



SEMITRANS™ M1

Power MOSFET Modules

SKM 180A020

Features

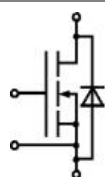
- N Channel, enhancement mode
- Avalanche characteristics
- Short internal connections avoid oscillations
- Isolated copper baseplates
- All electrical connections on top for easy busbaring
- Large clearance (10mm) and creepage distances (13mm)
- UL recognized, file no. E 63 532

Typical Applications*

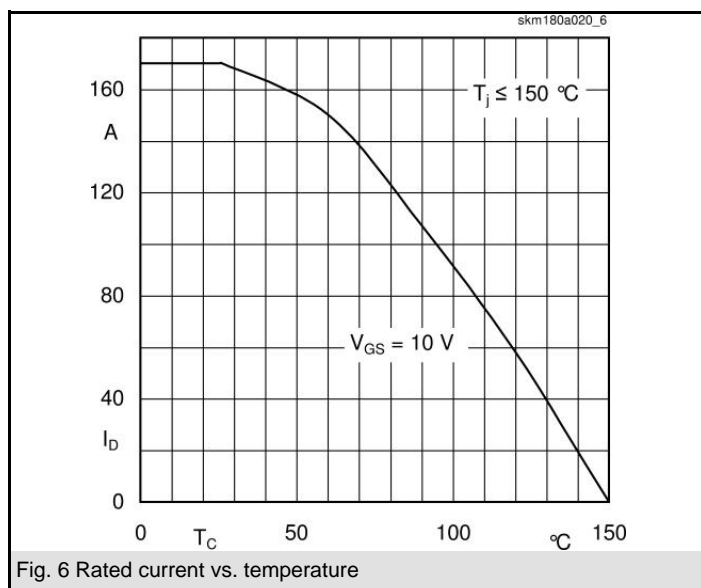
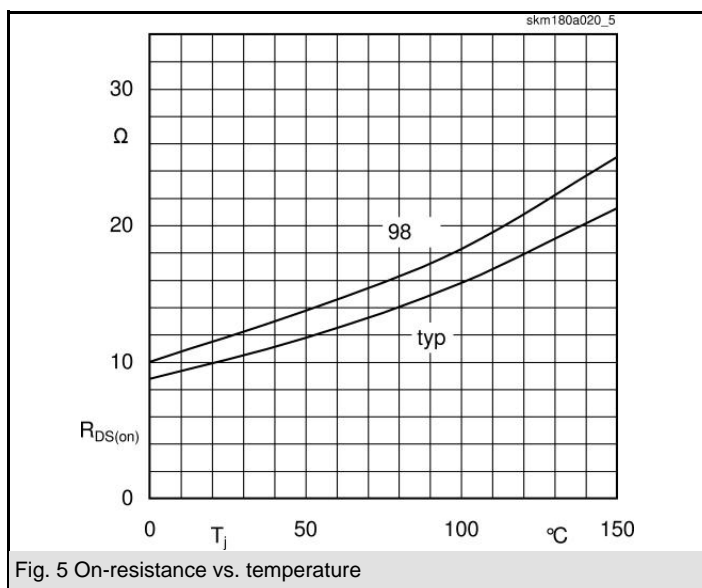
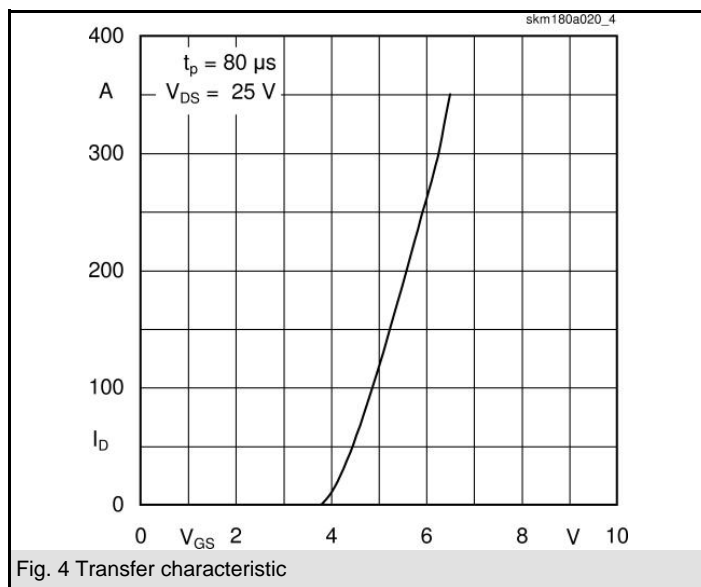
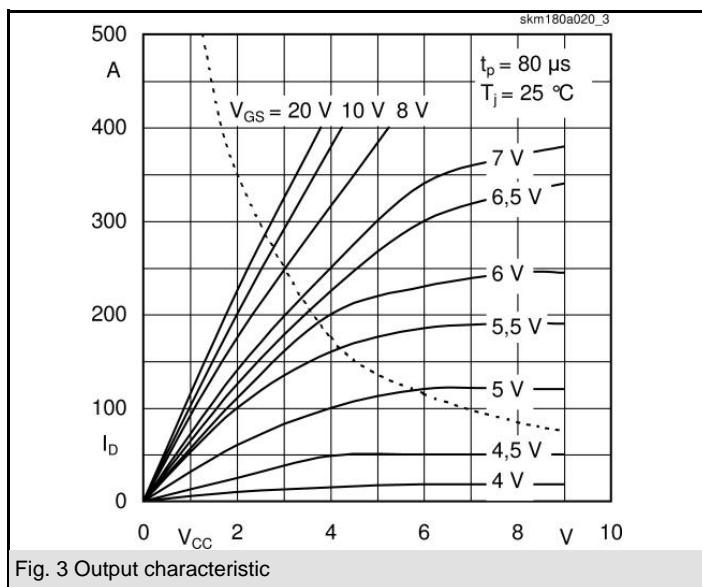
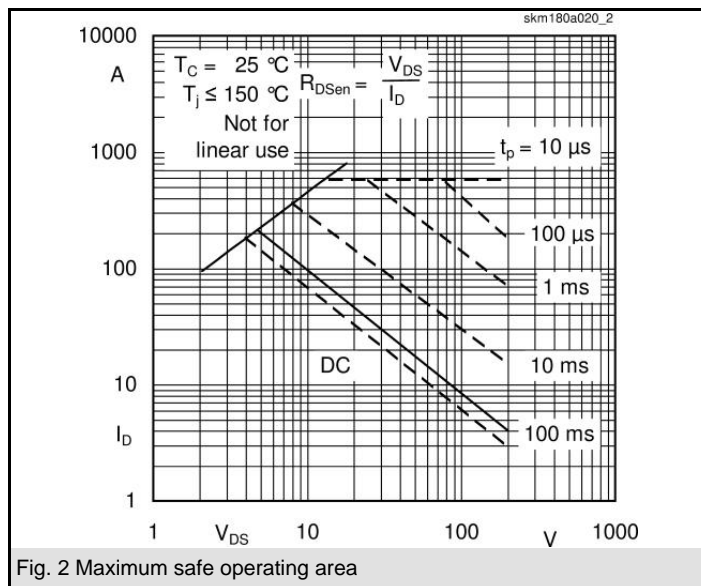
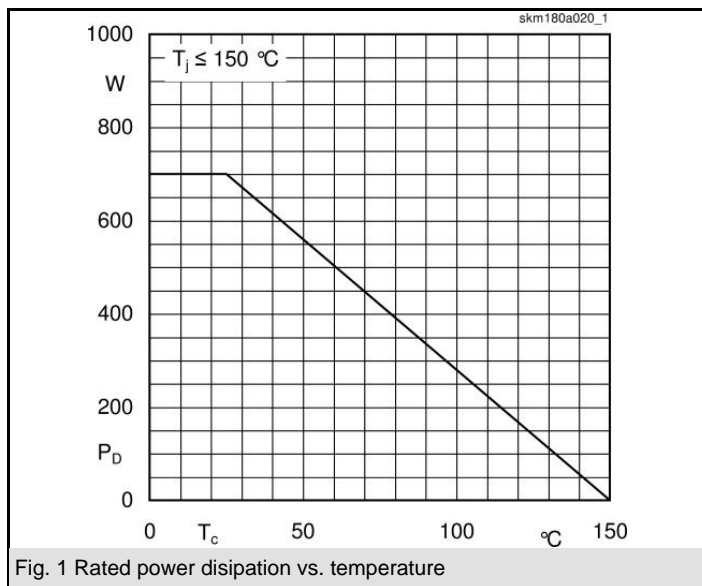
- Switched mode power supplies
- DC servo and robot drives
- DC choppers
- UPS equipment
- Plasma cutting
- Not suitable for linear amplification

Absolute Maximum Ratings		T _c = 25 °C, unless otherwise specified	
Symbol	Conditions	Values	Units
V _{DS}	T _s = 25 (80) °C 1 ms	200	V
I _D		180 (135)	A
I _{DM}		540	A
V _{GS}		± 20	V
T _{vj} , (T _{stg})		- 40 ... + 150 (125)	°C
V _{isol}	AC, 1 min.	2500	V
Inverse diode			
I _F = - I _S		180	A
I _{FM} = - I _{SM}		540	A

Characteristics		T _c = 25 °C, unless otherwise specified			
Symbol	Conditions	min.	typ.	max.	Units
V _{(BR)DSS}	V _{GS} = 0 V, I _D = 0,25 mA	200			V
V _{GS(th)}	V _{GS} = V _{DS} , I _D = 1 mA	2,1	3	4	V
I _{DSS}	V _{GS} = 0 V, V _{DS} = 200 V, T _j = 25 (125) °C		50 (300)	250 (1000)	µA
I _{GSS}	V _{GS} = 20 V, V _{DS} = 0 V		10	100	nA
R _{DS(on)}	V _{GS} = 10 V, I _D = 110 A		9	11	mΩ
g _{fs}	V _{DS} = 25 V, I _D = 110 A	80	100		S
C _{CHC}	V _{GS} = 0, V _{DS} = 25 V, f = 1 MHz			160	pF
C _{iss}			16	24	nF
C _{oss}			3	4,5	nF
C _{rss}			1,5	2	nF
L _{DS}				20	nH
t _{d(on)}	V _{DD} = 100 V, I _D = 80 A, V _{GS} = 10 V, R _G = 3,3 Ω		100		ns
t _r			200		ns
t _{d(off)}			900		ns
t _f			220		ns
Inverse diode					
V _{SD}	I _F = 360 A; V _{GS} = 0 V		1,3	1,5	V
t _{rr}	T _j = 25 (125) °C		500		ns
Q _{rr}	T _j = 25 °C		10 (12)		µC
I _{rr}	T _j = °C				A
Thermal characteristics					
R _{th(j-c)}	per MOSFET			0,18	K/W
R _{th(c-s)}	M _s , surface 10 µm, per module			0,05	K/W
Mechanical data					
M _s	to heatsink (M6)	4		5	Nm
M _t	for terminals (M5)				Nm
w				130	g



MA



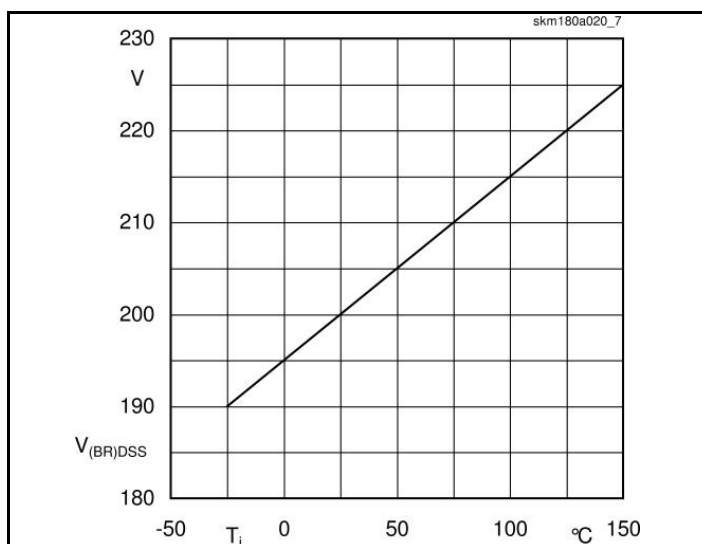


Fig. 7 Breakdown voltage vs. temperature

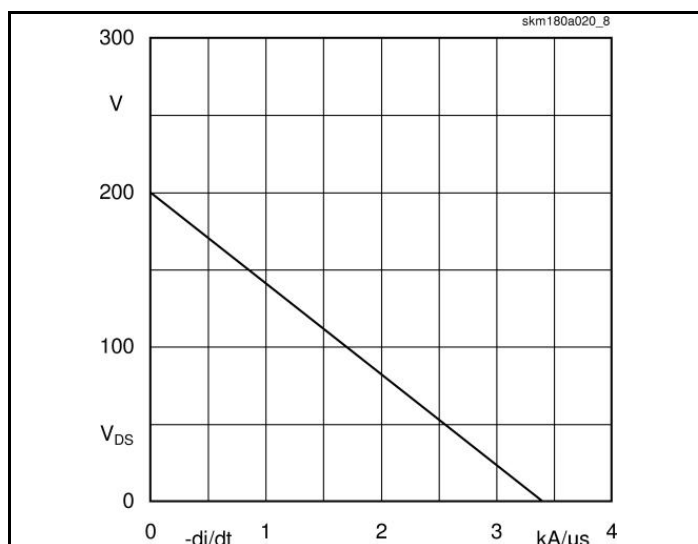


Fig. 8 Drain-source voltage derating

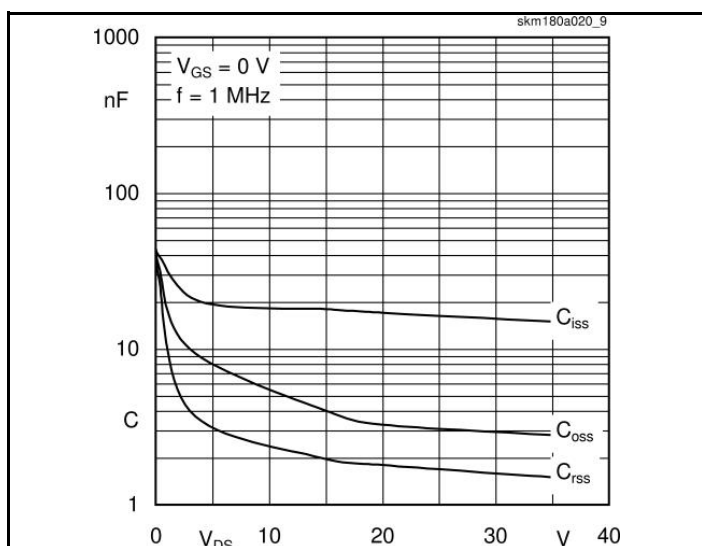


Fig. 9 Capacitances vs. drain-source voltage

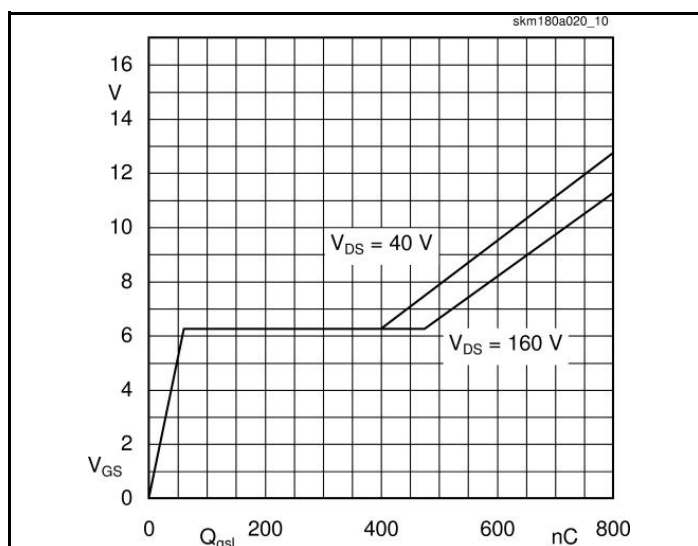


Fig. 10 Gate charge characteristic

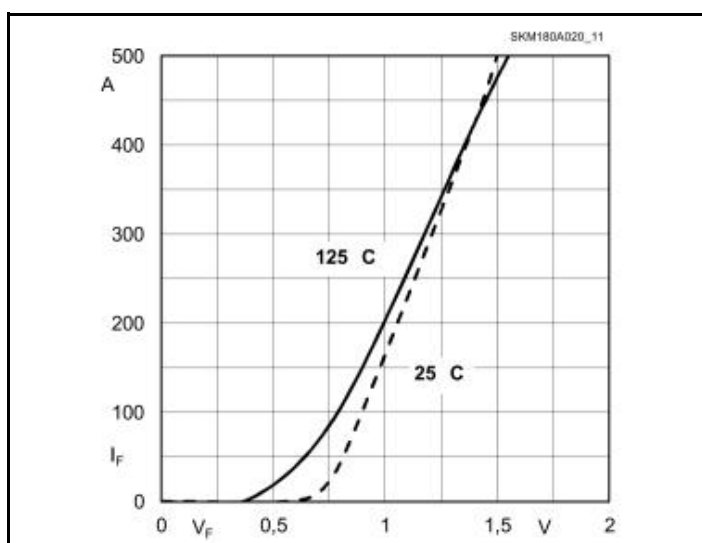


Fig. 11 Diode forward characteristic, $t_p = 80 \mu s$

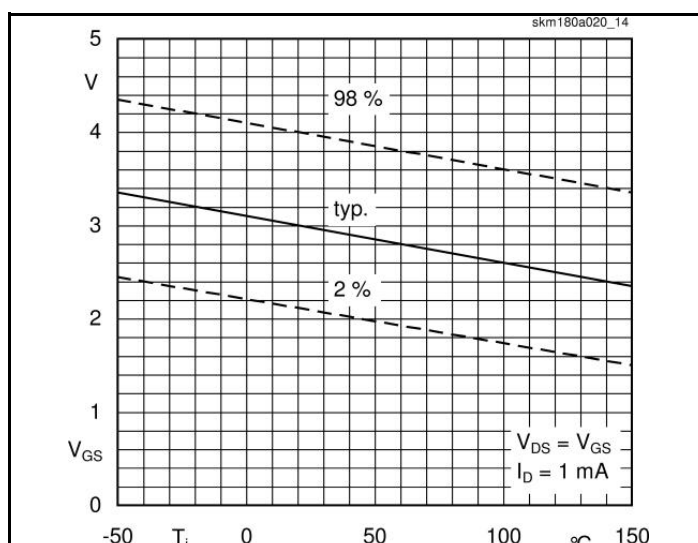
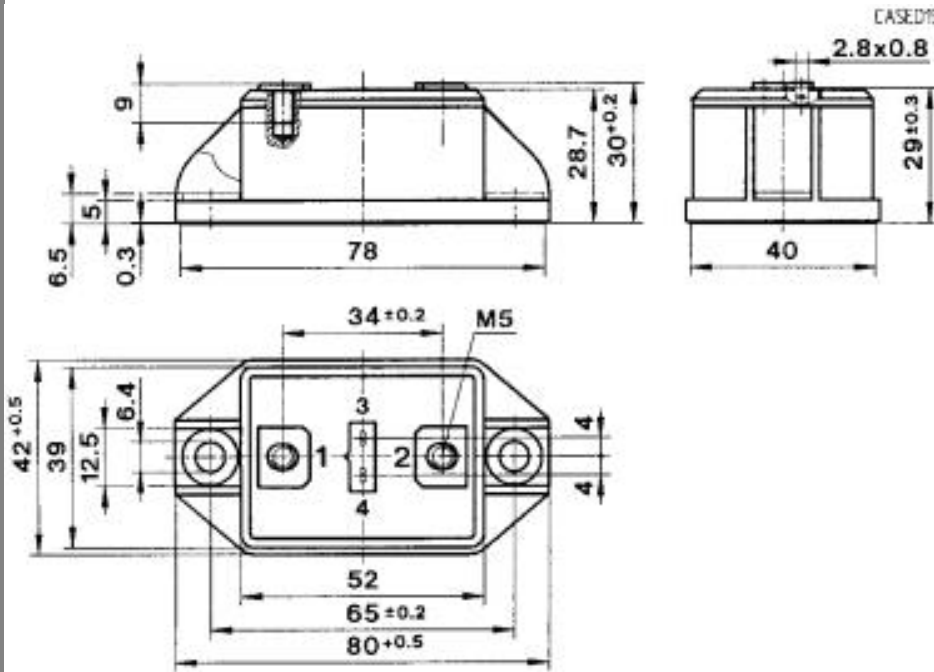


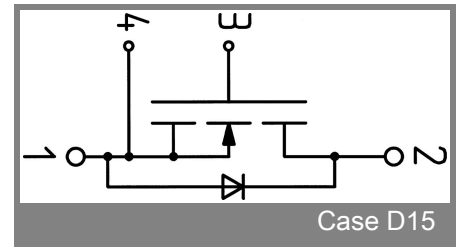
Fig. 14 Gate-source threshold voltage

UL Recognized
File no. E 63 532

Dimensions in mm



Case D15



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 staff.