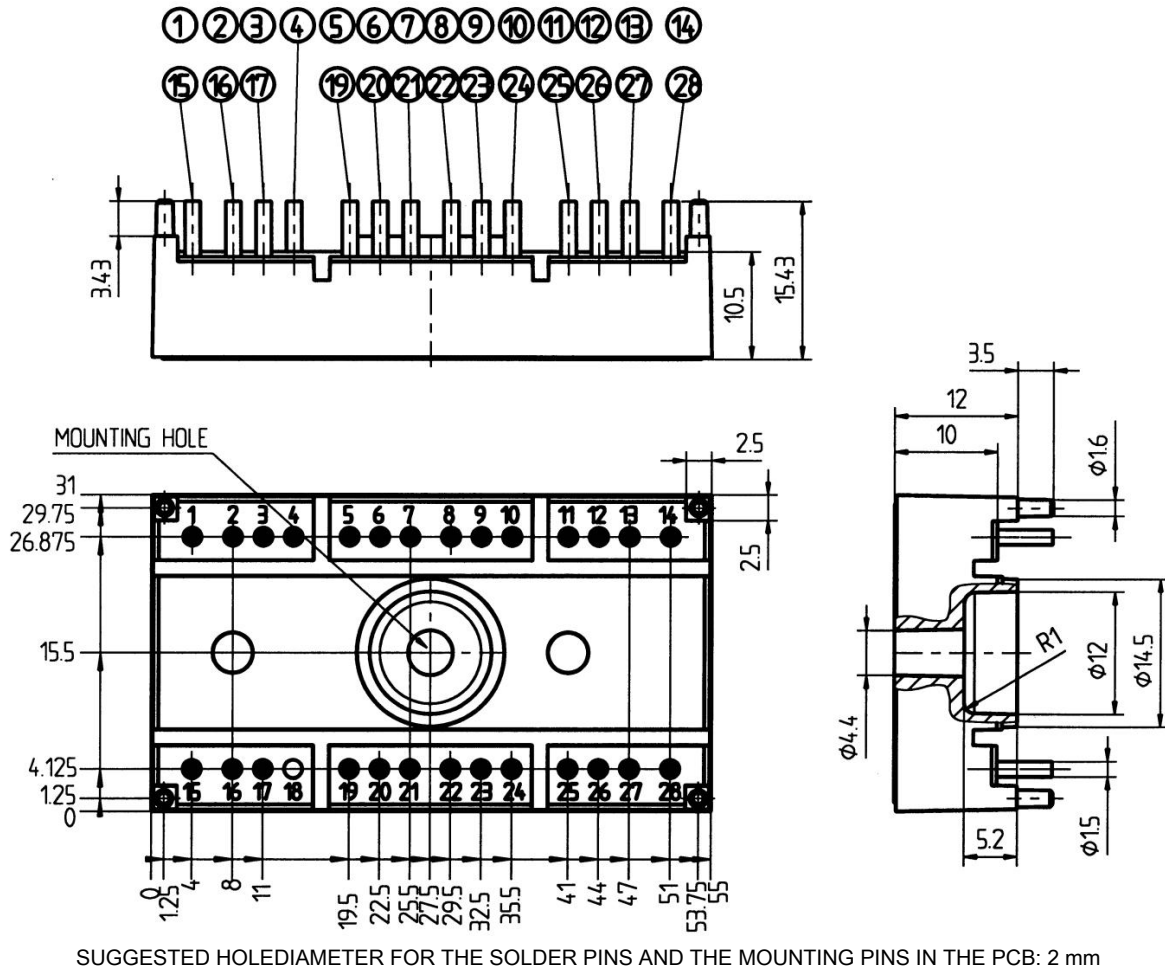
1) Maximum PCB temperature, at pins/PCB contact, = 85°C



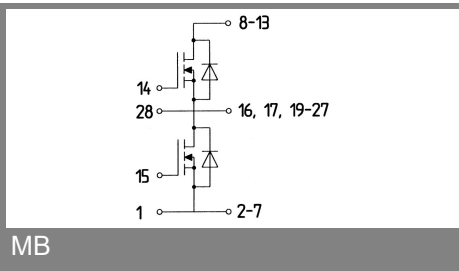
Absolute Maximum Ratings		$T_s = 25\text{ °C}$, unless otherwise specified	
Symbol	Conditions	Values	Units
MOSFET			
V_{DSS}		75	V
V_{GSS}		± 20	V
I_D	$T_s = 25\text{ (80) °C}; ^1)$	290 (210)	A
I_{DM}	$t_p < 1\text{ ms}; T_s = 25\text{ (80) °C}; ^1)$	580 (420)	A
T_j		-40...+150	°C
Inverse diode			
$I_F = -I_D$	$T_s = 25\text{ (80) °C};$	290 (210)	A
$I_{FM} = -I_{DM}$	$t_p < 1\text{ ms}; T_s = 25\text{ (80) °C};$	580 (210)	A
T_j		-40...+150	°C
Freewheeling CAL diode			
$I_F = -I_D$	$T_s = \text{°C}$		A
T_j			°C
T_{stg}		-40 ... +125	°C
T_{sol}	Terminals, 10 s	260	°C
V_{isol}	a. c. 50 Hz; r.m.s.; 1 min (1s)	2500 / 3000	V

Characteristics		$T_s = 25\text{ °C}$, unless otherwise specified			
Symbol	Conditions	min.	typ.	max.	Units
MOSFET					
$V_{(BR)DSS}$	$V_{GS} = 0\text{ V}; I_D = 5,6\text{ mA}$	$\geq V_{DSS}$			V
$V_{GS(th)}$	$V_{GS} = V_{DS}; I_D = 5,6\text{ mA}$	2,5	3,3		V
I_{DSS}	$V_{GS} = 0\text{ V}; V_{DS} = V_{DSS}; T_j = 25\text{ (125) °C}$			100 (500)	μA
I_{GSS}	$V_{GS} = 20\text{ V}; V_{DS} = 0\text{ V}$			100	nA
$R_{DS(on)}$	$I_D = 200\text{ A}; V_{GS} = 10\text{ V}; T_j = 25\text{ °C}$			1,6	m Ω
$R_{DS(on)}$	$I_D = 200\text{ A}; V_{GS} = 10\text{ V}; T_j = 125\text{ °C}$		2,3	3	m Ω
C_{CHC}	per MOSFET				pF
C_{iss}	under following conditions:		18,9		nF
C_{oss}	$V_{GS} = 0\text{ V}; V_{DS} = 25\text{ V}; f = 1\text{ MHz}$		3,6		nF
C_{riss}			1,1		nF
L_{DS}			2,2		nH
$t_{d(on)}$	under following conditions:		350		ns
t_r	$V_{DD} = 40\text{ V}; V_{GS} = 10\text{ V};$ $I_D = 300\text{ A}$		620		ns
$t_{d(off)}$	$R_G = 25\text{ }\Omega$		1250		ns
t_f			400		ns
$R_{th(j-s)}$	per MOSFET (per module)			0,45	K/W
Inverse diode					
V_{SD}	$I_F = 300\text{ A}; V_{GS} = 0\text{ V}; T_j = 25\text{ °C}$		0,8		V
I_{RRM}	under following conditions:				A
Q_{rr}	$I_F = \text{A}; T_{vj} = \text{°C}; R_G = \Omega$				μC
t_{rr}	$V_R = \text{A}; di/dt = \text{A}/\mu\text{s}$				ns
Free-wheeling diode					
V_F	$I_F = \text{A}; V_{GS} = \text{V}$				V
I_{RRM}	under following conditions:				A
Q_{rr}	$I_F = \text{A}; T_{vj} = \text{°C}$				μC
t_{rr}	$V_r = \text{A}; di/dt = \text{A}/\mu\text{s}$				ns
Mechanical data					
M1	mounting torque			2,5	Nm
w			30		g
Case	SEMITOP® 3		T 24		





Case T24



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

* The specifications of our components may not be considered as an assurance of component characteristics. Components have to be tested for the respective application. Adjustments may be necessary. The use of SEMIKRON products in life support appliances and systems is subject to prior specification and written approval by SEMIKRON. We therefore strongly recommend prior consultation of our personal.