

SKM 121AR



SEMITRANS™ M1

Power MOSFET Modules

SKM 121AR

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



MA

Absolute Maximum Ratings		$T_c = 25\text{ °C}$, unless otherwise specified	
Symbol	Conditions	Values	Units
V_{DS}		200	V
I_D	$T_s = 25\text{ (80) °C}$	130 (95)	A
I_{DM}	1 ms	390	A
V_{GS}		± 20	V
T_{vj} (T_{stg})		- 40 ... + 150 (125)	°C
V_{isol}	AC, 1 min.	2500	V
Inverse diode			
$I_F = -I_S$		130	A
$I_{FM} = -I_{SM}$		390	A

Characteristics		$T_c = 25\text{ °C}$, unless otherwise specified			
Symbol	Conditions	min.	typ.	max.	Units
$V_{(BR)DSS}$	$V_{GS} = 0\text{ V}, I_D = 0,25\text{ mA}$	200			V
$V_{GS(th)}$	$V_{GS} = V_{DS}, I_D = 1\text{ mA}$	2,1	3	4	V
I_{DSS}	$V_{GS} = 0\text{ V}, V_{DS} = 200\text{ V}, T_j = 25\text{ (125) °C}$		50 (300)	250 (1000)	μA
I_{GSS}	$V_{GS} = 20\text{ V}, V_{DS} = 0\text{ V}$		10	100	nA
$R_{DS(on)}$	$V_{GS} = 10\text{ V}, I_D = 80\text{ A}$		18	20	m Ω
g_{fs}	$V_{DS} = 25\text{ V}, I_D = 80\text{ A}$	60	75		S
C_{CHC}	$V_{GS} = 0, V_{DS} = 25\text{ V}, f = 1\text{ MHz}$			160	pF
C_{iss}			10	13	nF
C_{oss}			3	4,5	nF
C_{rss}			0,7	1	nF
L_{DS}				20	nH
$t_{d(on)}$	$V_{DD} = 100\text{ V}, I_D = 80\text{ A},$		60		ns
t_r	$V_{GS} = 10\text{ V}, R_G = 3,3\ \Omega$		60		ns
$t_{d(off)}$			240		ns
t_f			70		ns
Inverse diode					
V_{SD}	$I_F = 260\text{ A}; V_{GS} = 0\text{ V}$		1,05	1,4	V
t_{rr}	$T_j = 25\text{ (150) °C}$		400		ns
Q_{rr}	$T_j = 25\text{ °C}$		4,3		μC
I_{rr}	$T_j = \text{ °C}$				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)	2,5		3,5	Nm
w				130	g

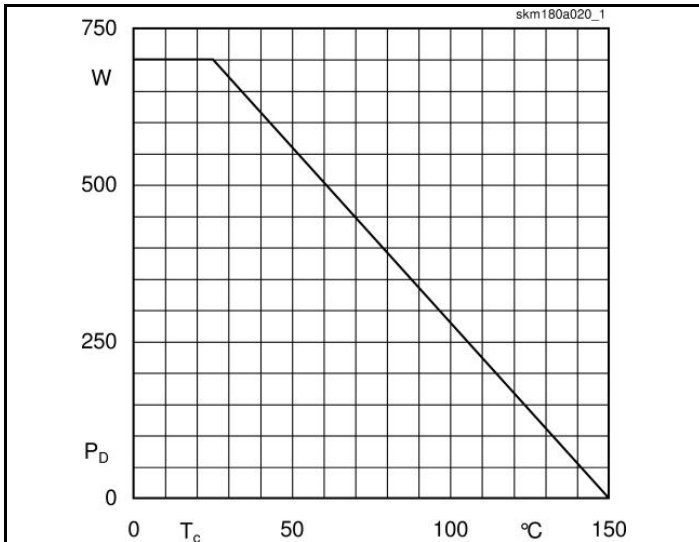


Fig. 1 Rated power dissipation vs. temperature

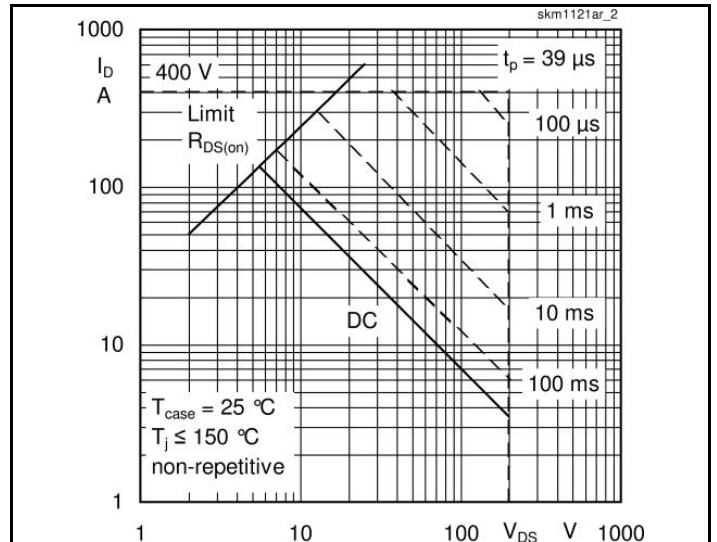


Fig. 2 Maximum safe operating area

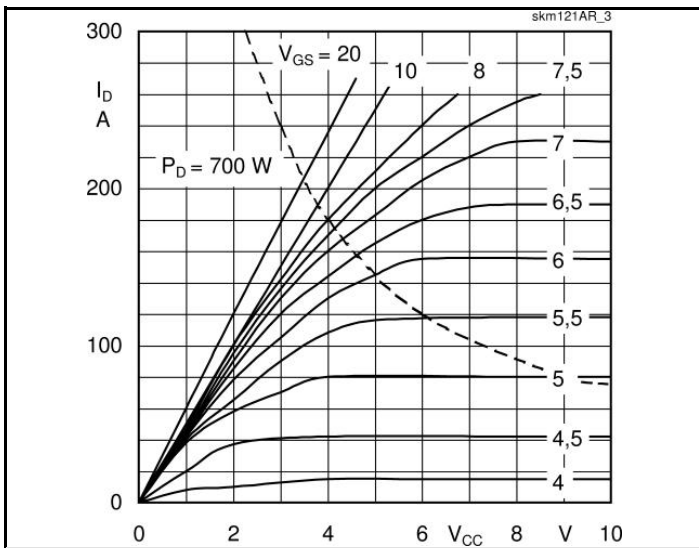


Fig. 3 Output characteristic

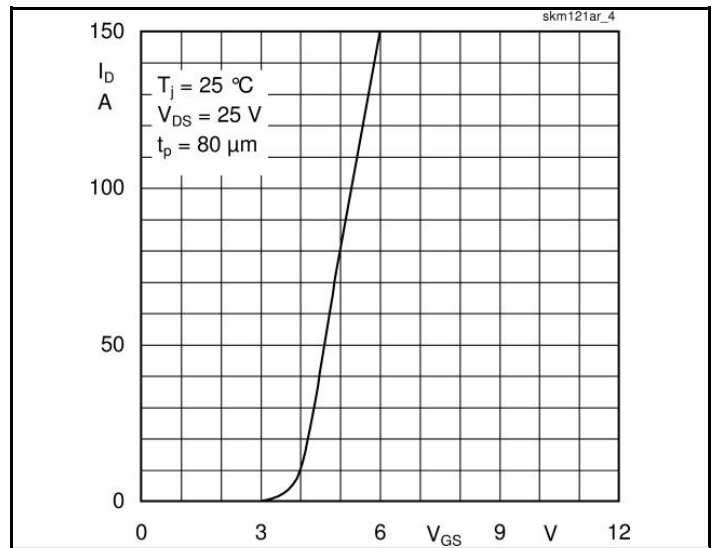


Fig. 4 Transfer characteristic

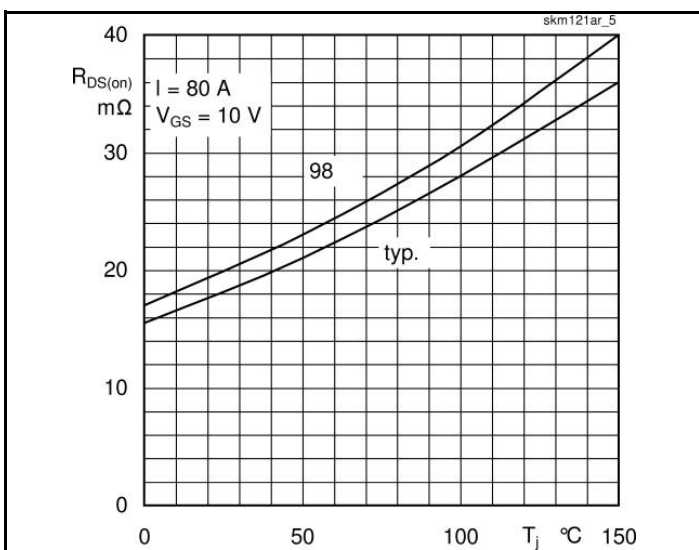


Fig. 5 On-resistance vs. temperature

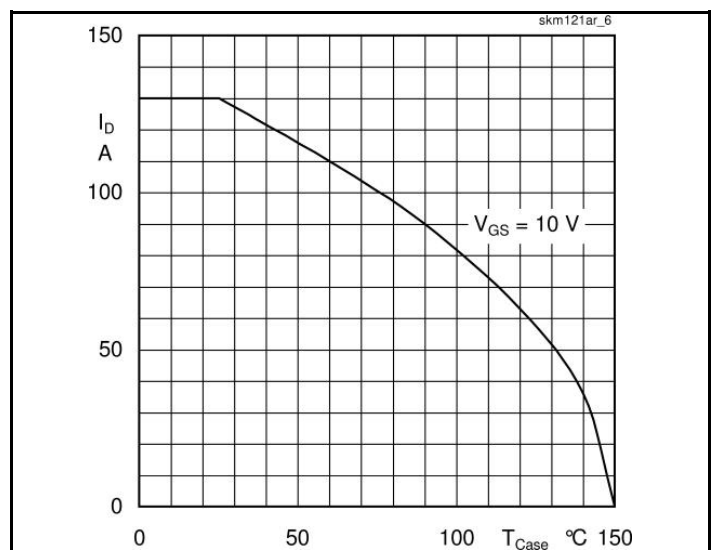
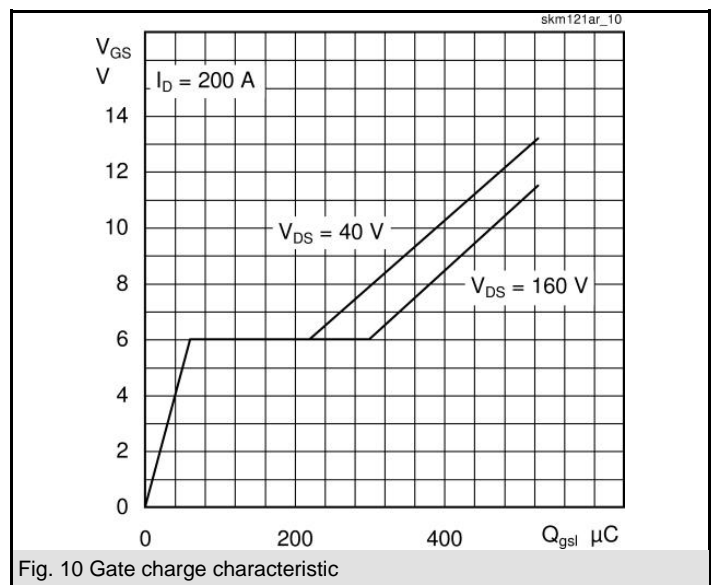
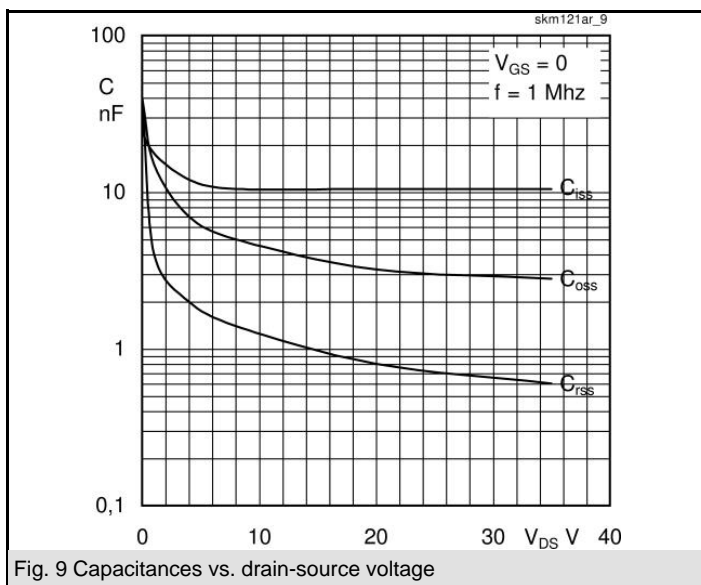
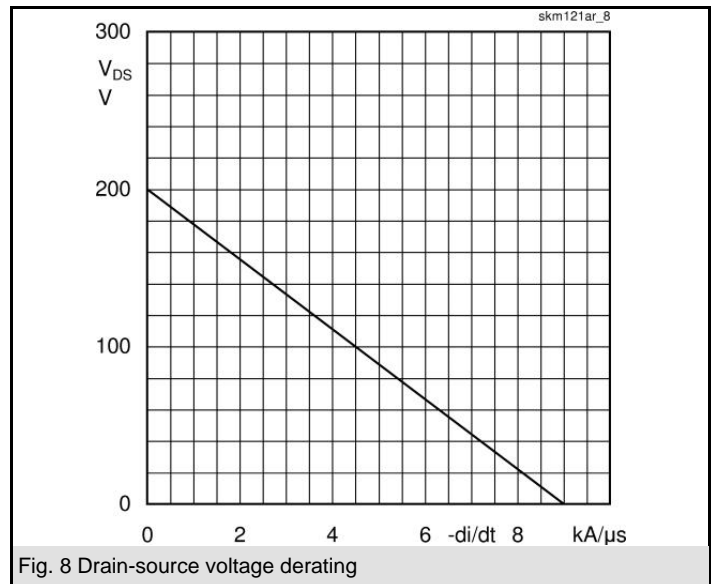
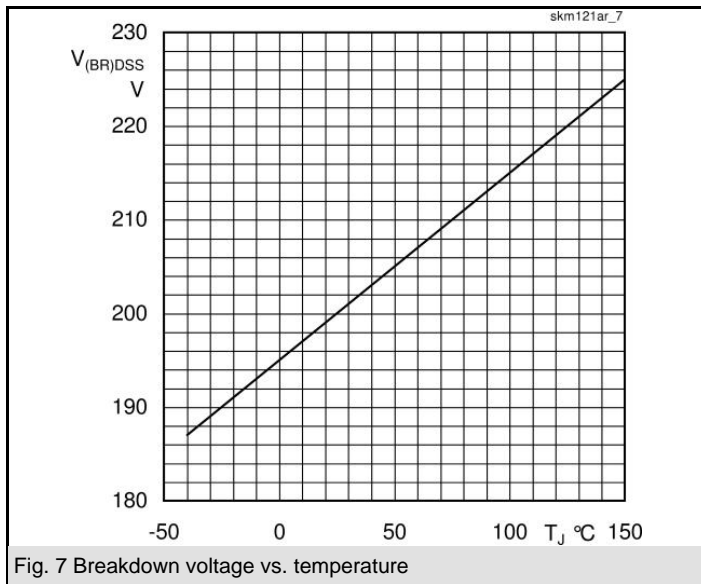


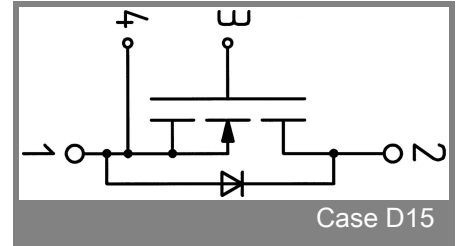
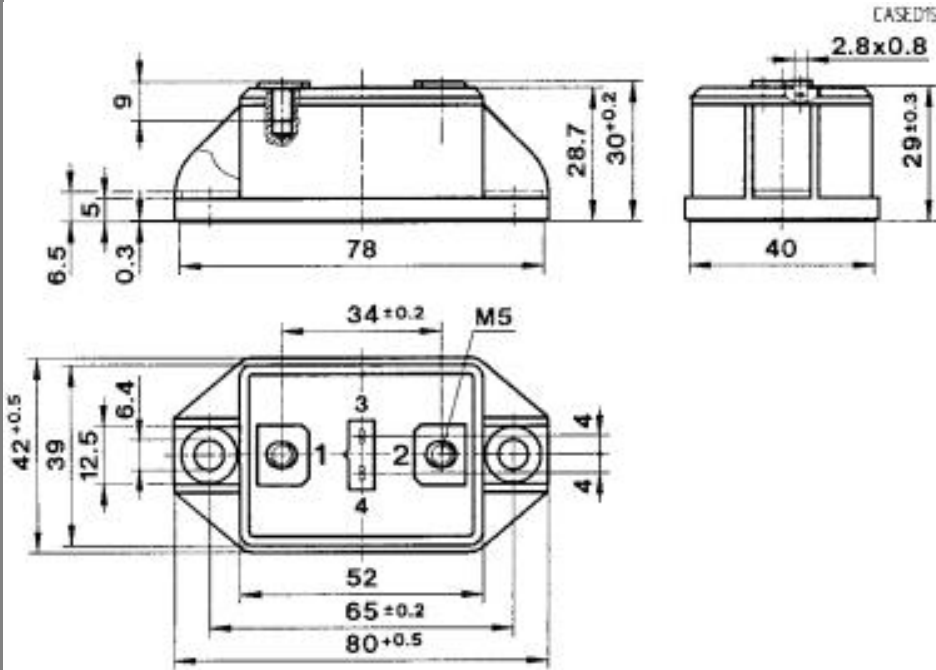
Fig. 6 Rated current vs. temperature



SKM 121AR

UL Recognized
File no. E 63 532

Dimensions in mm



Case D 15

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.