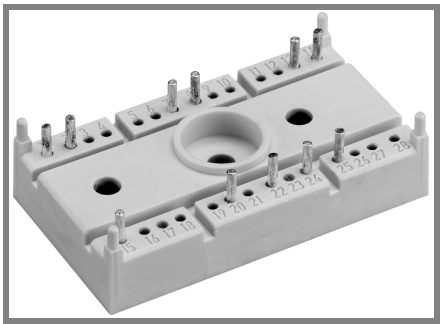
SK 260MAR10



SEMITOP® 3

Mosfet Module

SK 260MAR10

Preliminary Data

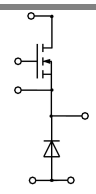
Features

- 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 contact, 85°C



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Absolute Maximum Ratings	T_s = 25 °C, unless otherwise specified		
Symbol	**Conditions**	**Values**	**Units**
MOSFET			
V_{DSS}		100	V
V_{GSS}		±20	V
I_D	T_s = 25 (80) °C; 1)	230 (180)	A
I_{DM}	t_p < 1 ms; T_s = 25 (80) °C; 1)	460 (360)	A
T_j		-40...+150	°C
Inverse diode			
I_F = - I_D	T_s = 25 (80) °C;	230 (180)	A
I_{FM} = - I_{DM}	t_p < 1 ms; T_s = 25 (80) °C;	460 (360)	A
T_j		-40...+150	°C
Freewheeling CAL diode			
I_F = - I_D	T_s = 80 °C	95	A
T_j		-40...+125	°C
T_{stg}		- 40 ... + 125	°C
T_{sol}	Terminals, 10 s	260	°C
V_{isol}	AC(50Hz), 1 min (1s)	2500 / 3000	V

Characteristics	T_s = 25 °C, unless otherwise specified				
Symbol	**Conditions**	**min.**	**typ.**	**max.**	**Units**
MOSFET					
$V_{(BR)DSS}$	V_{GS} = 0 V, I_D = 0,75 mA	≥ V_{DSS}			V
$V_{GS(th)}$	V_{GS} = V_{DS}; I_D = 0,75 mA	2,5	3,3		V
I_{DSS}	V_{GS} = 0 V; V_{DS} = V_{DSS}; T_j = 25 (125) °C			100 (500)	µA
I_{GSS}	V_{GS} = 20V ;V_{DS} = 0 V			100	nA
$R_{DS(on)}$	I_D = 300 A; V_{GS} = 10 V; T_j = 25 °C			2,5	mΩ
$R_{DS(on)}$	I_D = 300 A; V_{GS} = 10 V; T_j = 125 °C		3,5	4,5	mΩ
C_{CHC}	per MOSFET				pF
C_{iss}	under following conditions:		27,6		nF
C_{oss}	V_{GS} = 0 V; V_{DS} = 25 V; f = 1 MHz		2,9		nF
C_{rss}			2,8		nF
L_{DS}					nH
$t_{d(on)}$	under following conditions:		410		ns
t_r	V_{DD} = 50 V; V_{GS} = 10 V; I_D = 85 A		450		ns
$t_{d(off)}$	R_G = 3,3 Ω		1490		ns
t_f			430		ns
$R_{th(j-s)}$	per MOSFET (per module)			0,45	K/W
Inverse diode					
V_{SD}	I_F = 300 A; V_{GS} = 0 V; T_j = 25 °C		0,76		V
I_{RRM}	under following conditions:				A
Q_{rr}	I_F = 300 A; T_{vj} = °C; R_G = Ω				µC
t_{rr}	V_R = A; di/dt = A/µs				ns
Free-wheeling diode					
V_F	I_F = 150 A; V_{GS} = 0 V		1,45	1,7	V
I_{RRM}	under following conditions:		90		A
Q_{rr}	I_F = 150 A; T_{vj} = 125 °C		9,9		µC
t_{rr}	V_r = 300 A; di/dt = -800 A/µs				ns
Mechanical data					
M1	mounting torque			2,5	Nm
w			30		g
Case	SEMITOP® 3		T 41		

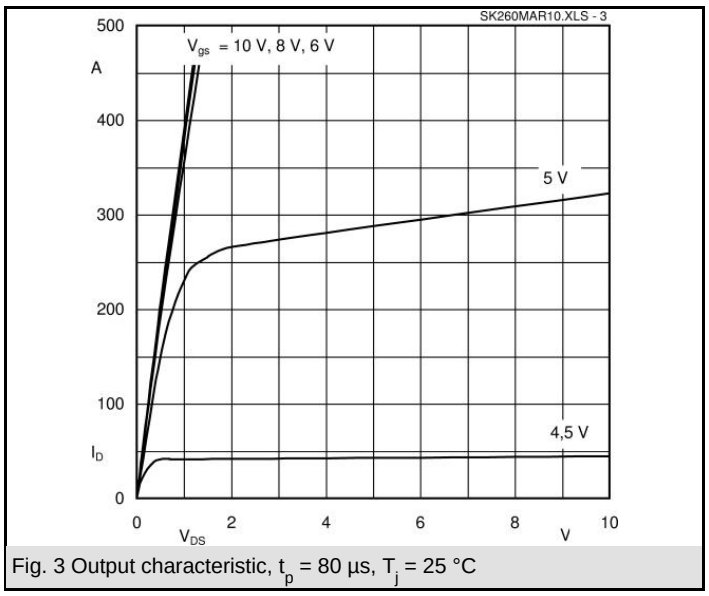


Fig. 3 Output characteristic, t_p = 80 µs, T_j = 25 °C

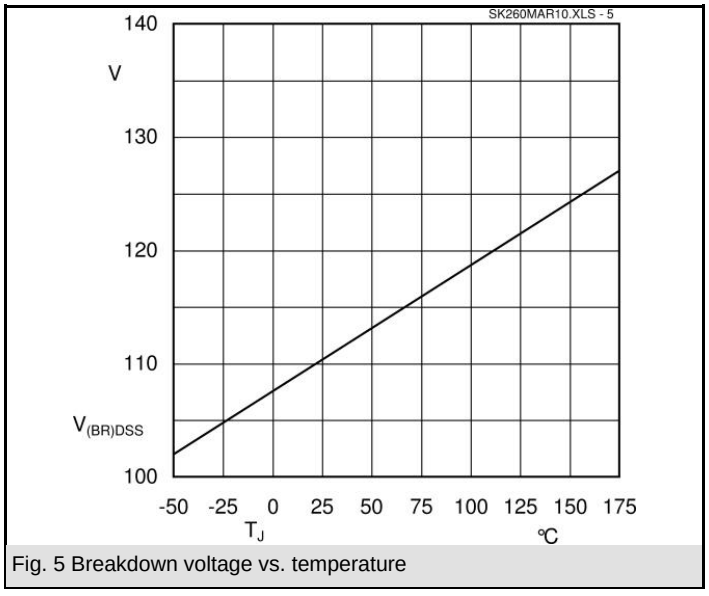


Fig. 5 Breakdown voltage vs. temperature

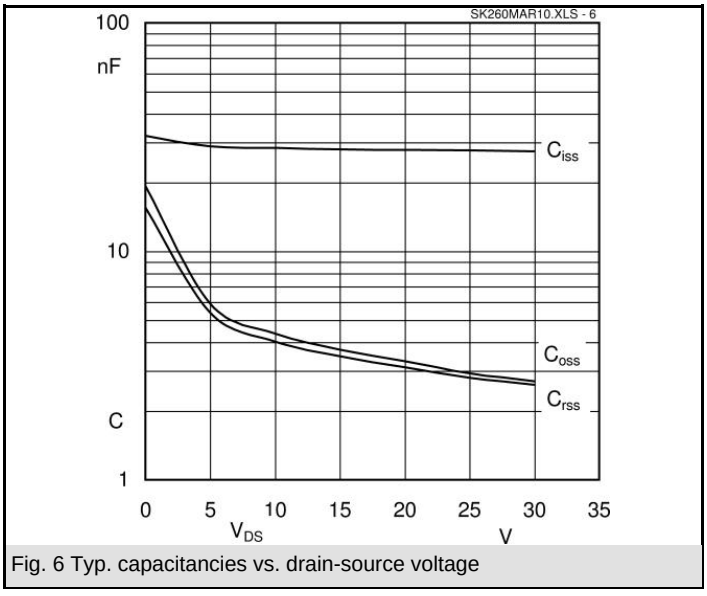


Fig. 6 Typ. capacitancies vs. drain-source voltage

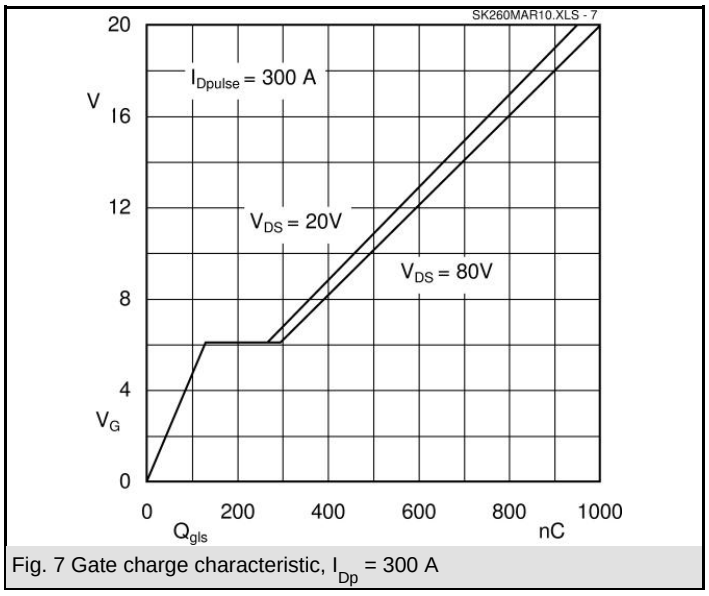


Fig. 7 Gate charge characteristic, I_{Dp} = 300 A

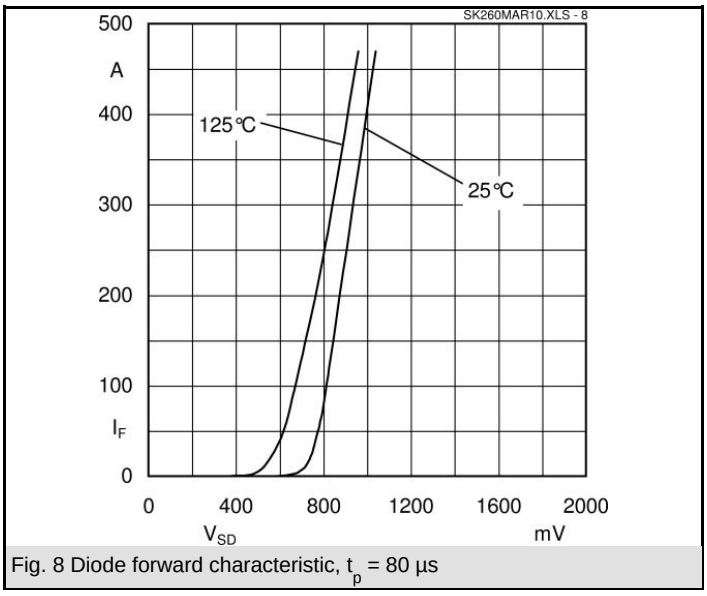
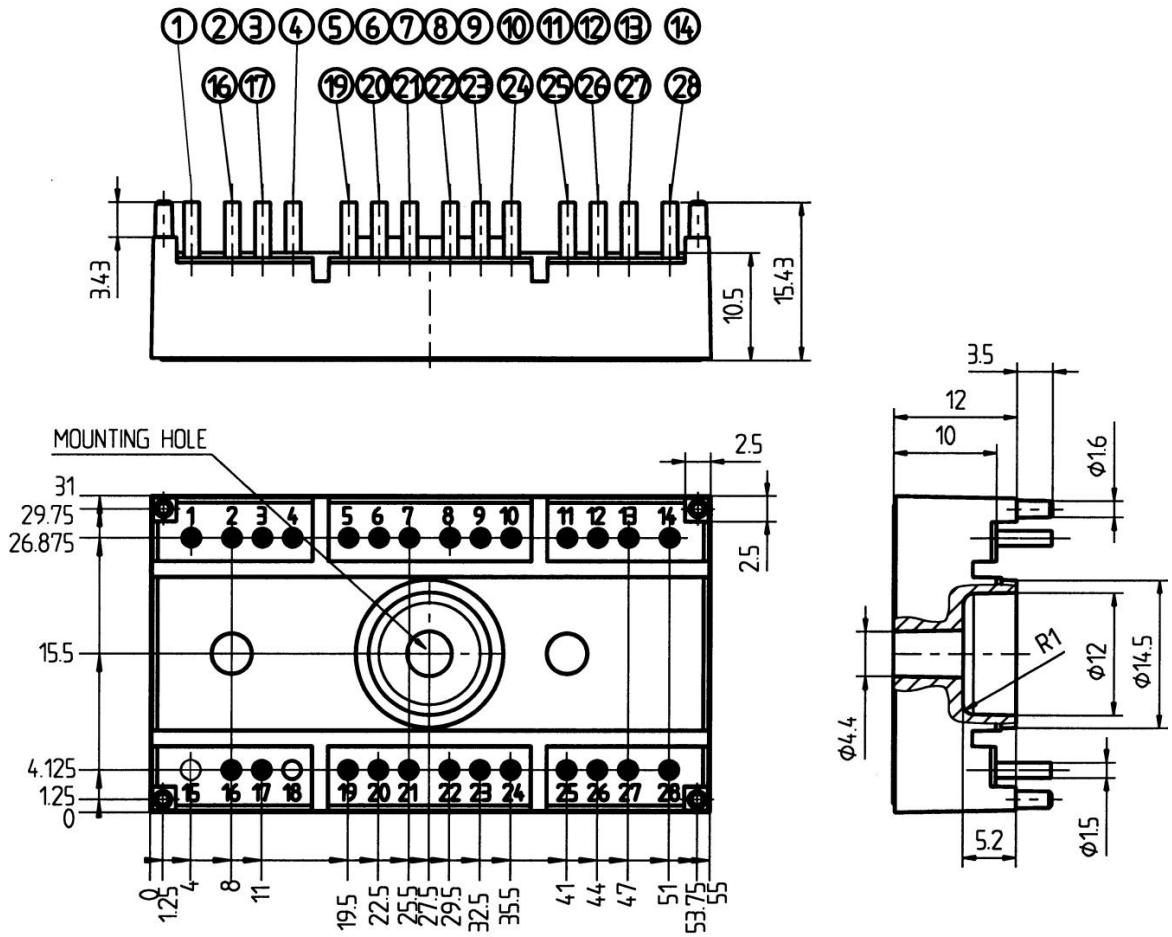


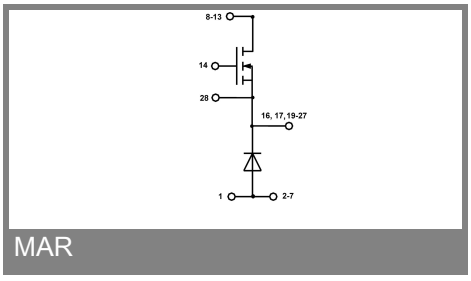
Fig. 8 Diode forward characteristic, t_p = 80 µs

Dimensions in mm



SUGGESTED HOLEDIAMETER FOR THE SOLDER PINS AND THE MOUNTING PINS IN THE PCB: 2 mm

Case T41



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

This technical information specifies semiconductor devices but promises no characteristics. No warranty or guarantee expressed or implied is made regarding delivery, performance or suitability.

