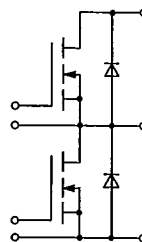
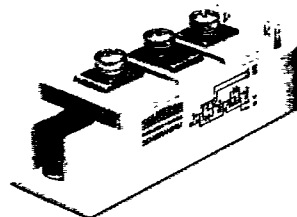


Absolute Maximum Ratings			
Symbol	Conditions ¹⁾	Values	Units
V _{DS}	R _{GS} = 20 kΩ	200	V
V _{DGR}		200	V
I _D		81	A
I _{DM}		250	A
V _{GS}		± 20	V
P _D	AC, 1 min, 200 μA DIN 40 040 DIN IEC 68 T.1	400	W
T _J , T _{stg}		- 55 . . . +150	°C
V _{isol}		2 500	V
humidity		Class F	
climate		55/150/56	
Inverse Diode			
I _F = - I _D		81	A
I _{FM} = - I _{DM}		250	A

SEMITRANS® M Power MOSFET Modules SKM 224 A

T-39-27



Characteristics		min.	typ.	max.	Units
Symbol	Conditions ¹⁾				
V _{(BR)DSS}	V _{GS} = 0, I _D = 0,25 mA	200	—	—	V
V _{GS(th)}	V _{GS} = V _{DS} , I _D = 1 mA	2,1	3,0	4,0	V
I _{DSS}	V _{GS} = 0, } T _J = 25 °C V _{DS} = 200 V } T _J = 125 °C	—	50	250	μA
I _{GSS}	V _{GS} = 20 V, V _{DS} = 0	—	10	100	nA
R _{DS(on)}	V _{GS} = 10 V, I _D = 50 A	—	23	30	mΩ
g _{fs}	V _{DS} = 25 V, I _D = 50 A	53	66	—	S
C _{CHC}	per MOSFET	—	—	100	pF
C _{iss}	V _{GS} = 0 V _{DS} = 25 V f = 1 MHz	—	7	9	nF
C _{oss}		—	2,5	4	nF
C _{rss}		—	0,8	1,5	nF
L _{DS}		—	—	20	nH
t _{d(on)}	V _{DD} = 100 V I _D = 52 A V _{GS} = 10 V R _{GS} = 3,3 Ω	—	55	—	ns
t _r		—	110	—	ns
t _{d(off)}		—	220	—	ns
t _f		—	35	—	ns
Inverse Diode					
V _{SD}	I _F = 162 A, V _{GS} = 0	—	1,25	1,6	V
t _{rr}	T _J = 25 °C ²⁾	—	320	—	ns
	T _J = 150 °C ²⁾	—	—	—	ns
Q _{rr}	T _J = 25 °C ²⁾	—	4,3	—	μC
	T _J = 150 °C ²⁾	—	—	—	μC
Thermal Characteristics					
R _{thjc}	per MOSFET	—	—	0,31	°C/W
R _{thch}	per module	—	—	0,07	°C/W

Mechanical Data				
Symbol	Description			
M ₁	to heatsink, SI Units	4	—	6
	to heatsink, US Units	35	—	53
M ₂	for terminals, SI Units	2,5	—	3,5
	for terminals, US Units	22	—	24
a		—	—	5x9,81
w		—	—	250
Case	→ page B 6 – 70	D 20		

¹⁾ T_{case} = 25 °C, unless otherwise specified.

²⁾ I_F = - I_D, V_R = 100 V, - di_F/dt = 100 A/μs

Typical Applications

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

This is an electrostatic discharge sensitive device (ESDS). Please observe the international standard IEC 747-1, Chapter IX.

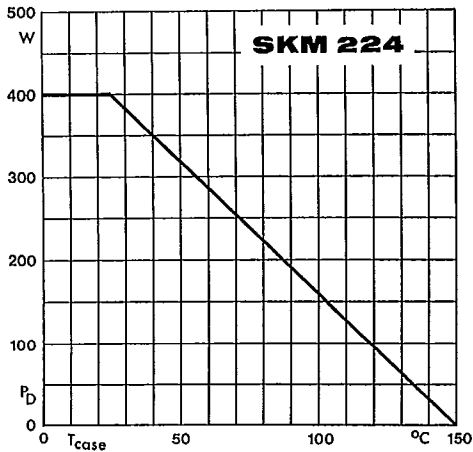


Fig. 1 Rated power dissipation vs. temperature

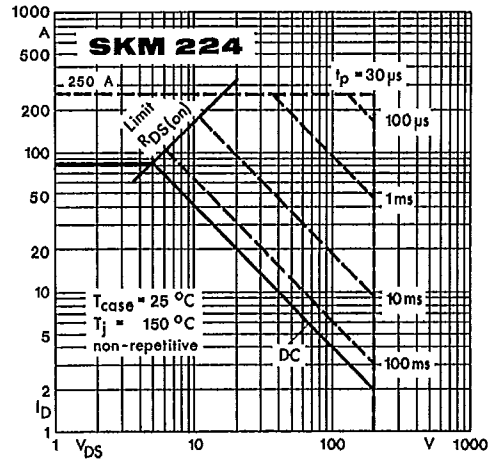


Fig. 2 Maximum safe operating area

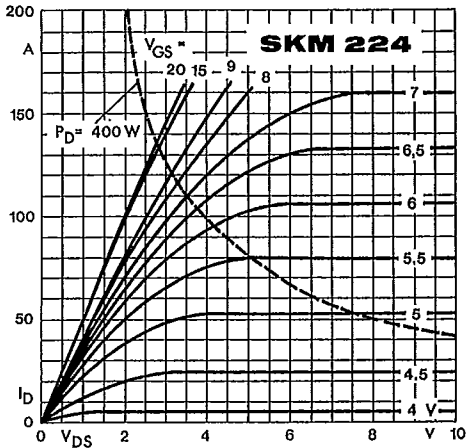


Fig. 3 Output characteristic

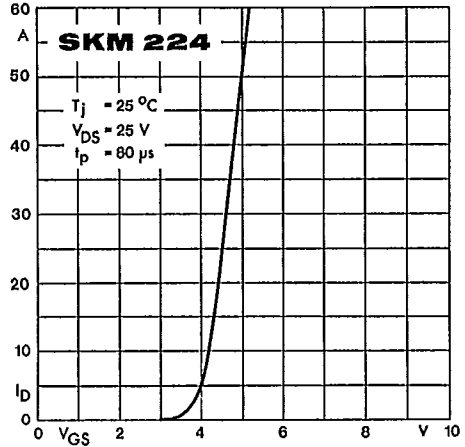


Fig. 4 Transfer characteristic

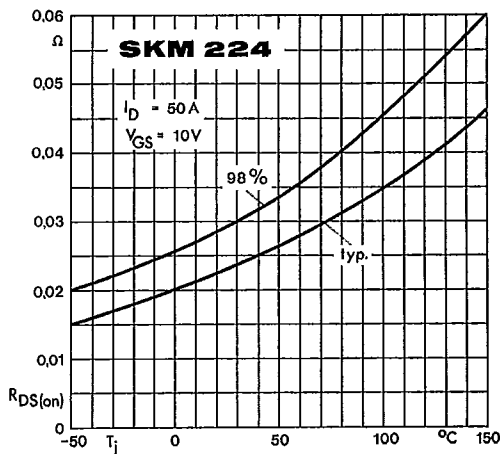


Fig. 5 On-resistance vs. temperature

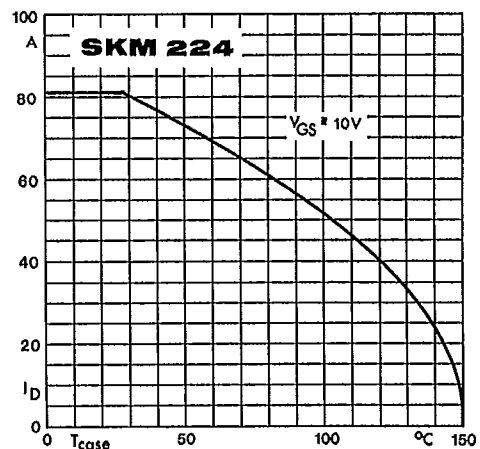


Fig. 6 Rated current vs. temperature

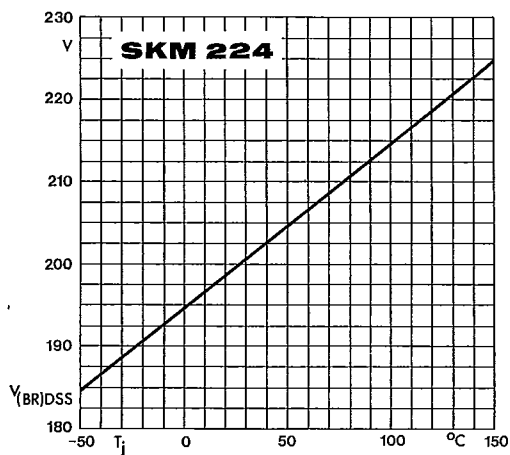


Fig. 7 Breakdown voltage vs. temperature

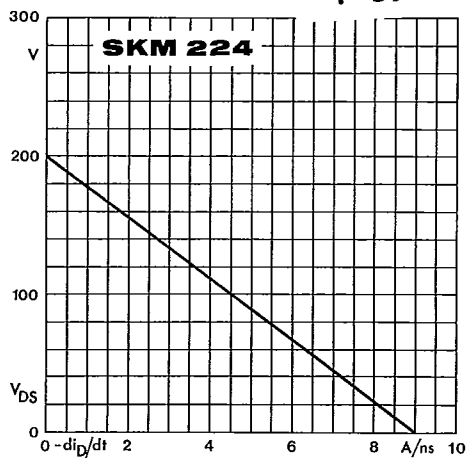


Fig. 8 Drain-source voltage derating

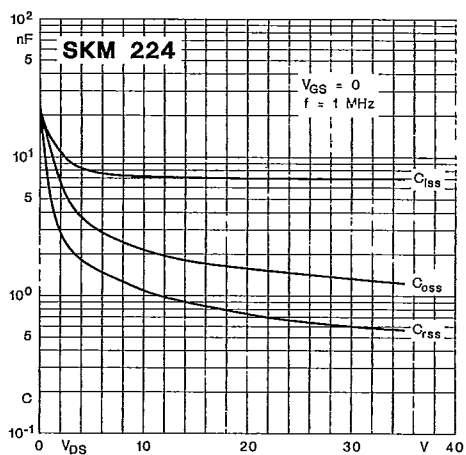


Fig. 9 Capacitances vs. drain-source voltage

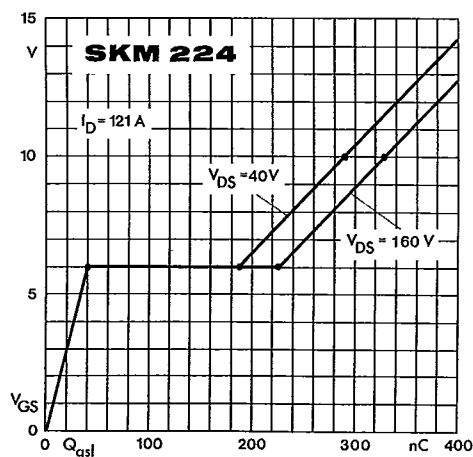


Fig. 10 Gate charge characteristic

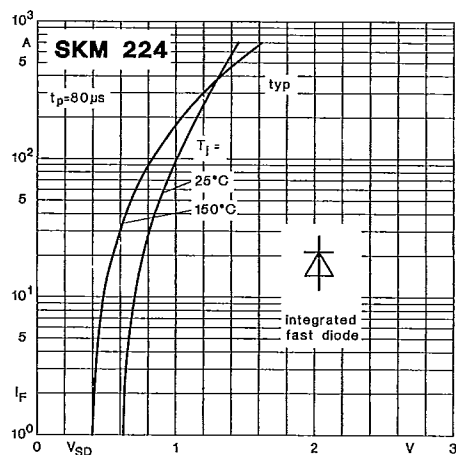


Fig. 11 Diode forward characteristic

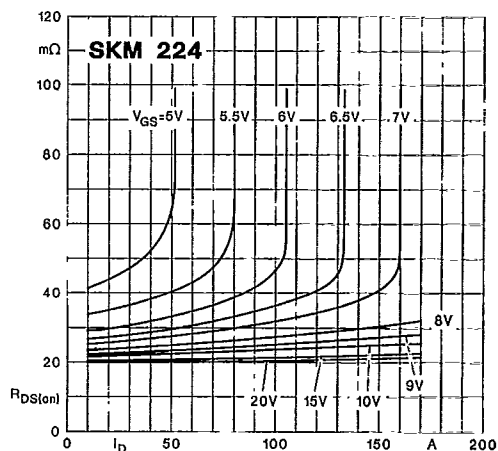


Fig. 13 On-resistance vs. drain current

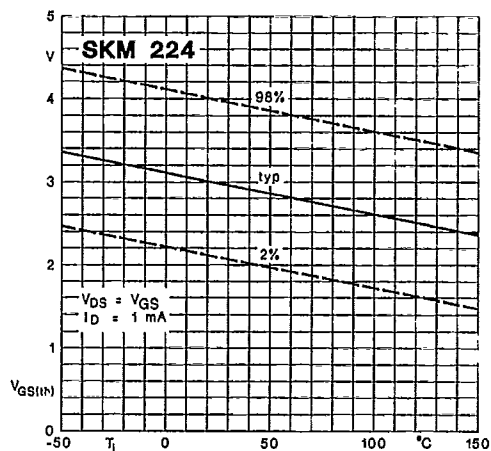


Fig. 14 Gate-source threshold voltage

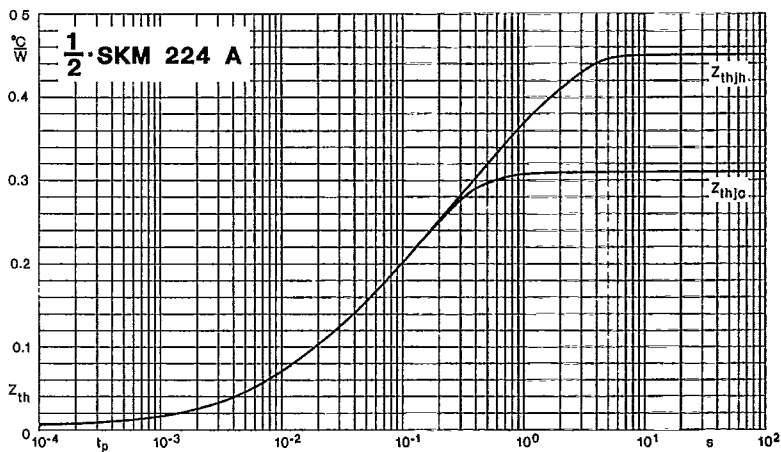


Fig. 51 Transient thermal impedance

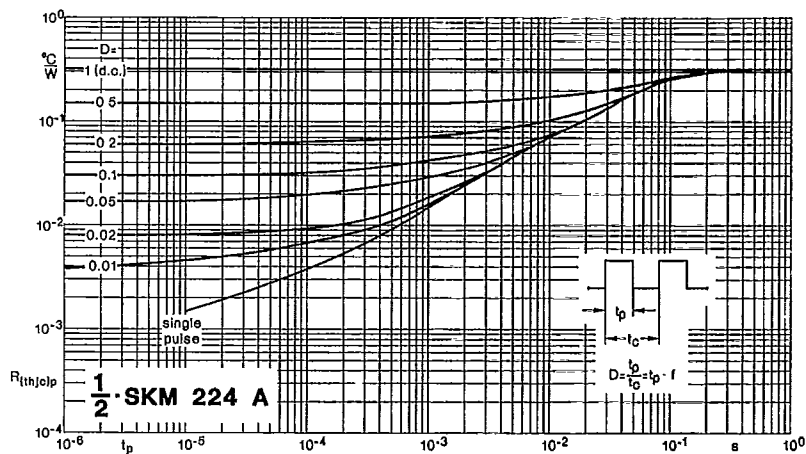


Fig. 52 Thermal impedance under pulse conditions