

SHINDENGEN

VX-2 Series Power MOSFET

N-Channel Enhancement type

2SK3009
(F8S60VX2)

600V 8A

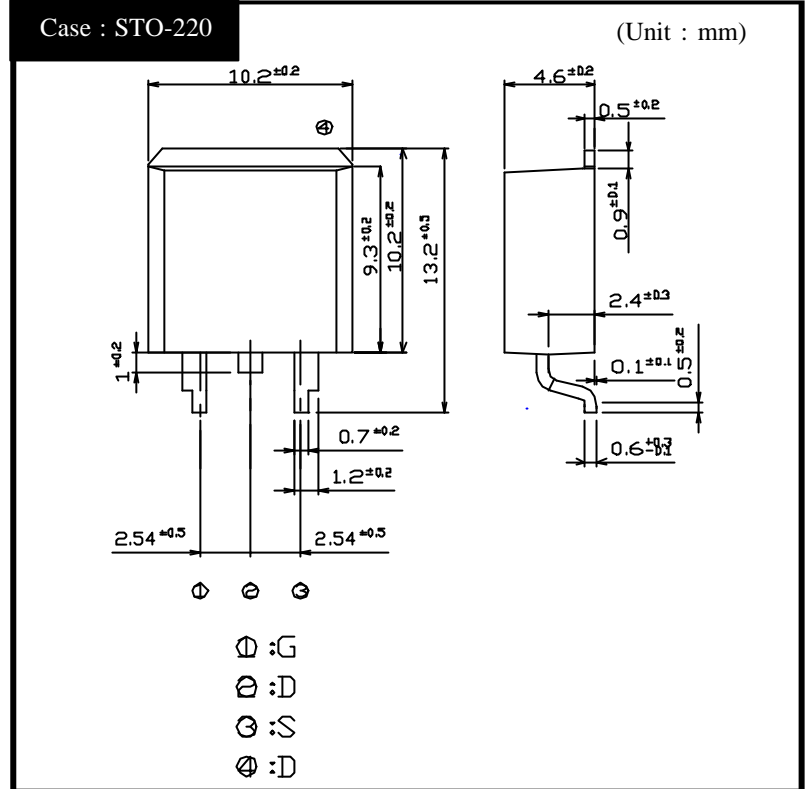
FEATURES

Input capacitance (Ciss) is small.
Especially, input capacitance at 0 bias is small.
The static Rds(on) is small.
The switching time is fast.
Avalanche resistance guaranteed.

APPLICATION

Switching power supply of
AC 100-200V input
Inverter
Power Factor Control Circuit

OUTLINE DIMENSIONS



RATINGS

Absolute Maximum Ratings (T_c = 25 °C)

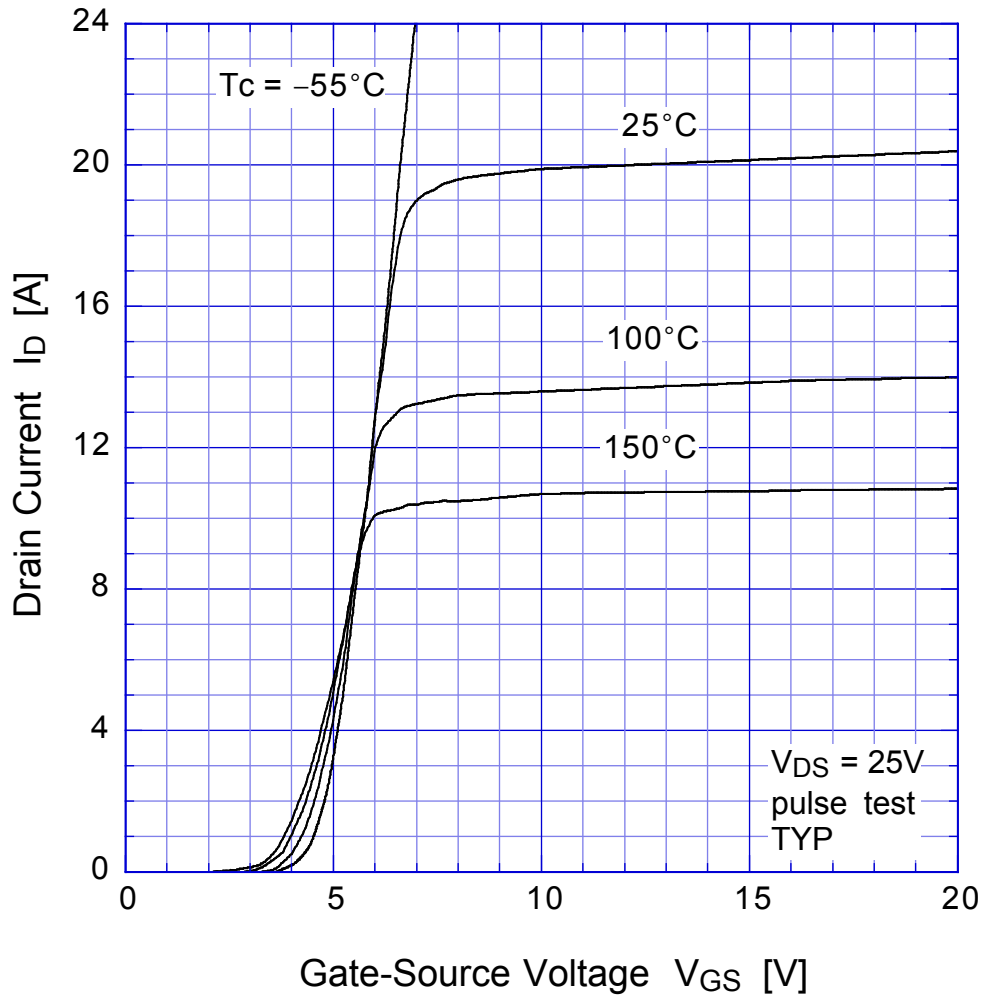
Item	Symbol	Conditions	Ratings	Unit
Storage Temperature	T _{stg}		-55 ~ 150	
Channel Temperature	T _{ch}		150	
Drain-Source Voltage	V _{DSS}		600	V
Gate-Source Voltage	V _{GSS}		± 30	
Continuous Drain Current (DC)	I _D		8	A
Continuous Drain Current (Peak)	I _{DP}		16	
Continuous Source Current (DC)	I _S		8	
Total Power Dissipation	P _T		60	W
Single Pulse Avalanche Current	I _{AS}	T _{ch} = 25	8	A

●Electrical Characteristics $T_c = 25^\circ\text{C}$

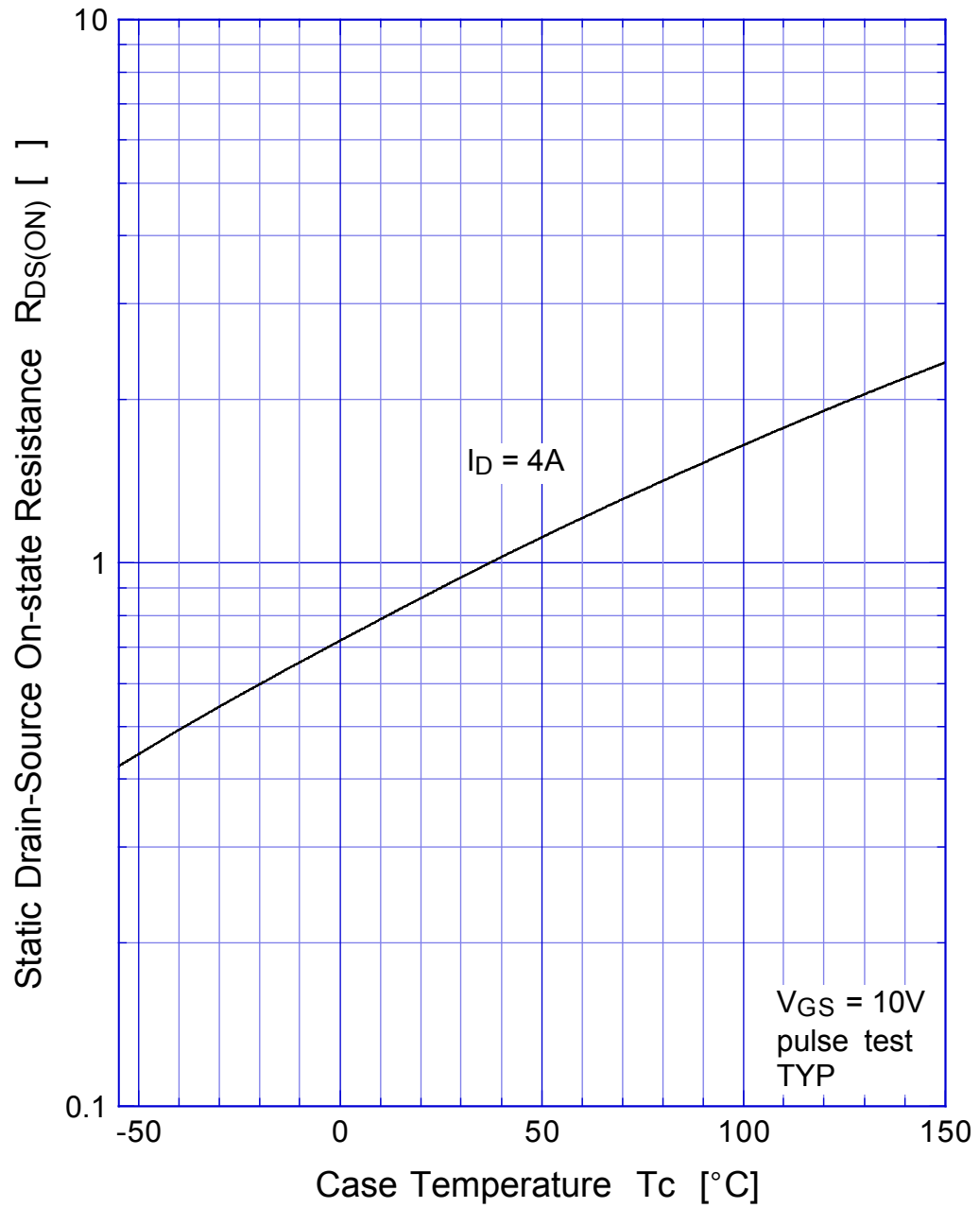
Item	Symbol	Conditions	Min.	Typ.	Max.	Unit
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D = 1\text{mA}, V_{GS} = 0\text{V}$	600			V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 600\text{V}, V_{GS} = 0\text{V}$			250	μA
Gate-Source Leakage Current	I_{GSS}	$V_{GS} = \pm 30\text{V}, V_{DS} = 0\text{V}$			± 0.1	
Forward Transconductance	g_{fs}	$I_D = 4\text{A}, V_{DS} = 10\text{V}$	2.4	5.5		S
Static Drain-Source On-state Resistance	$R_{DS(ON)}$	$I_D = 4\text{A}, V_{GS} = 10\text{V}$		0.9	1.2	Ω
Gate Threshold Voltage	V_{TH}	$I_D = 1\text{mA}, V_{DS} = 10\text{V}$	2.5	3	3.5	V
Source-Drain Diode Forward Voltage	V_{SD}	$I_S = 4\text{A}, V_{GS} = 0\text{V}$			1.5	
Thermal Resistance	θ_{jc}	junction to case			2.08	$^\circ\text{C}/\text{W}$
Total Gate Charge	Q_g	$V_{GS} = 10\text{V}, I_D = 8\text{A}, V_{DD} = 400\text{V}$		42		nC
Input Capacitance	C_{iss}	$V_{DS} = 10\text{V}, V_{GS} = 0\text{V}, f = 1\text{MHz}$		1130		pF
Reverse Transfer Capacitance	C_{rss}			85		
Output Capacitance	C_{oss}			245		
Turn-On Time	t_{on}	$I_D = 4\text{A}, V_{GS} = 150\text{V}, R_L = 37.5\Omega$		55	80	ns
Turn-Off Time	t_{off}			195	290	

2SK3009

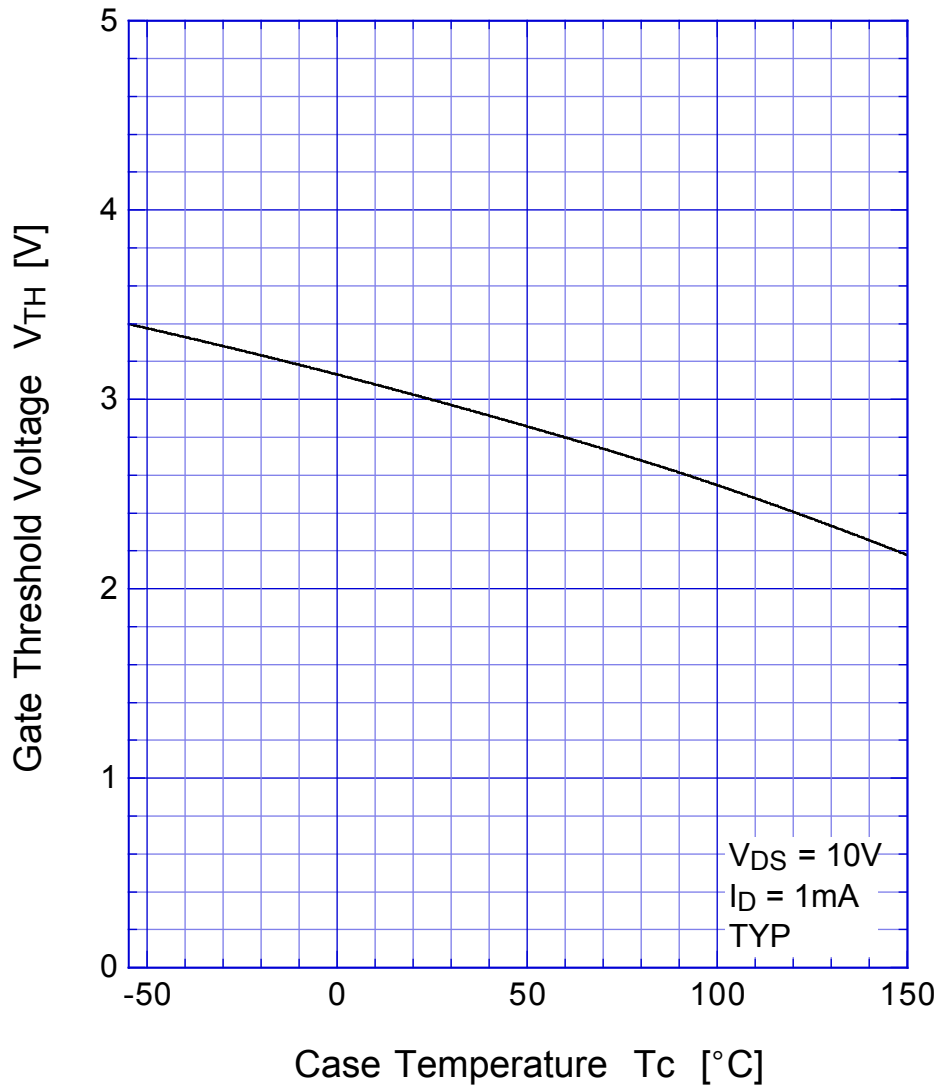
Transfer Characteristics



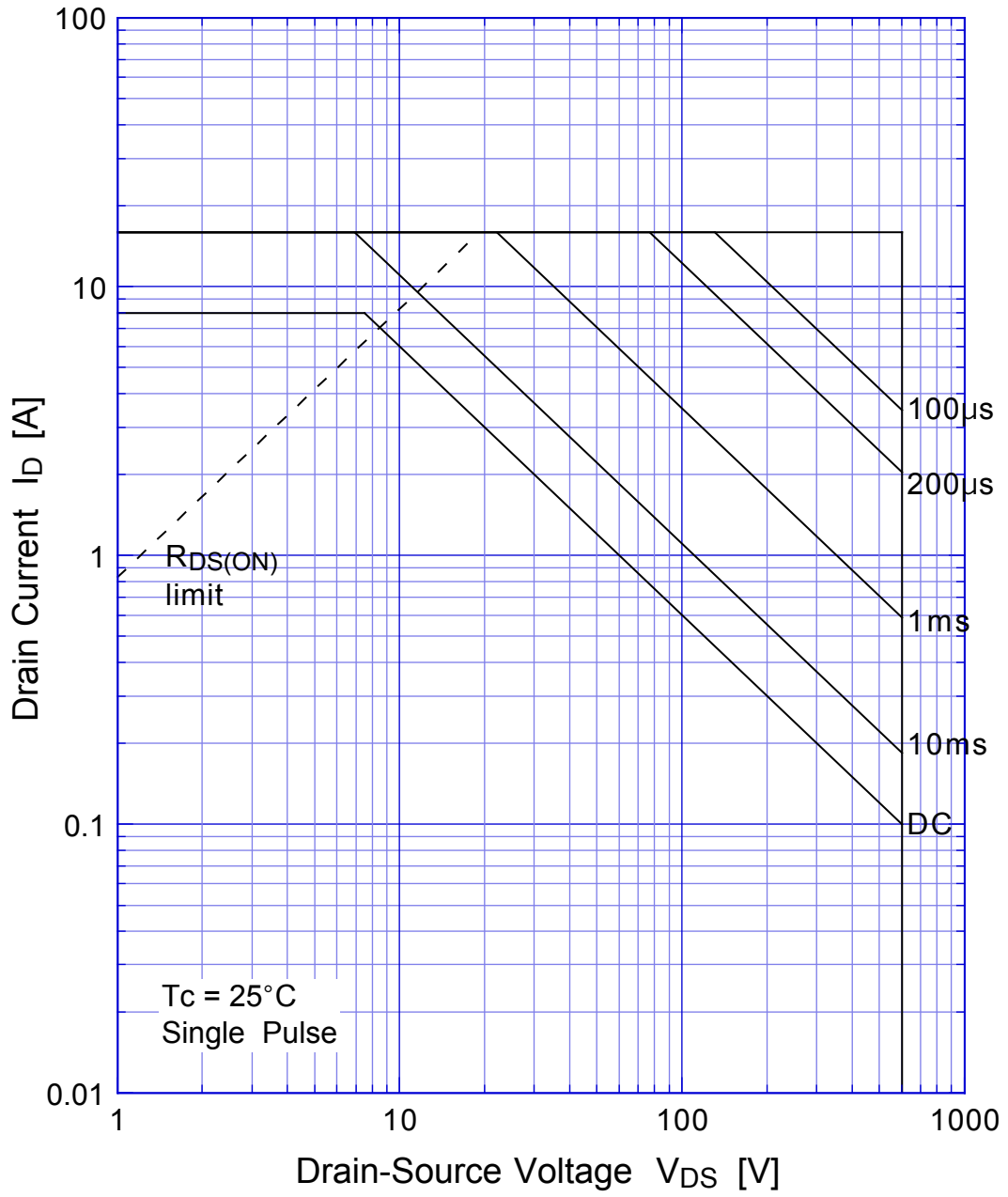
2SK3009 Static Drain-Source On-state Resistance



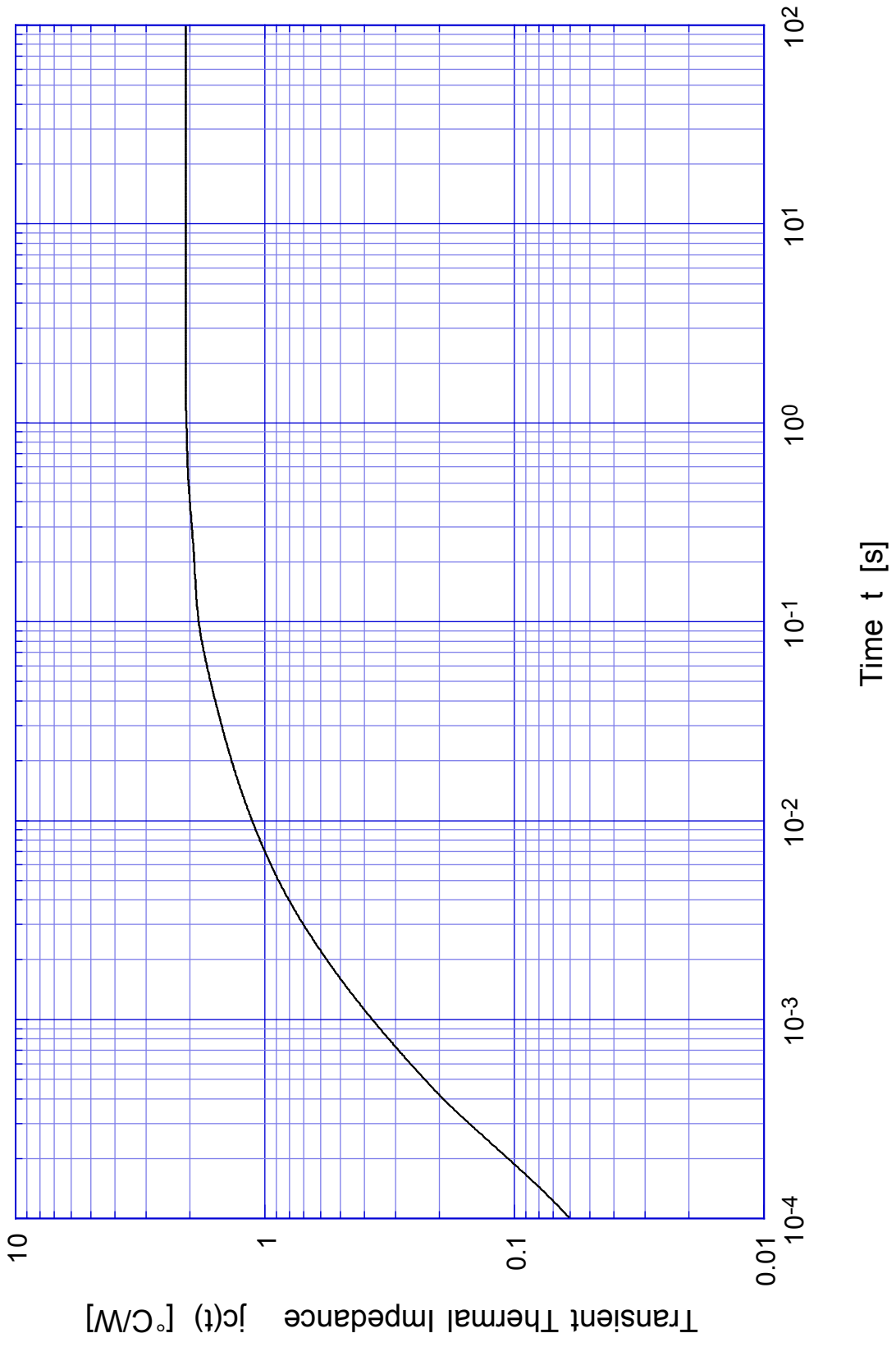
2SK3009 Gate Threshold Voltage



2SK3009 Safe Operating Area

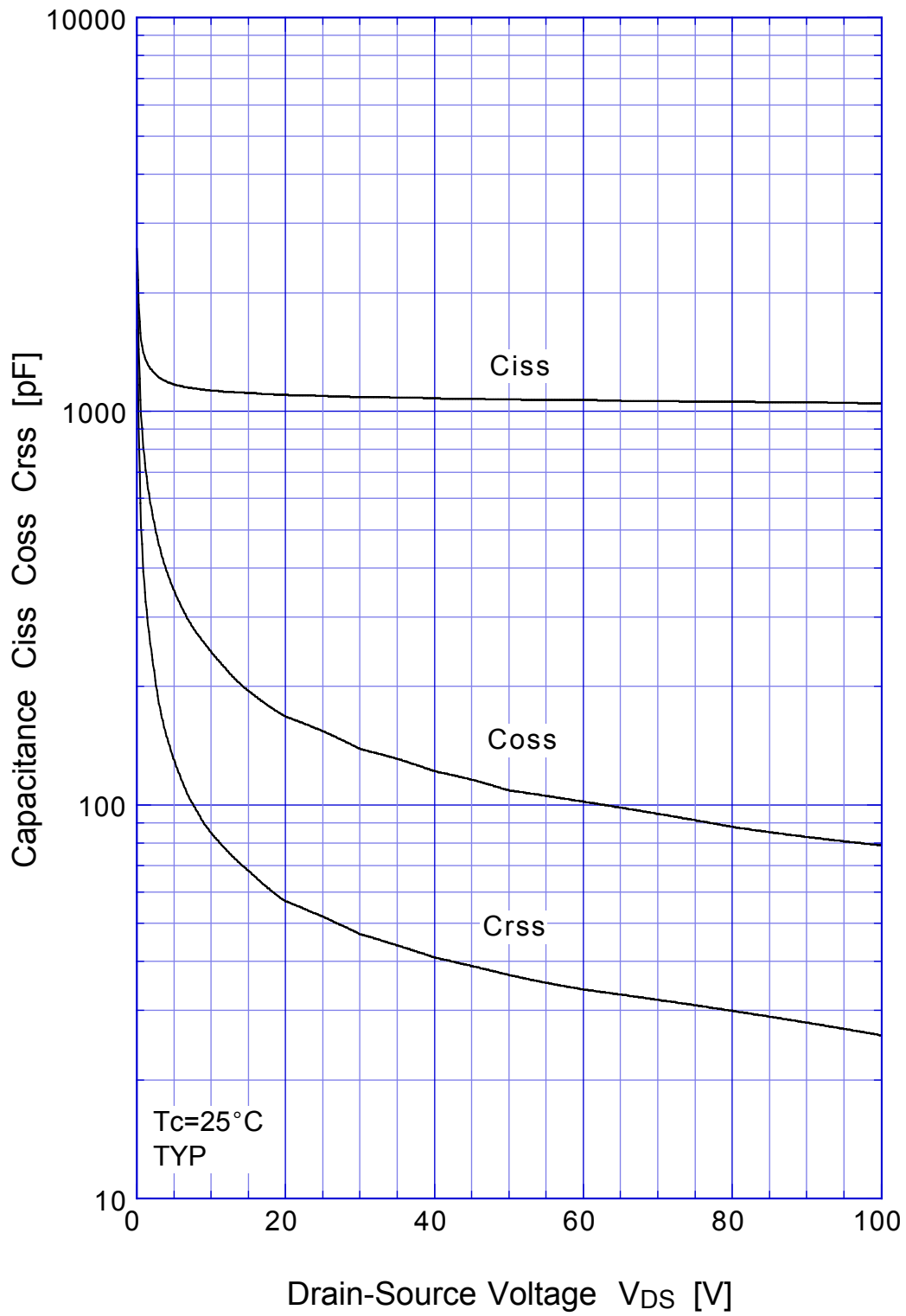


2SK3009 Transient Thermal Impedance



2SK3009

Capacitance



2SK3009

Power Derating



2SK3009 Gate Charge Characteristics

