SKM 111AR

SEMITRANS™ M1

Power MOSFET Modules

SKM 111AR

Features

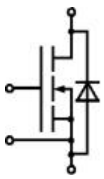
- N Channel, enhancement mode
- Avalanche characteristic
- Short connections and built-in gate resistors to suppress internal oscillations even in critical applications
- Isolated copper baseplate
- All electrical connections on top for easy busbaring
- Large clearances (10 mm) and creepage distances (20 mm)
- UL recognized, file no. E 63 532

Typical Applications

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

Absolute Maximum Ratings		T_c = 25 °C, unless otherwise specified	
Symbol	**Conditions**	**Values**	**Units**
V_{DS}		100	V
I_D	T_s = 25 (80) °C	200 (150)	A
I_{DM}	1 ms	600	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		200	A
I_{FM} = - I_{SM}		600	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	100			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} = 100 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 = 130 A		7	8,5	mΩ
g_{fs}	V_{DS} = 25 V, I_D = 130 A	60	75		S
C_{CHC}	V_{GS} = 0, V_{DS} = 25 V, f = 1 MHz			160	pF
C_{iss}			10	13	nF
C_{oss}			5	7,5	nF
C_{rss}			1,8	2,7	nF
L_{DS}				20	nH
$t_{d(on)}$	V_{DD} = 50 V, I_D = 130 A,		60		ns
t_r	V_{GS} = = 10 V, R_G = 3,3 Ω		220		ns
$t_{d(off)}$			270		ns
t_f			200		ns
Inverse diode					
V_{SD}	I_F = 400 A; V_{GS} = 0 V		1,25	1,6	V
t_{rr}	T_j = 25 (150) °C		400		ns
Q_{rr}	T_j = 25 °C		3,5		µC
I_{rr}	T_j = 150 °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



MA

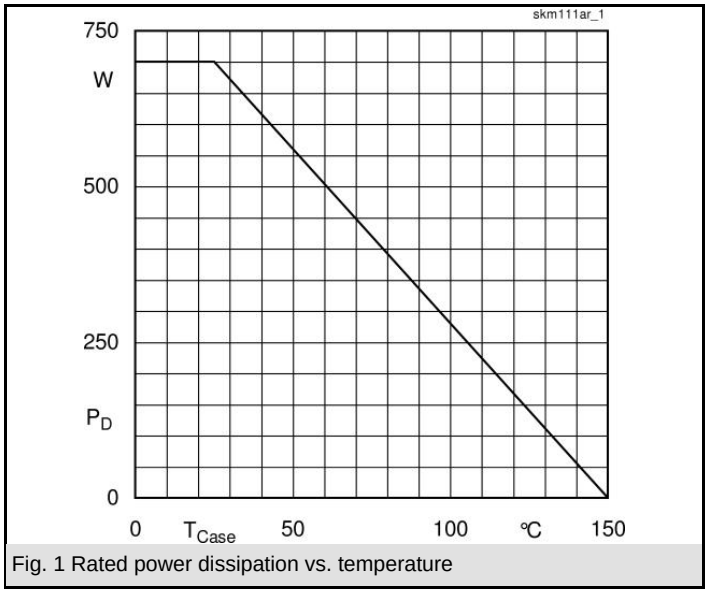


Fig. 1 Rated power dissipation vs. temperature

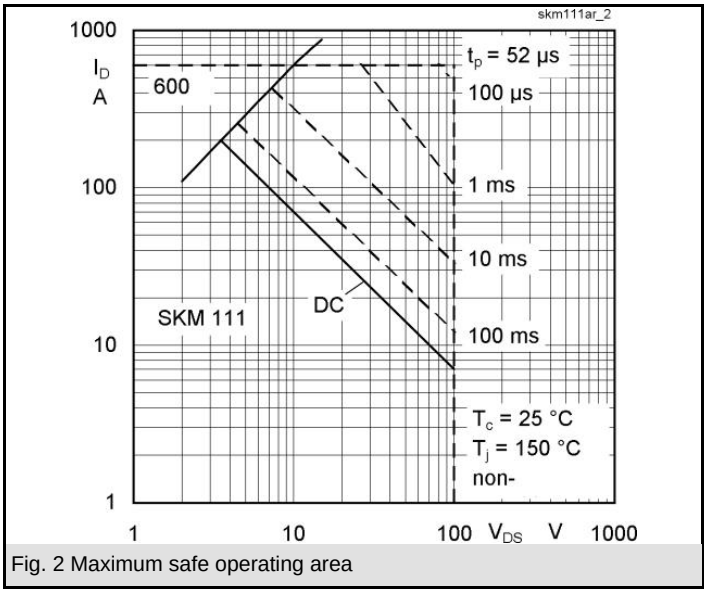


Fig. 2 Maximum safe operating area

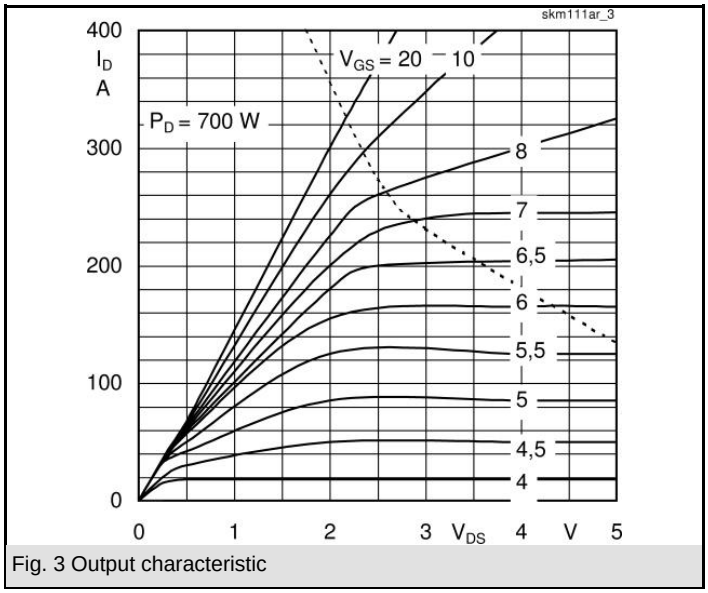


Fig. 3 Output characteristic

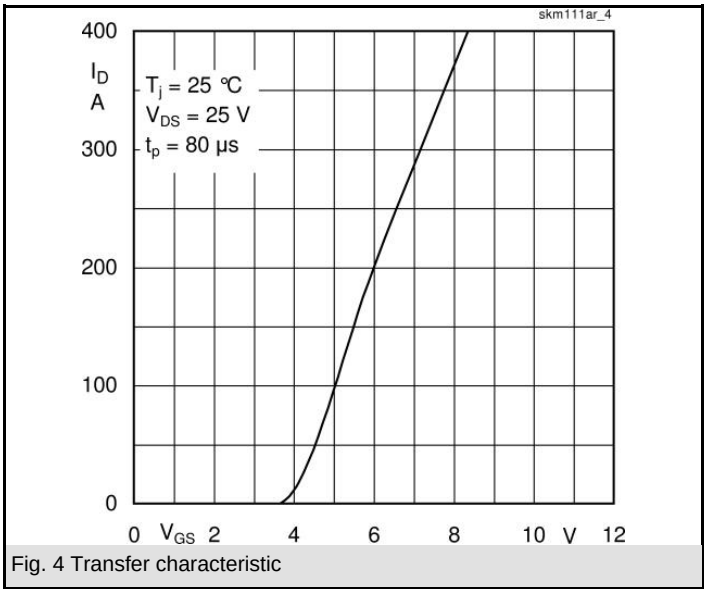


Fig. 4 Transfer characteristic

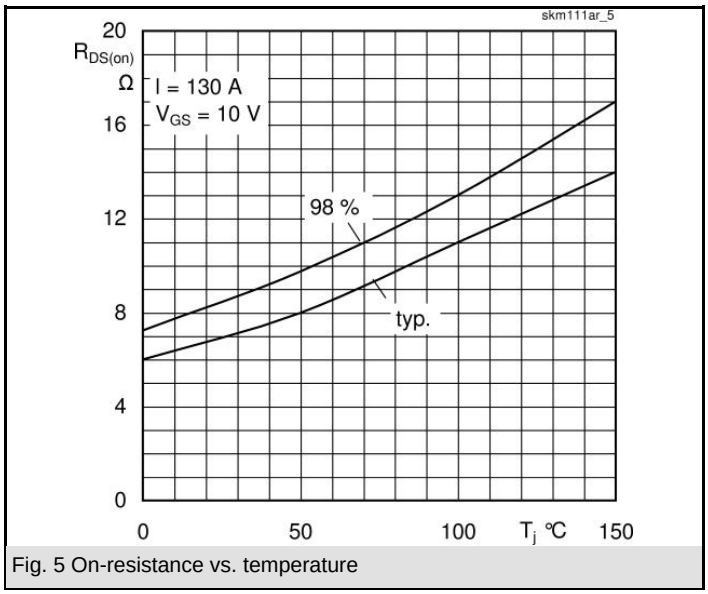


Fig. 5 On-resistance vs. temperature

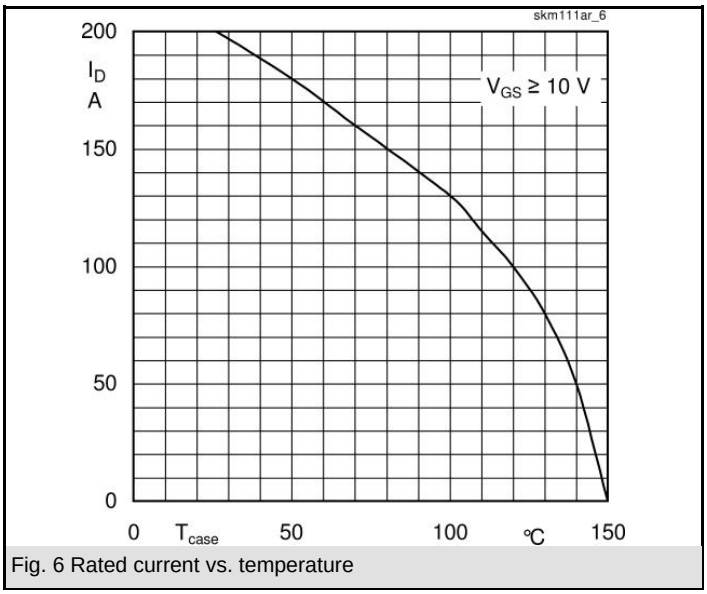


Fig. 6 Rated current vs. temperature

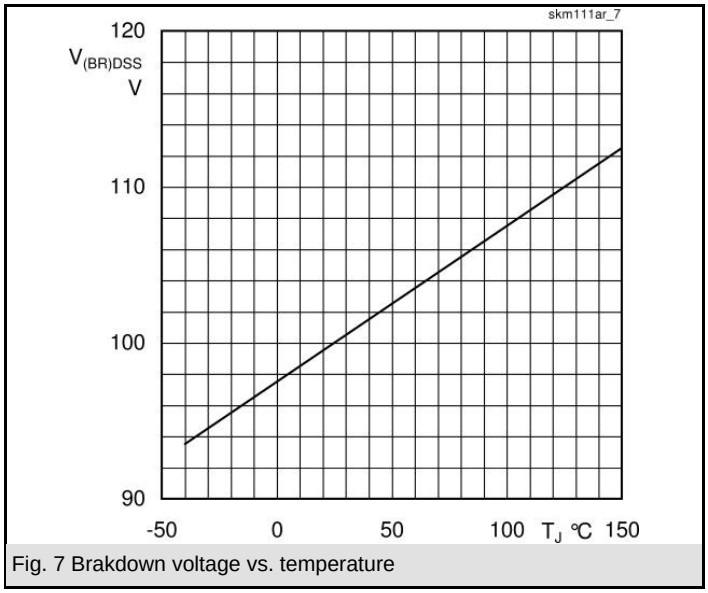


Fig. 7 Brakdown voltage vs. temperature

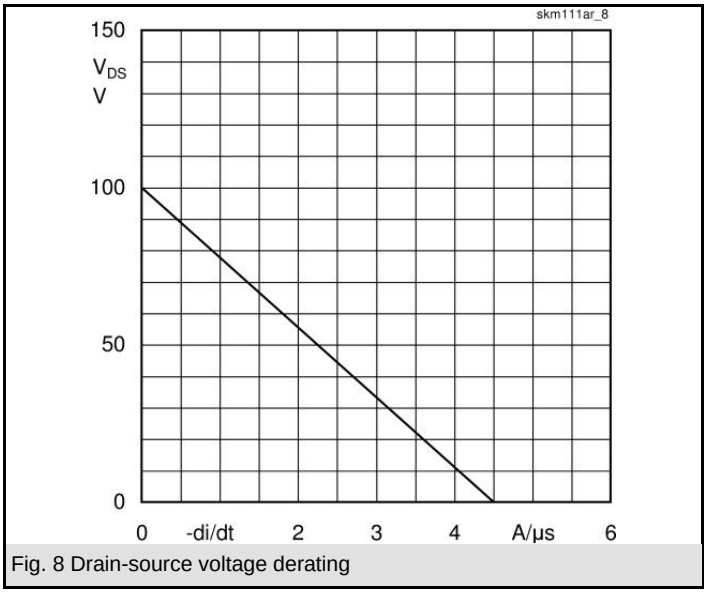


Fig. 8 Drain-source voltage derating

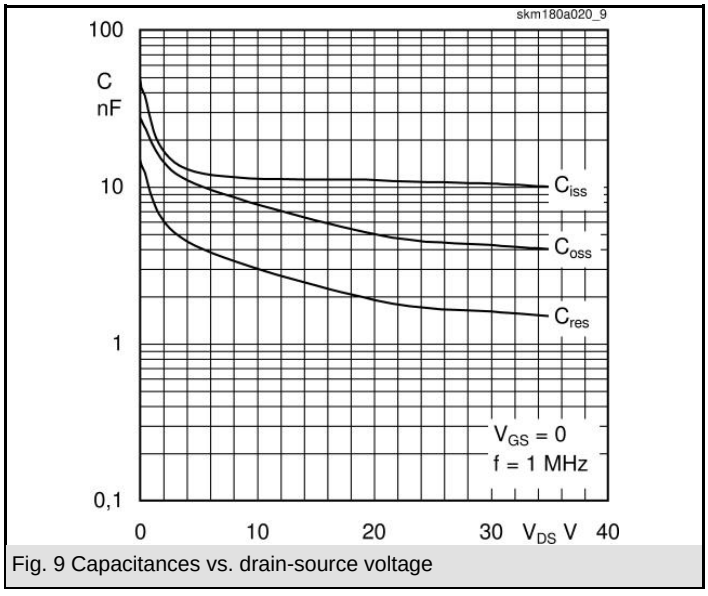


Fig. 9 Capacitances vs. drain-source voltage

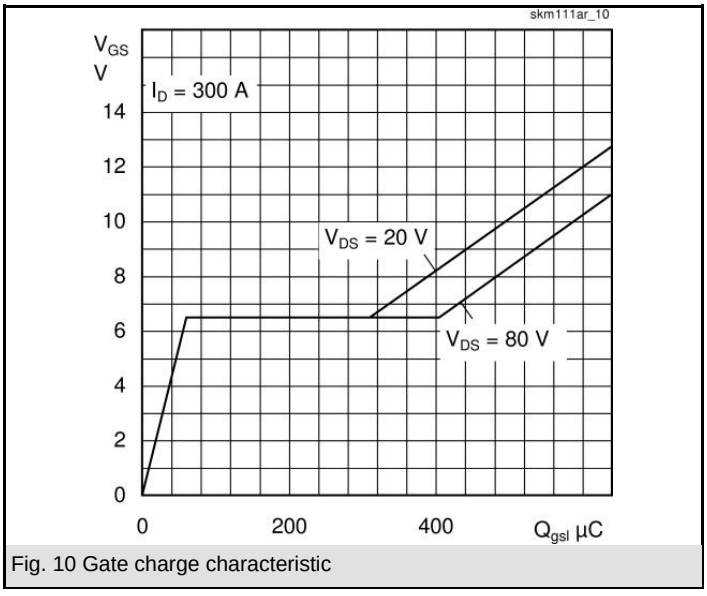


Fig. 10 Gate charge characteristic

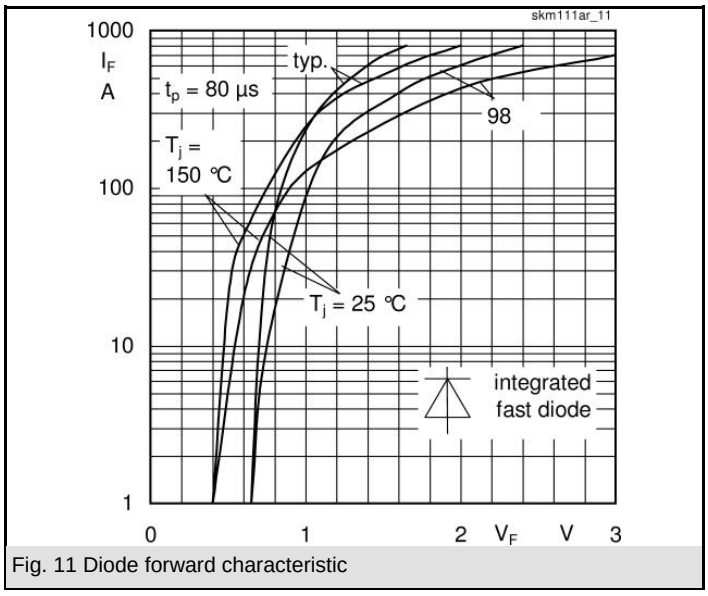


Fig. 11 Diode forward characteristic

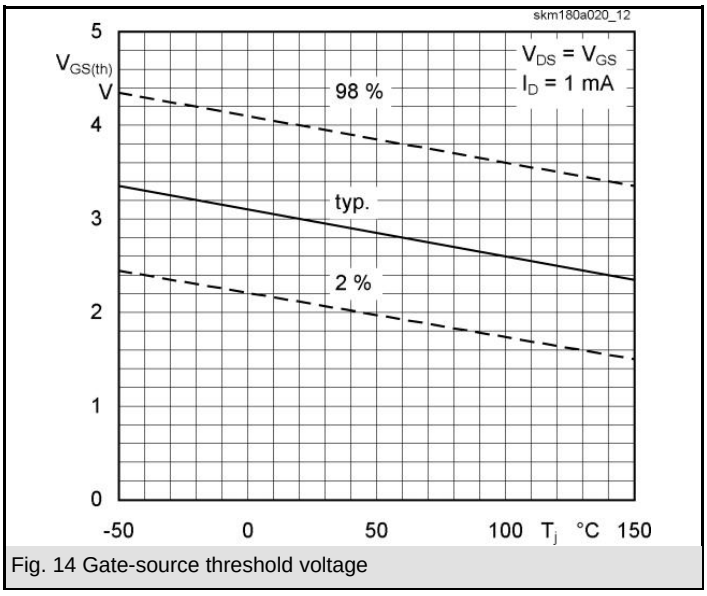


Fig. 14 Gate-source threshold voltage

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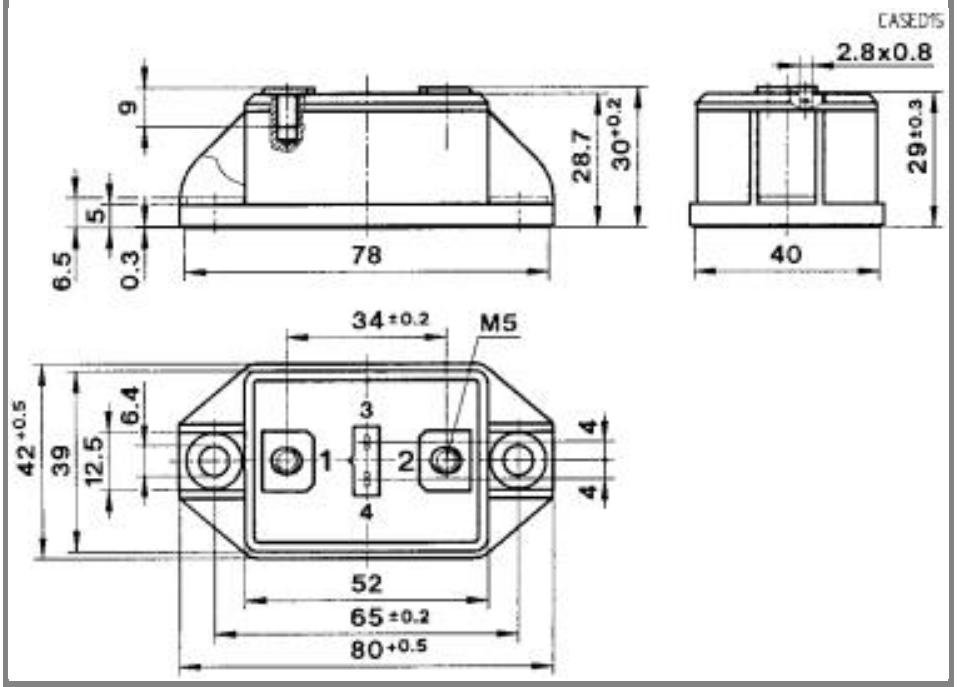
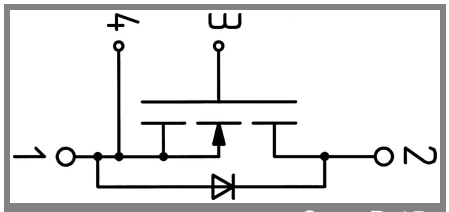
UL Recognized
File no. E 63 532

Dimensions in mm



Case D15



Case D 15

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

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