SHINDENGEN

VR Series Power MOSFET

N-Channel Enhancement type

2SK1195
(F1E23)

230V 1.5A

FEATURES

- Applicable to 4V drive.
- The static Rds(on) is small.
- Built-in ZD for Gate Protection.

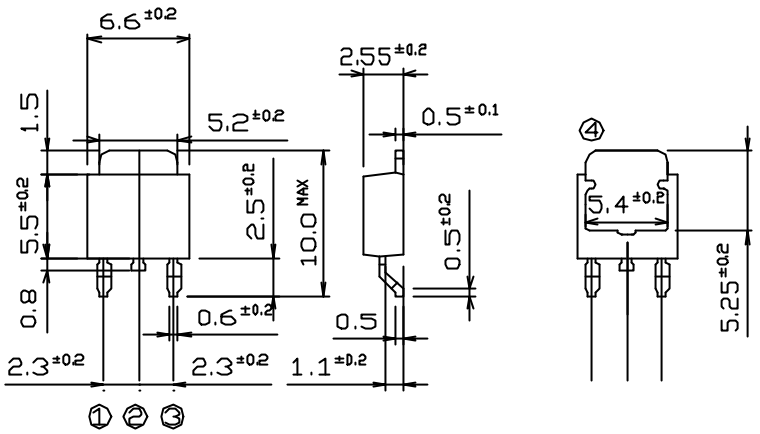
APPLICATION

- DC/DC converters
- Power supplies of DC 12-24V input
- Product related to Integrated Service Digital Network

OUTLINE DIMENSIONS

Case : E-pack

(Unit : mm)



① :G
② :D
③ :S
④ :D

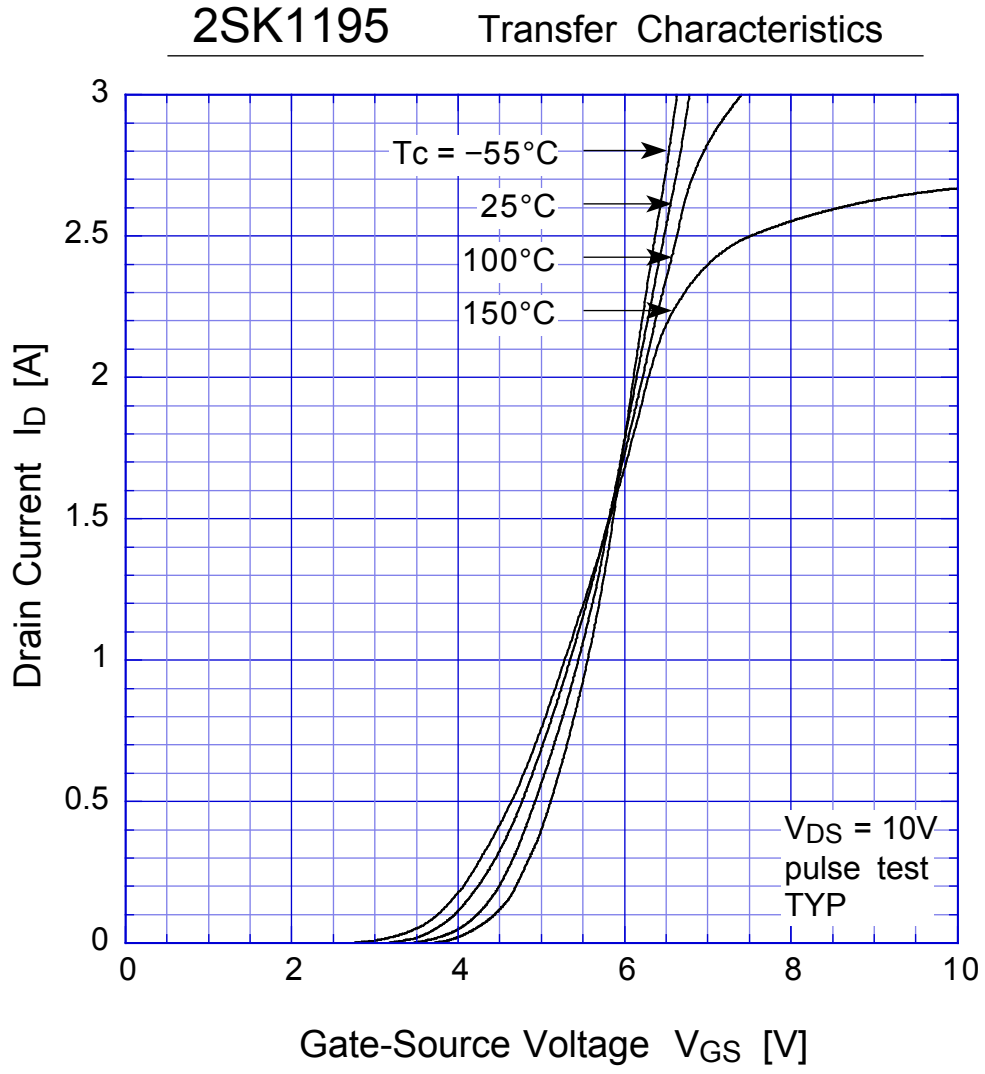
RATINGS

●Absolute Maximum Ratings (Tc = 25°C)

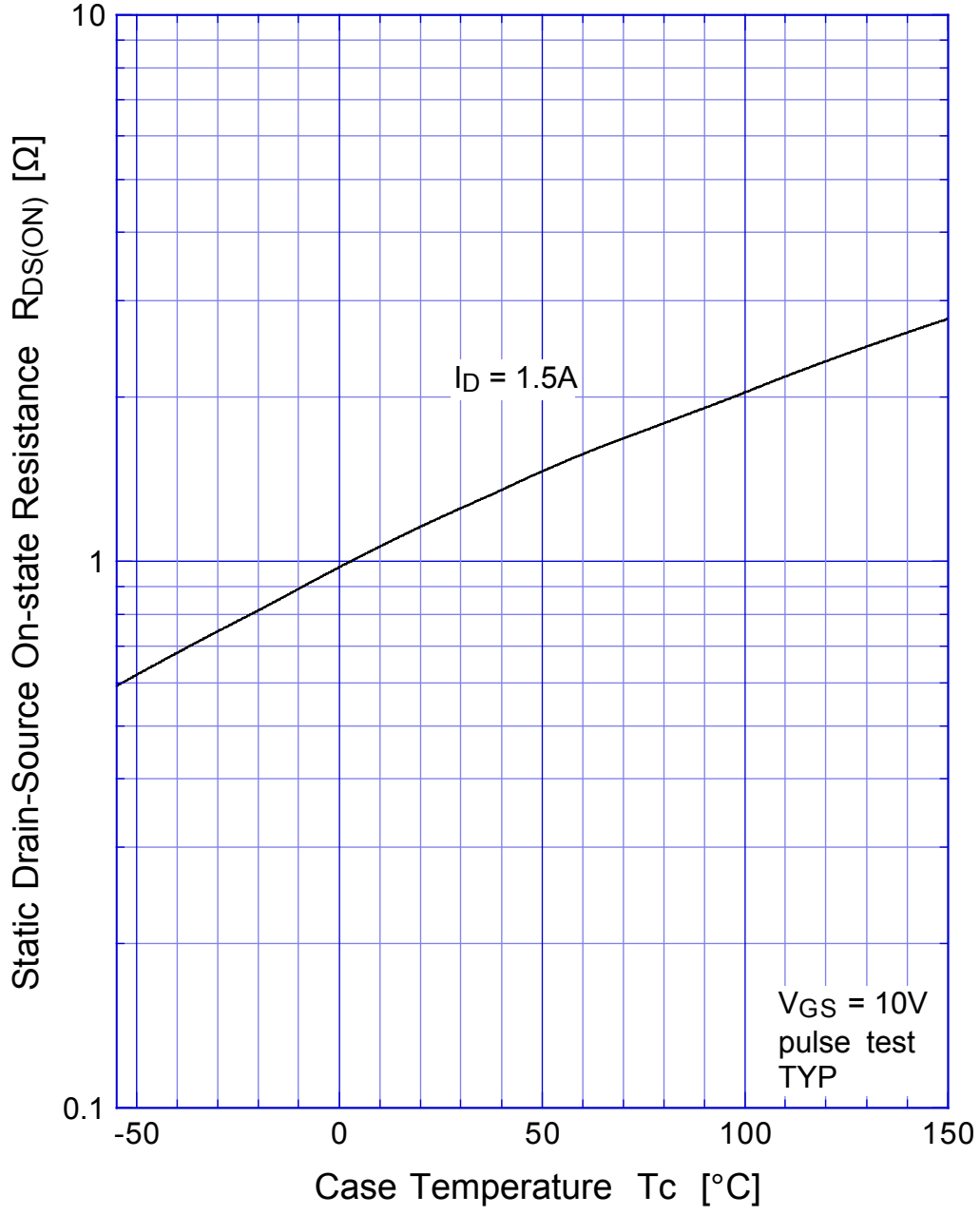
Item	Symbol	Conditions	Ratings	Unit
Storage Temperature	Tstg		-55～150	°C
Channel Temperature	Tch		150	
Drain-Source Voltage	VDSS		230	V
Gate-Source Voltage	VGSS		±20	
Continuous Drain Current (DC)	ID		1.5	A
Continuous Drain Current (Peak)	IDP		3	
Continuous Source Current (DC)	IS		1.5	
Total Power Dissipation	PT		10	W

●Electrical Characteristics Tc = 25℃

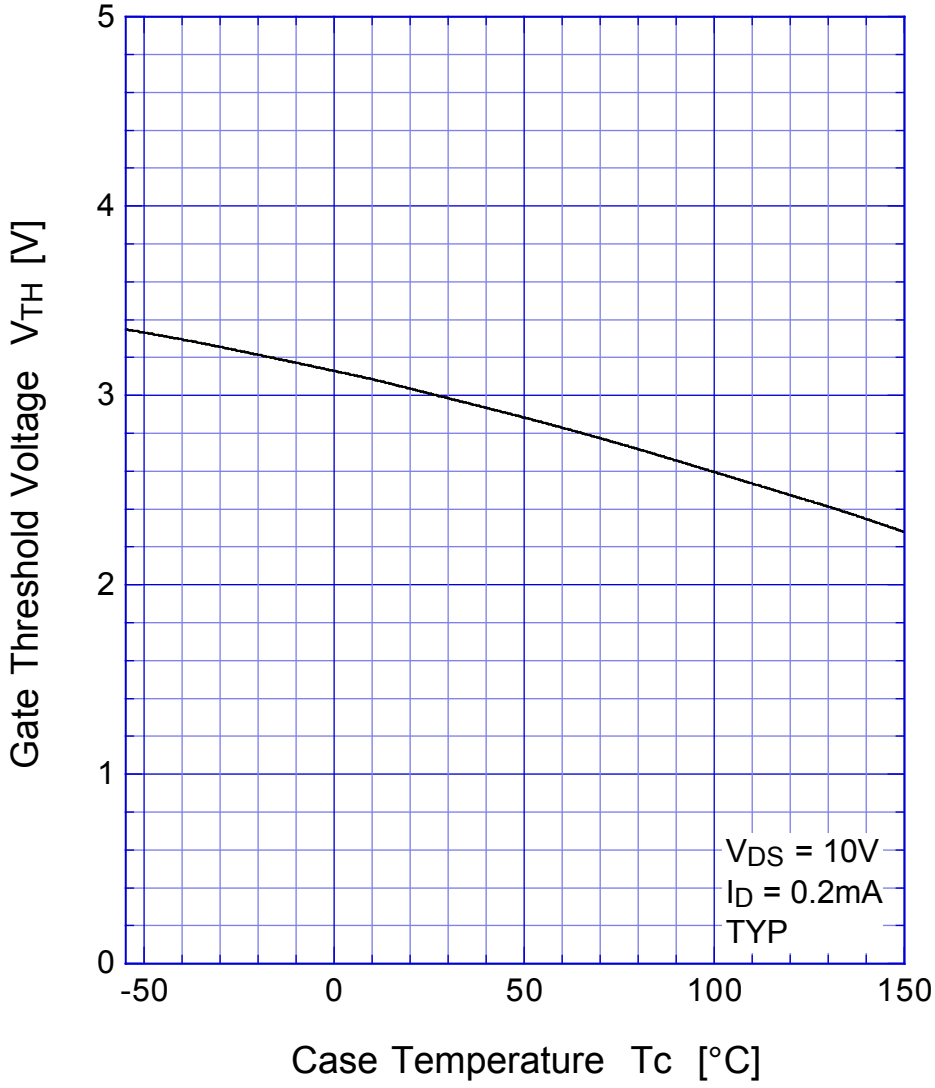
Item	Symbole	Conditions	Min.	Typ.	Max.	Unit
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	I_D = 250μA, V_{GS} = 0V	230			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = 230V, V_{GS} = 0V			250	μA
Gate-Source Leakage Current	I_{GSS}	V_{GS} = ±20V, V_{DS} = 0V			±0.1	
Forward Transconductance	g_{fs}	I_D = 1.5A, V_{DS} = 10V	0.7	1.4		S
Static Drain-Source On-state Resistance	$R_{DS(ON)}$	I_D = 1.5A, V_{GS} = 10V		1.2	2	Ω
Gate Threshold Voltage	V_{TH}	I_D = 0.2mA, V_{DS} = 10V	2	3	4	V
Source-Drain Diode Forward Voltage	V_{SD}	I_S = 1.5A, V_{GS} = 0V			1.5	
Thermal Resistance	θjc	junction to case			12.5	℃/W
Total Gate Charge	Qg	VGS = 10V, I_D = 1.5A, V_{DD} = 200V		6.9		nC
Input Capacitance	C_{iss}	V_{DS} = 10V, V_{GS} = 0V, f = 1MHz		160		pF
Reverse Transfer Capacitance	C_{rss}			20		
Output Capacitance	C_{oss}			90		
Turn-On Time	t_{on}	I_D = 1.5A, V_{GS} = 10V, R_L = 67Ω		37	75	ns
Turn-Off Time	t_{off}			50	100	


2SK1195 Transfer Characteristics
Tc = −55°C
25°C
100°C
150°C
VDS = 10V
pulse test
TYP
Drain Current ID [A]
Gate-Source Voltage VGS [V]
0
0.5
1
1.5
2
2.5
3
0
2
4
6
8
10

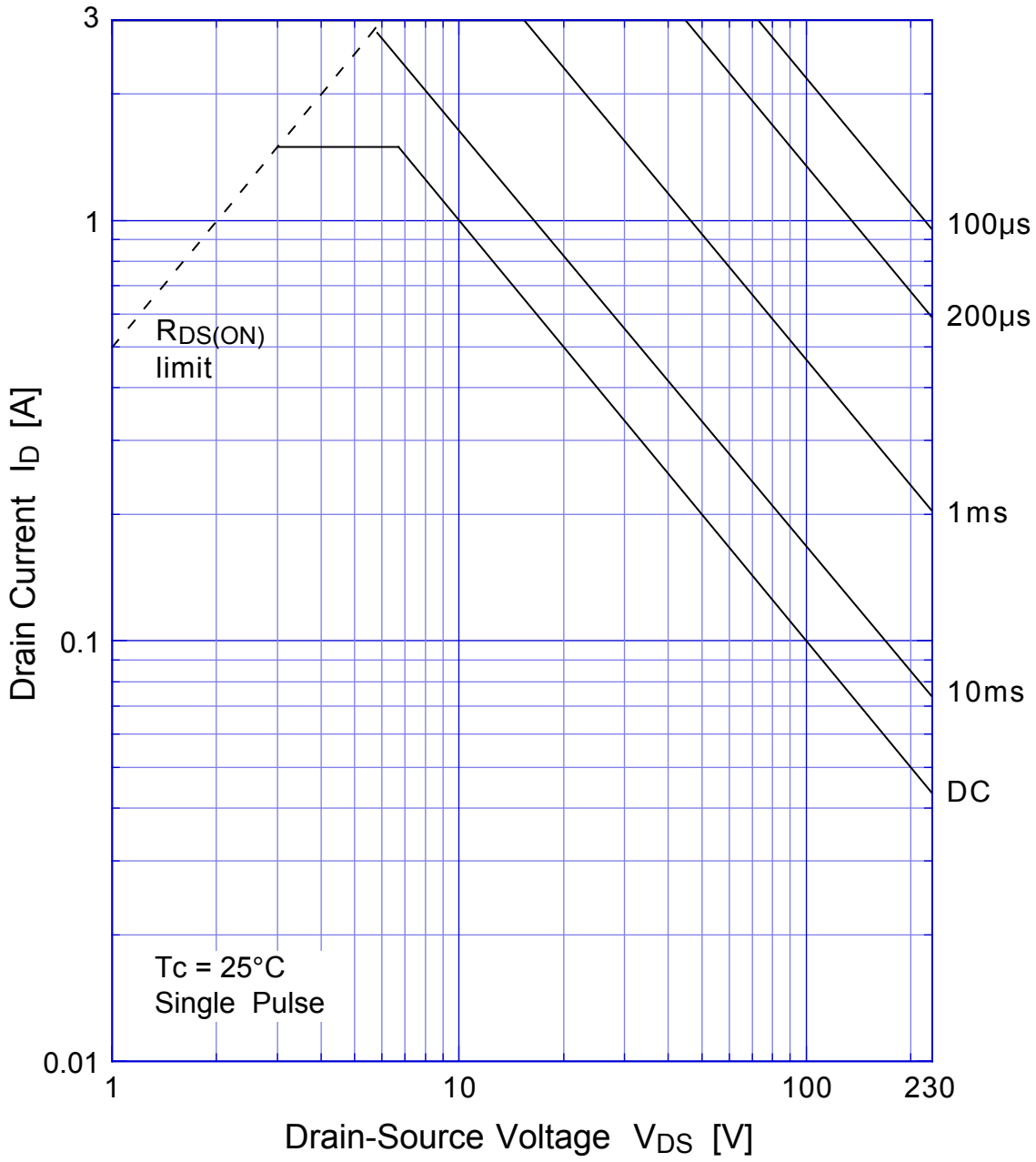
2SK1195 Static Drain-Source On-state Resistance

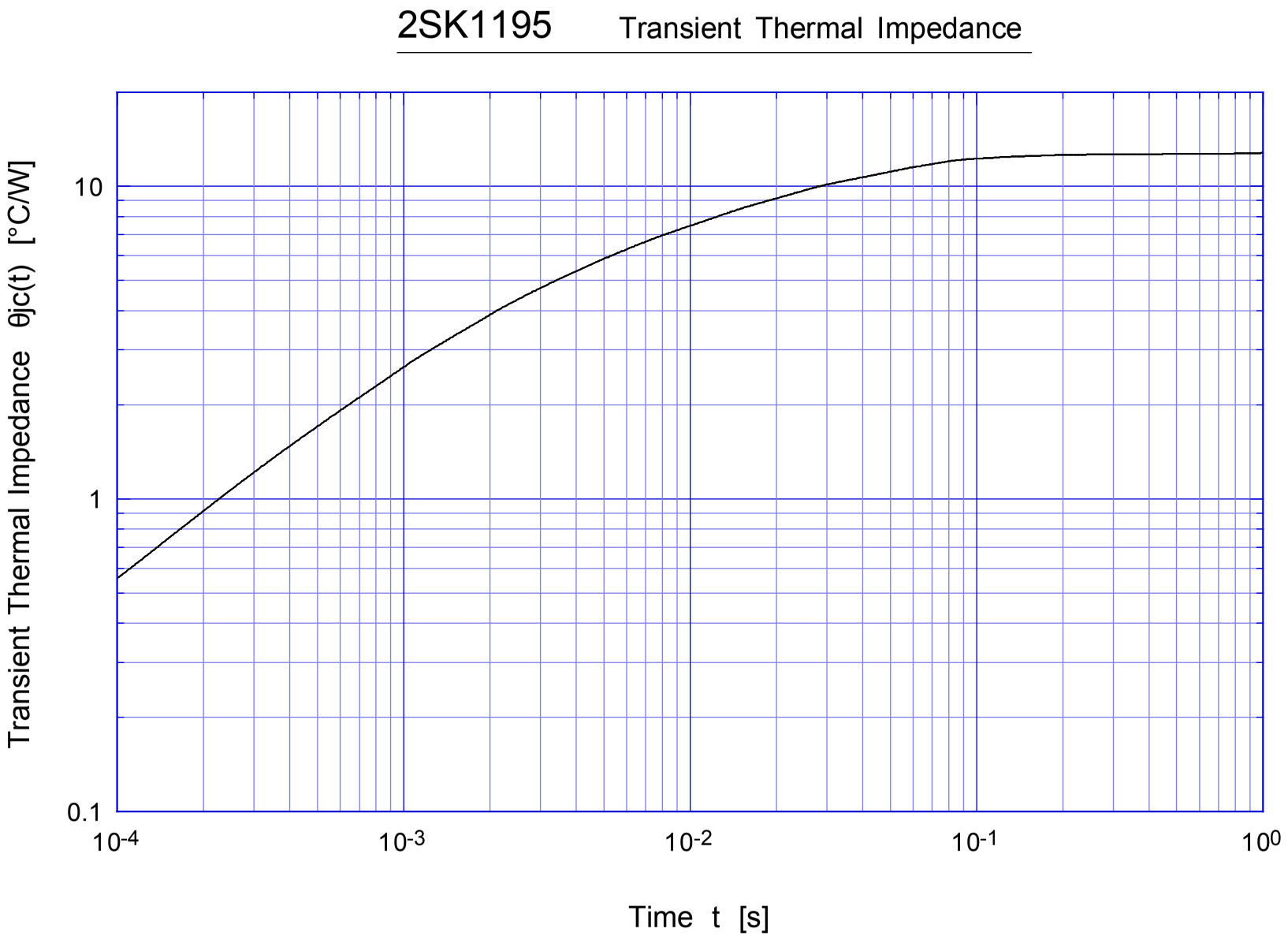


2SK1195 Gate Threshold Voltage

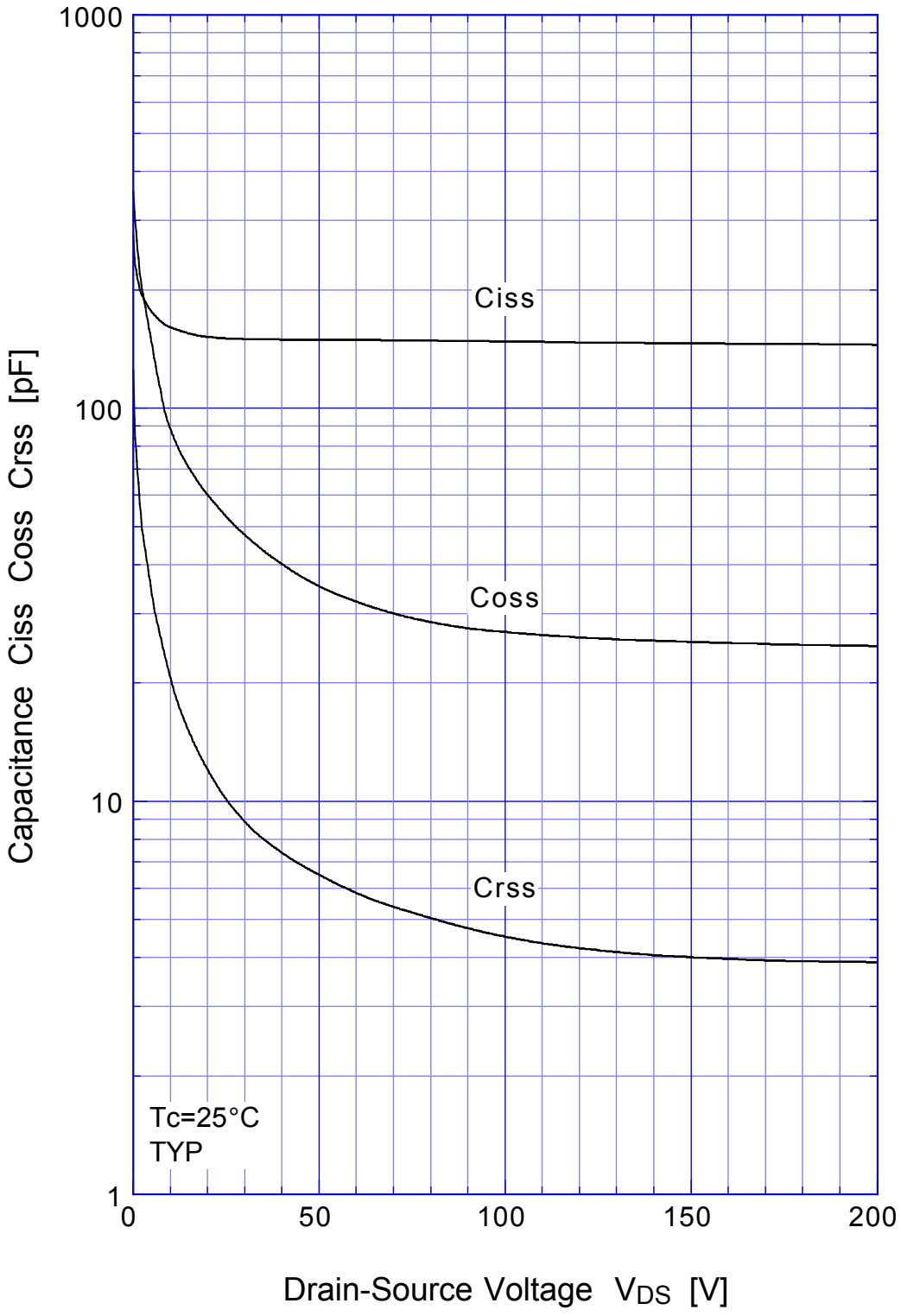


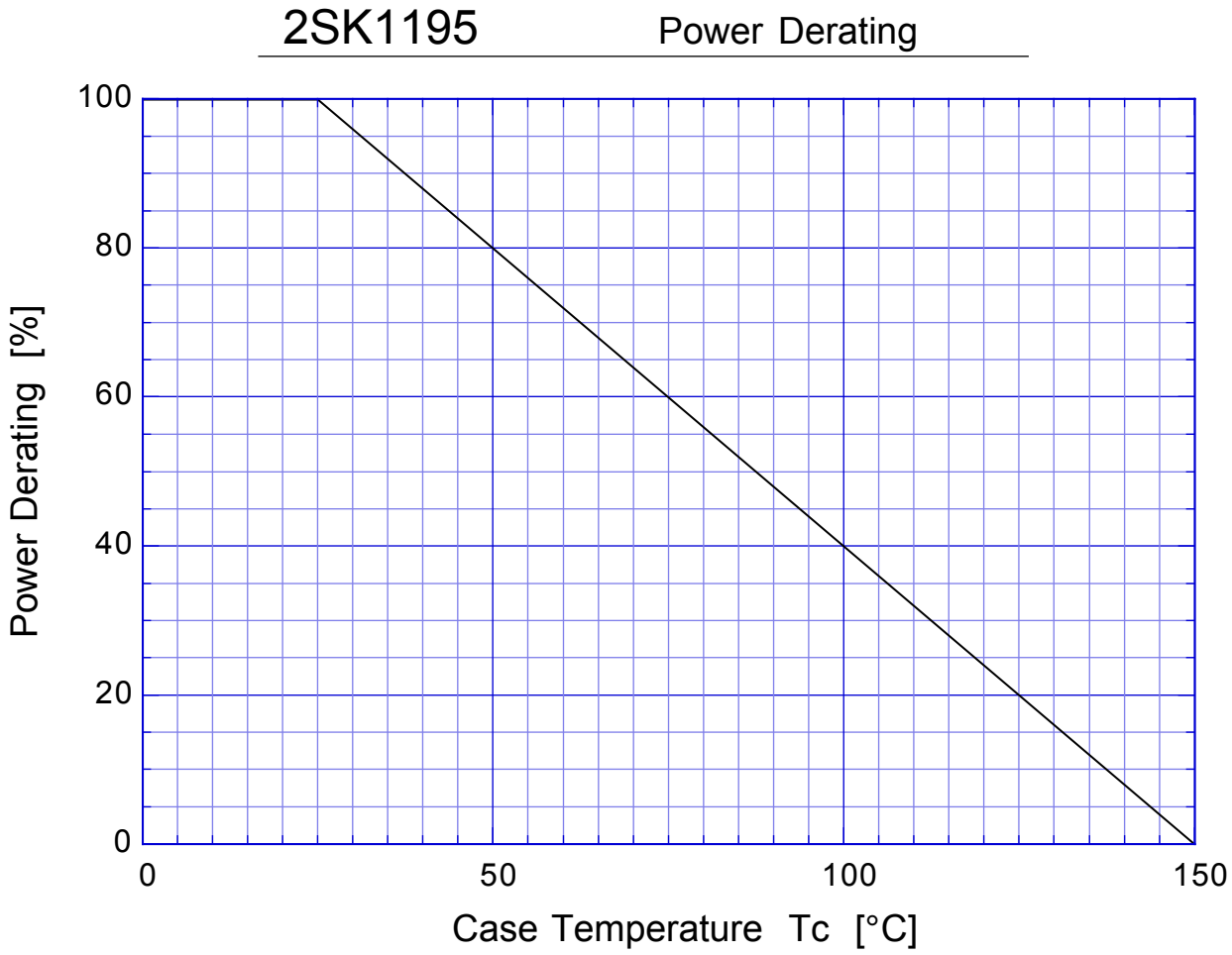
2SK1195 Safe Operating Area

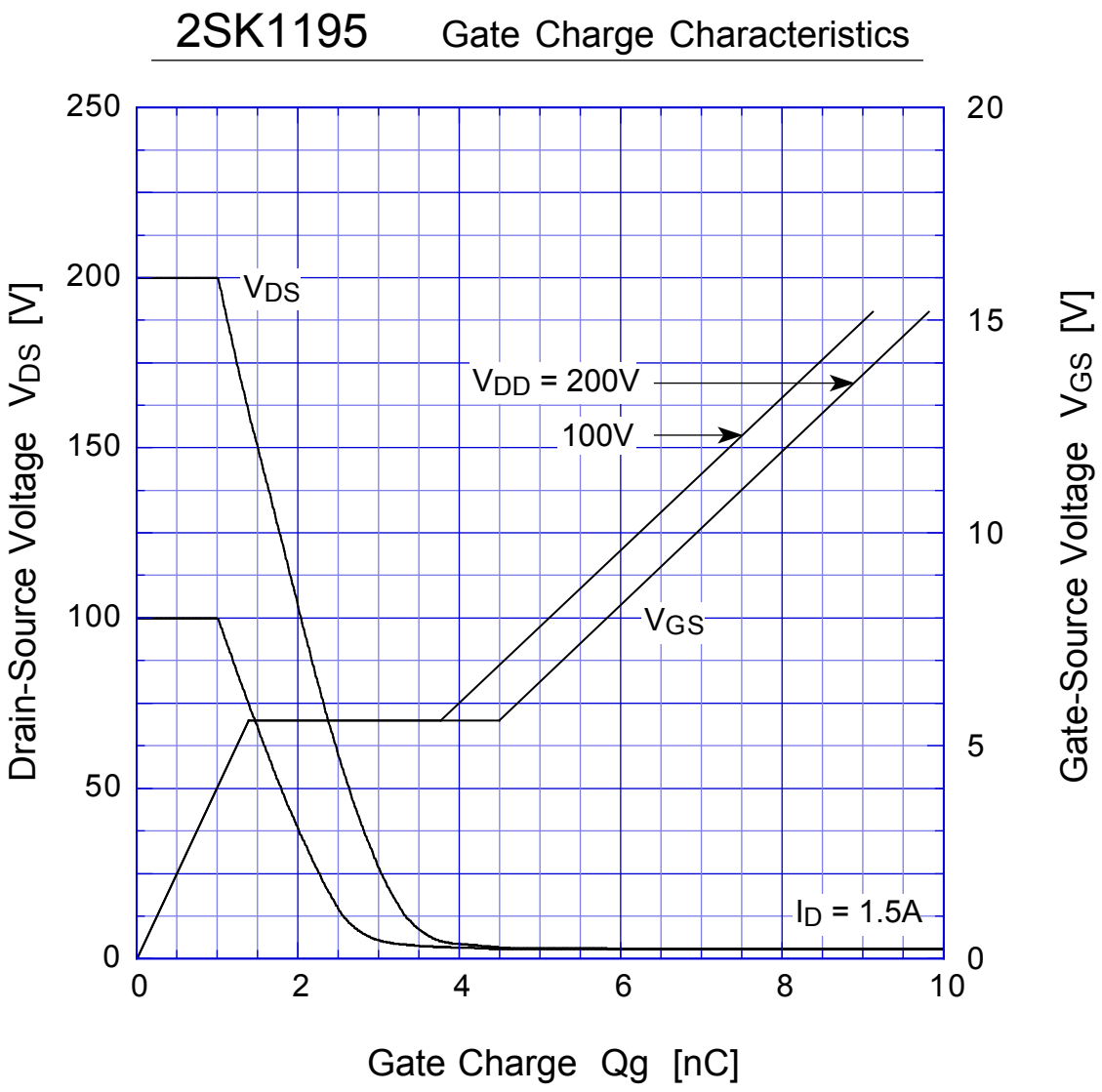



2SK1195
Transient Thermal Impedance
Transient Thermal Impedance θjc(t) [°C/W]
10
1
0.1
10-4
10-3
10-2
10-1
100
Time t [s]

2SK1195 Capacitance




2SK1195
Power Derating
Power Derating [%]
100
80
60
40
20
0
0
50
100
150
Case Temperature Tc [°C]


2SK1195 Gate Charge Characteristics
Drain-Source Voltage V_{DS} [V]
Gate-Source Voltage V_{GS} [V]
Gate Charge Qg [nC]
V_{DS}
V_{DD} = 200V
100V
V_{GS}
I_D = 1.5A
250
200
150
100
50
0
20
15
10
5
0
0
2
4
6
8
10