

SHINDENGEN

VZ Series Power MOSFET

N-Channel Enhancement type

2SK2559
(F10F20VZ)

200V 10A

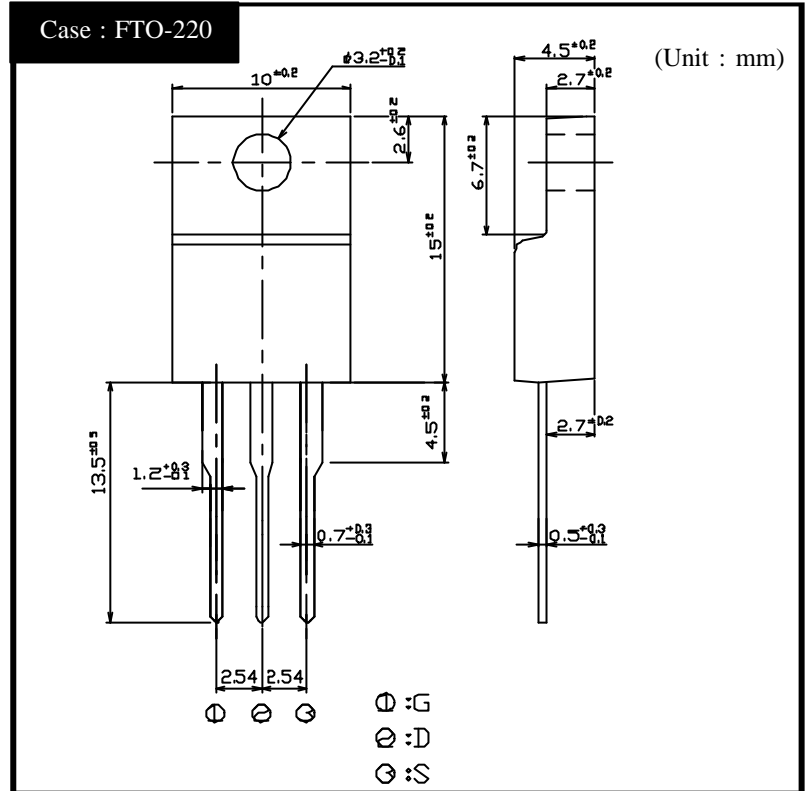
FEATURES

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

APPLICATION

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

OUTLINE DIMENSIONS



RATINGS

Absolute Maximum Ratings (Tc = 25)

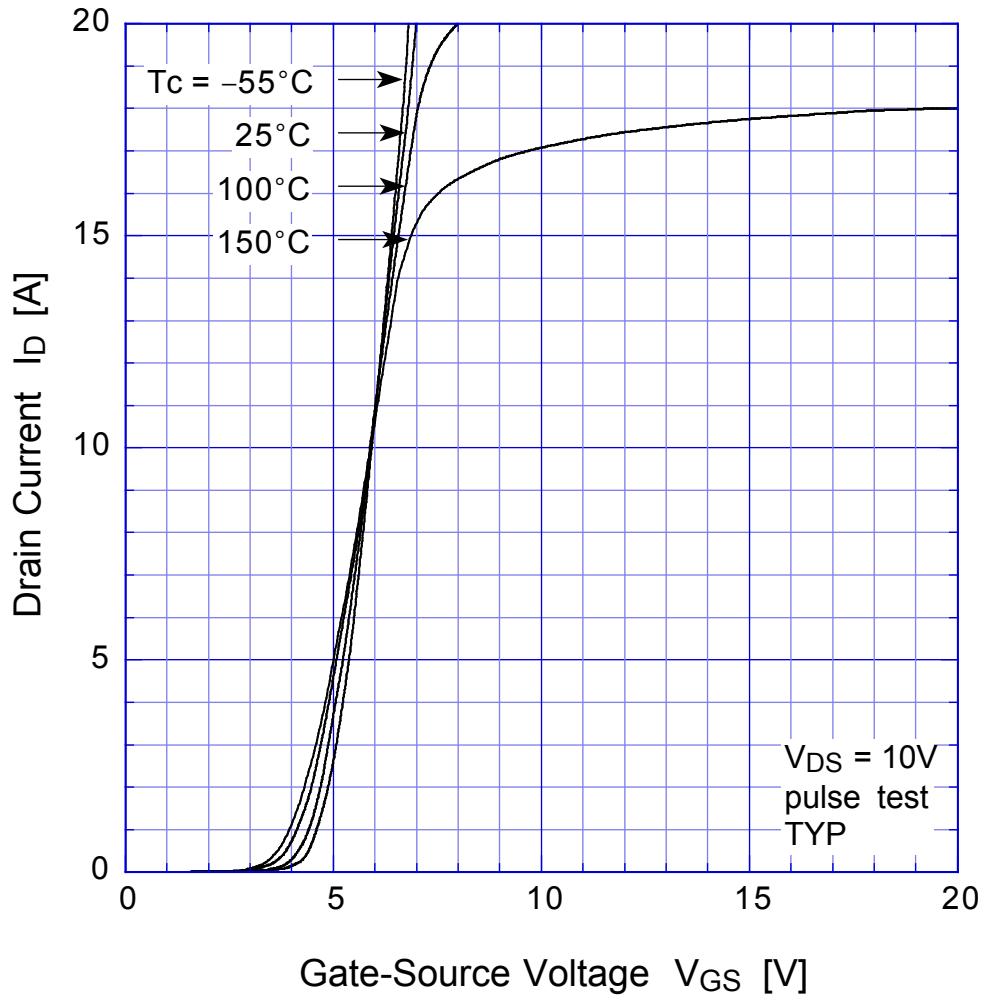
Item	Symbol	Conditions	Ratings	Unit
Storage Temperature	T _{stg}		-55 ~ 150	
Channel Temperature	T _{ch}		150	
Drain-Source Voltage	V _{DSS}		200	V
Gate-Source Voltage	V _{GSS}		± 30	
Continuous Drain Current (DC)	I _D		10	A
Continuous Drain Current (Peak)	I _{DP}		20	
Continuous Source Current (DC)	I _S		10	
Total Power Dissipation	P _T		40	W
Single Pulse Avalanche Current	I _{AS}	T _{ch} = 25	10	A
Dielectric Strength	V _{dis}	Terminals to case, AC 1 minute	2	kV
Mounting Torque	TOR	(Recommended torque 0.3 N·m)	0.5	N·m

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

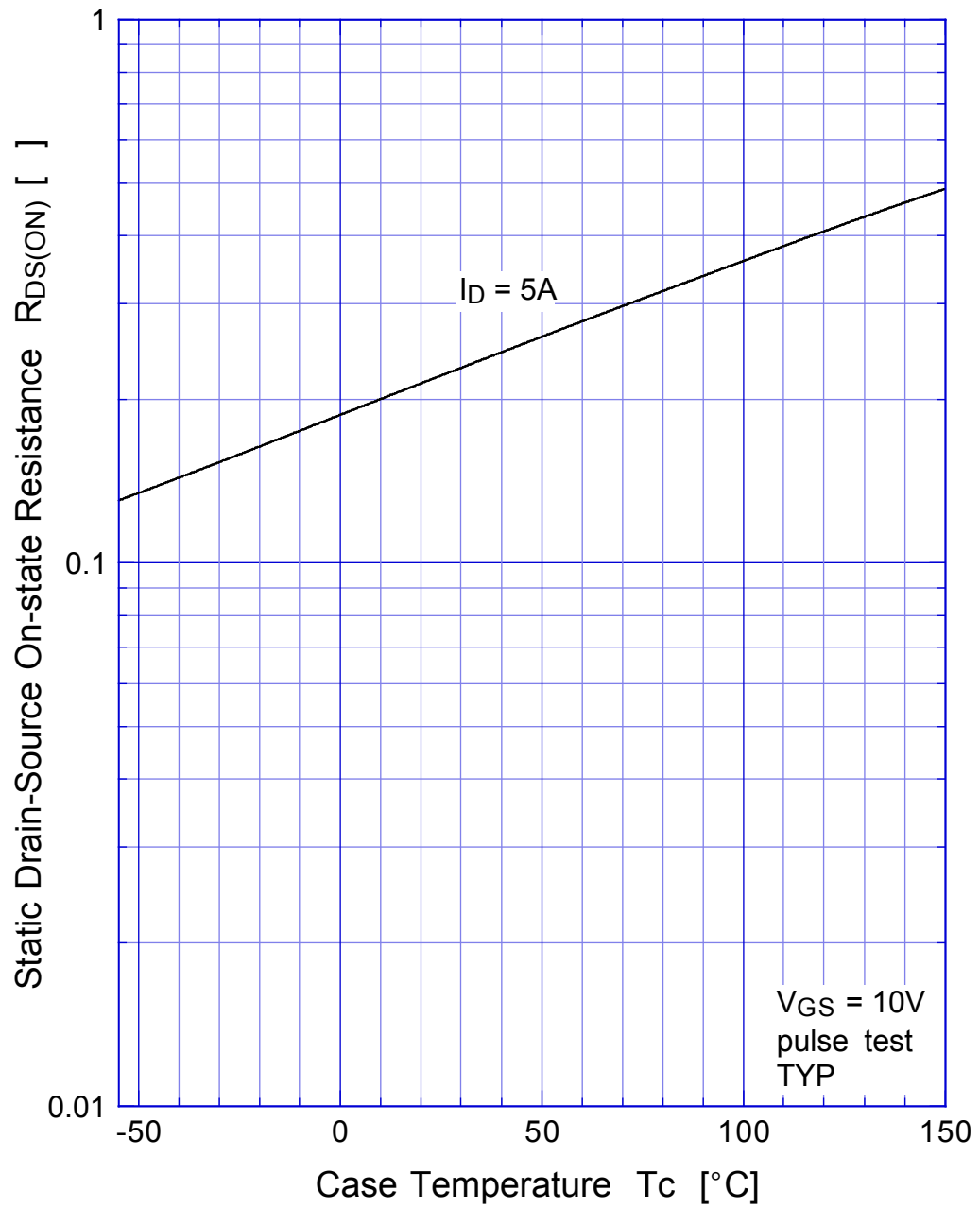
Item	Symbol	Conditions	Min.	Typ.	Max.	Unit
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D = 1\text{mA}, V_{GS} = 0\text{V}$	200			V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 200\text{V}, V_{GS} = 0\text{V}$			250	μA
Gate-Source Leakage Current	I_{GSS}	$V_{GS} = \pm 30\text{V}, V_{DS} = 0\text{V}$			± 0.1	
Forward Transconductance	g_{fs}	$I_D = 5\text{A}, V_{DS} = 10\text{V}$	3			S
Static Drain-Source On-state Resistance	$R_{DS(ON)}$	$I_D = 5\text{A}, V_{GS} = 10\text{V}$		0.22	0.30	Ω
Gate Threshold Voltage	V_{TH}	$I_D = 1\text{mA}, V_{DS} = 10\text{V}$	2.0	3.0	4.0	V
Source-Drain Diode Forward Voltage	V_{SD}	$I_S = 5\text{A}, V_{GS} = 0\text{V}$			1.5	
Thermal Resistance	θ_{jc}	junction to case			3.12	$^\circ\text{C}/\text{W}$
Total Gate Charge	Q_g	$V_{DD} = 150\text{V}, V_{GS} = 10\text{V}, I_D = 10\text{A}$		25		nC
Input Capacitance	C_{iss}	$V_{DS} = 10\text{V}, V_{GS} = 0\text{V}, f = 1\text{MHz}$		840		pF
Reverse Transfer Capacitance	C_{rss}			80		
Output Capacitance	C_{oss}			290		
Turn-On Time	t_{on}	$I_D = 5\text{A}, R_L = 20\Omega, V_{GS} = 10\text{V}$		50	100	ns
Turn-Off Time	t_{off}			140	280	

2SK2559

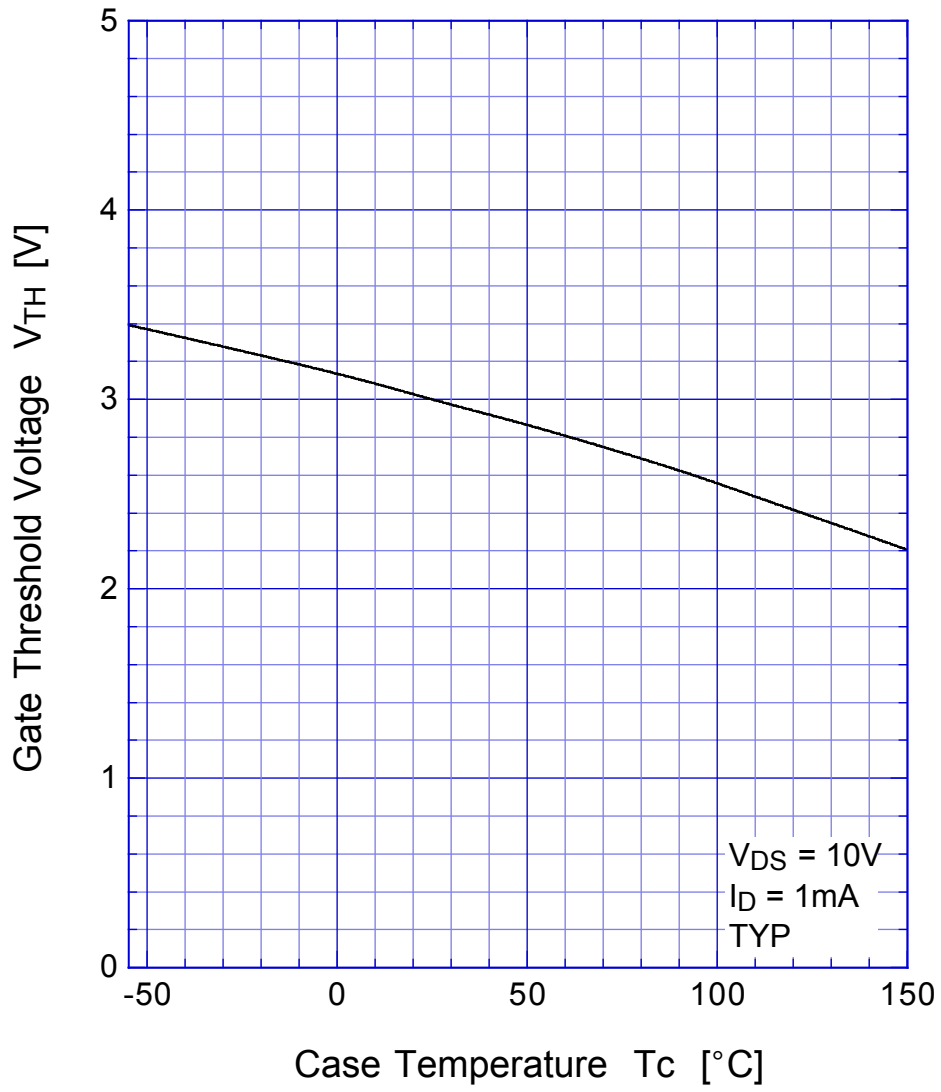
Transfer Characteristics



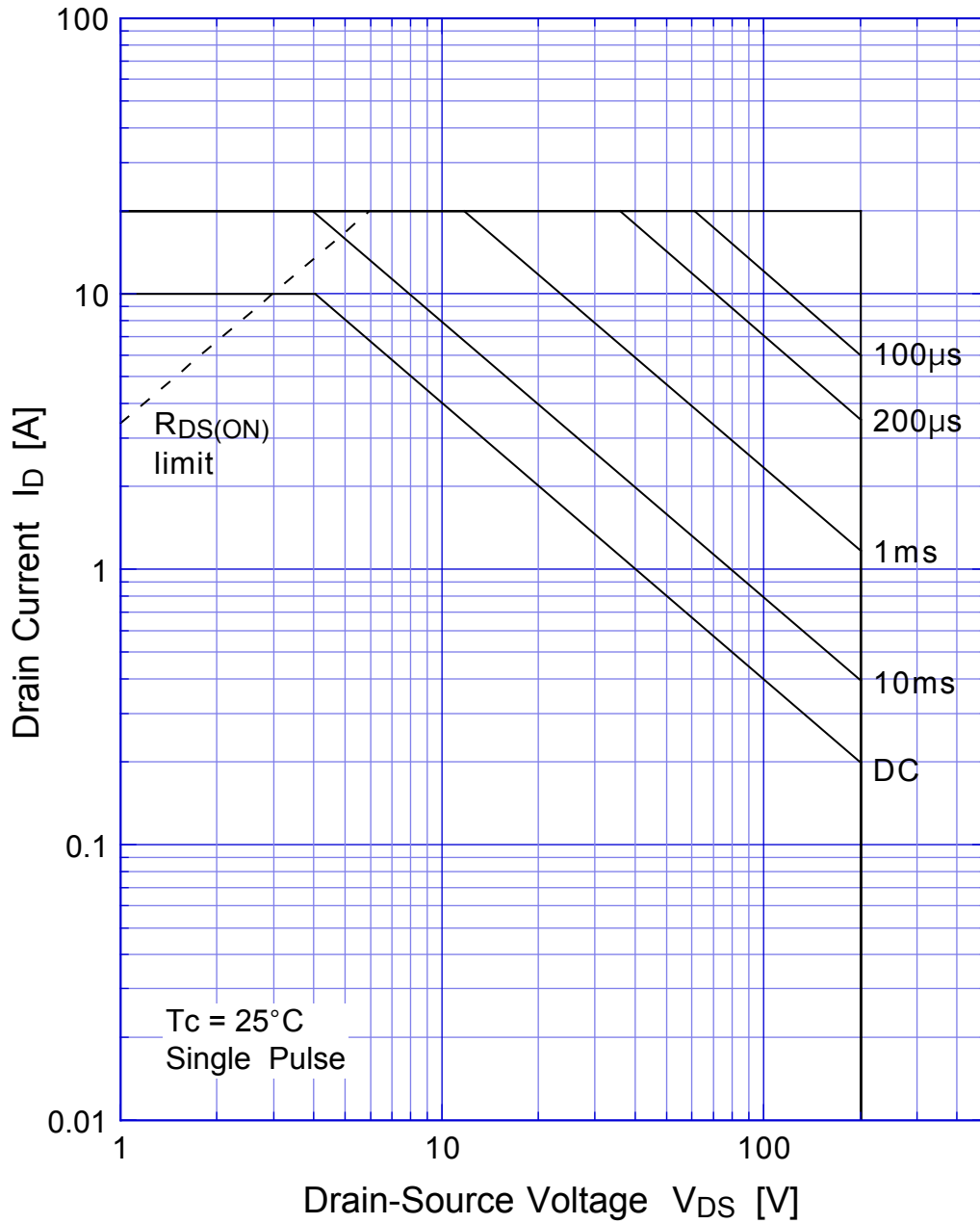
2SK2559 Static Drain-Source On-state Resistance



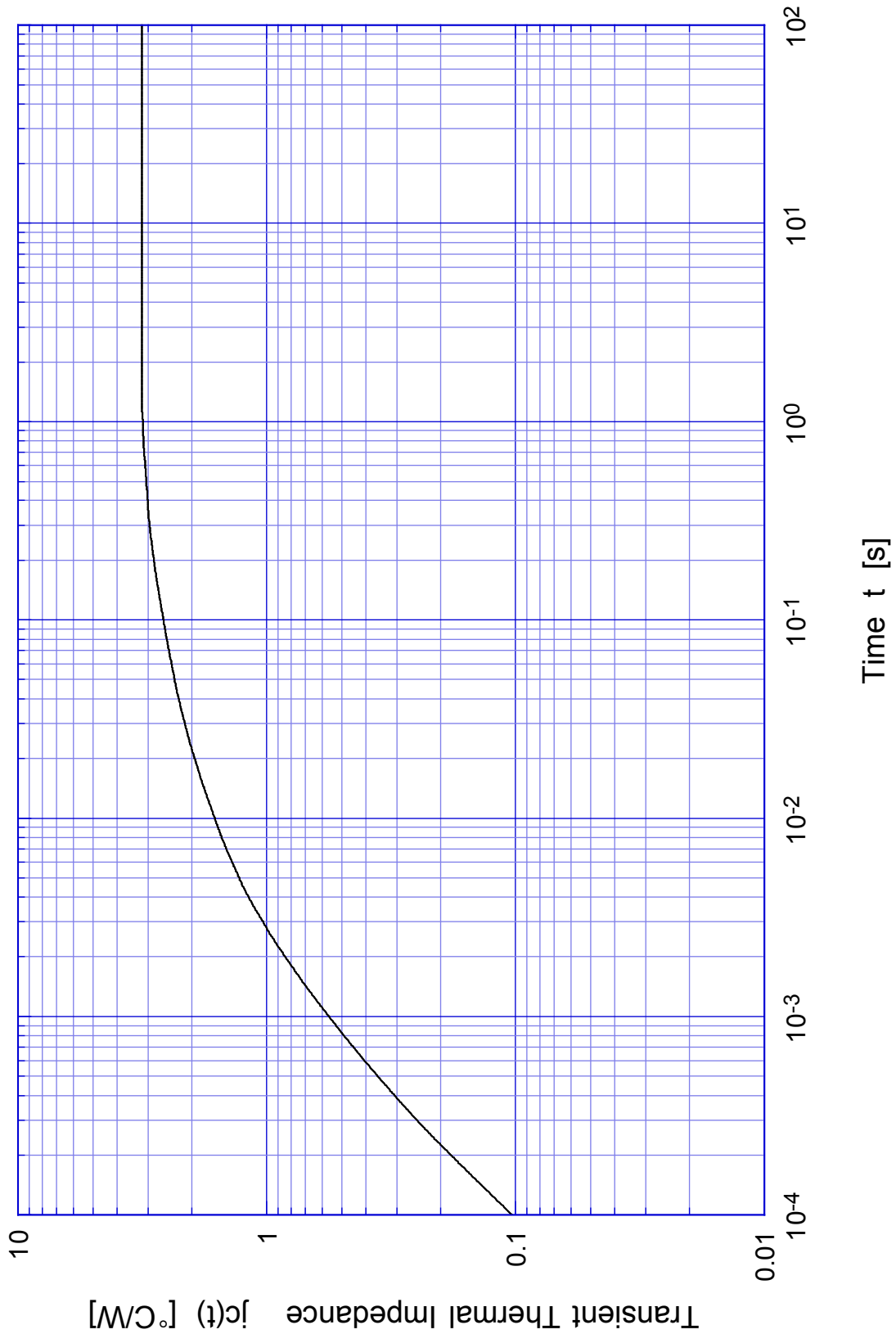
2SK2559 Gate Threshold Voltage



2SK2559 Safe Operating Area

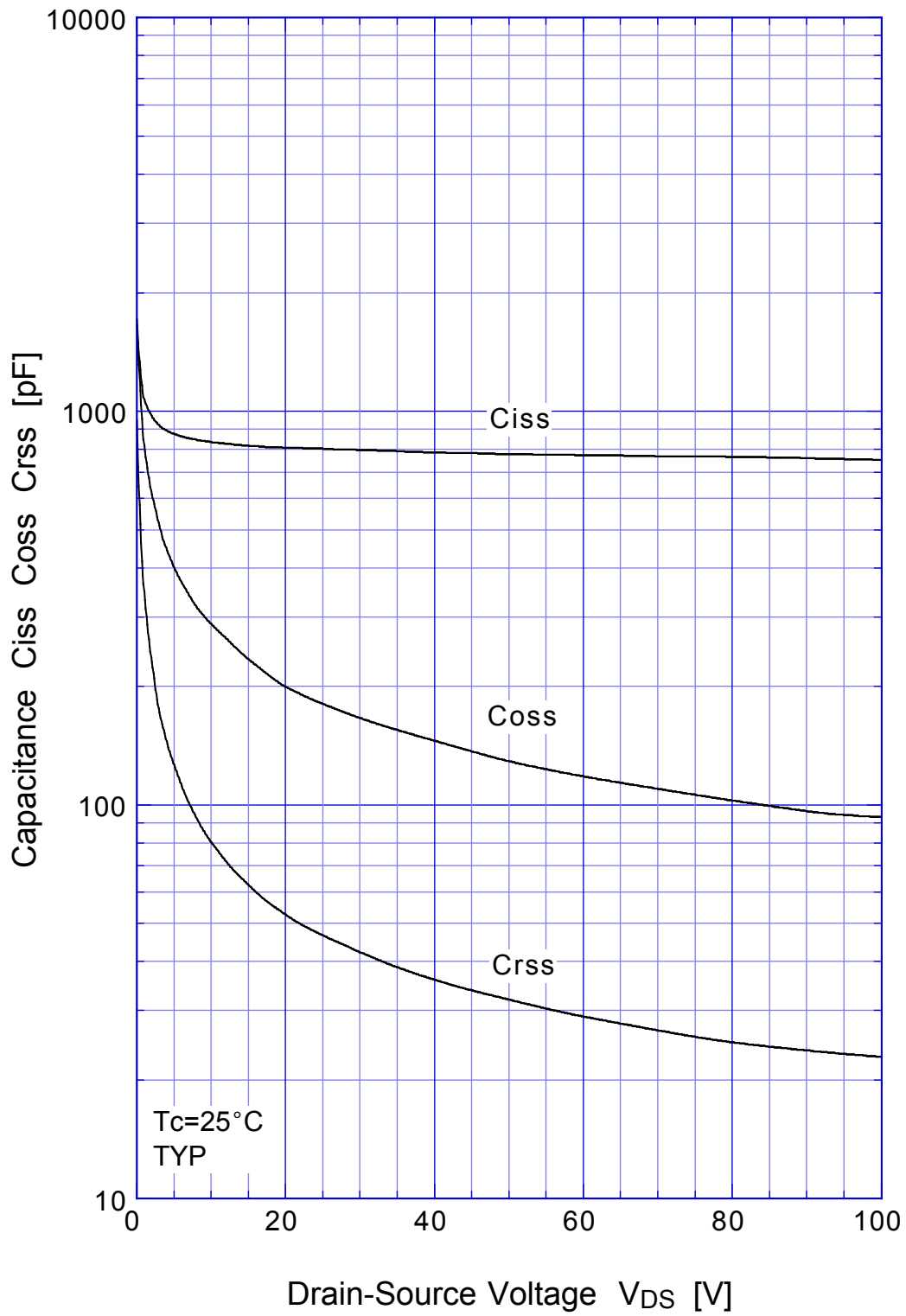


2SK2559 Transient Thermal Impedance



2SK2559

Capacitance



2SK2559

Power Derating



2SK2559 Gate Charge Characteristics

