

VZ Series Power MOSFET

N-Channel Enhancement type

2SK2559
(F10F20VZ)

200V 10A

FEATURES

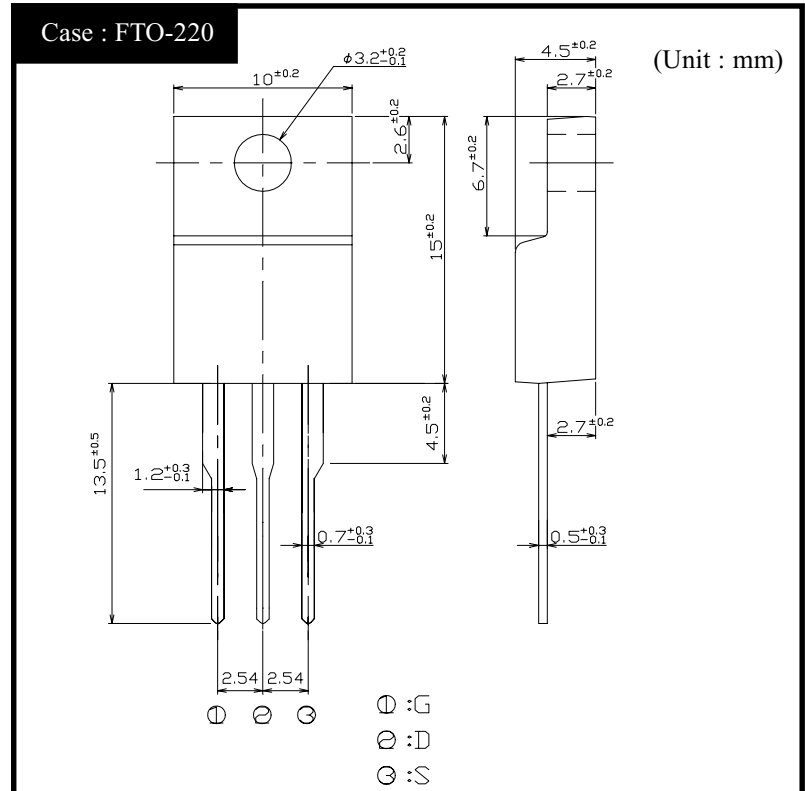
- Input capacitance (C_{iss}) is small. Especially, input capacitance at 0 bias is small.
- The static $R_{ds(on)}$ is small.
- The switching time is fast.

APPLICATION

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

OUTLINE DIMENSIONS

Case : FTO-220



RATINGS

- Absolute Maximum Ratings (Tc = 25°C)

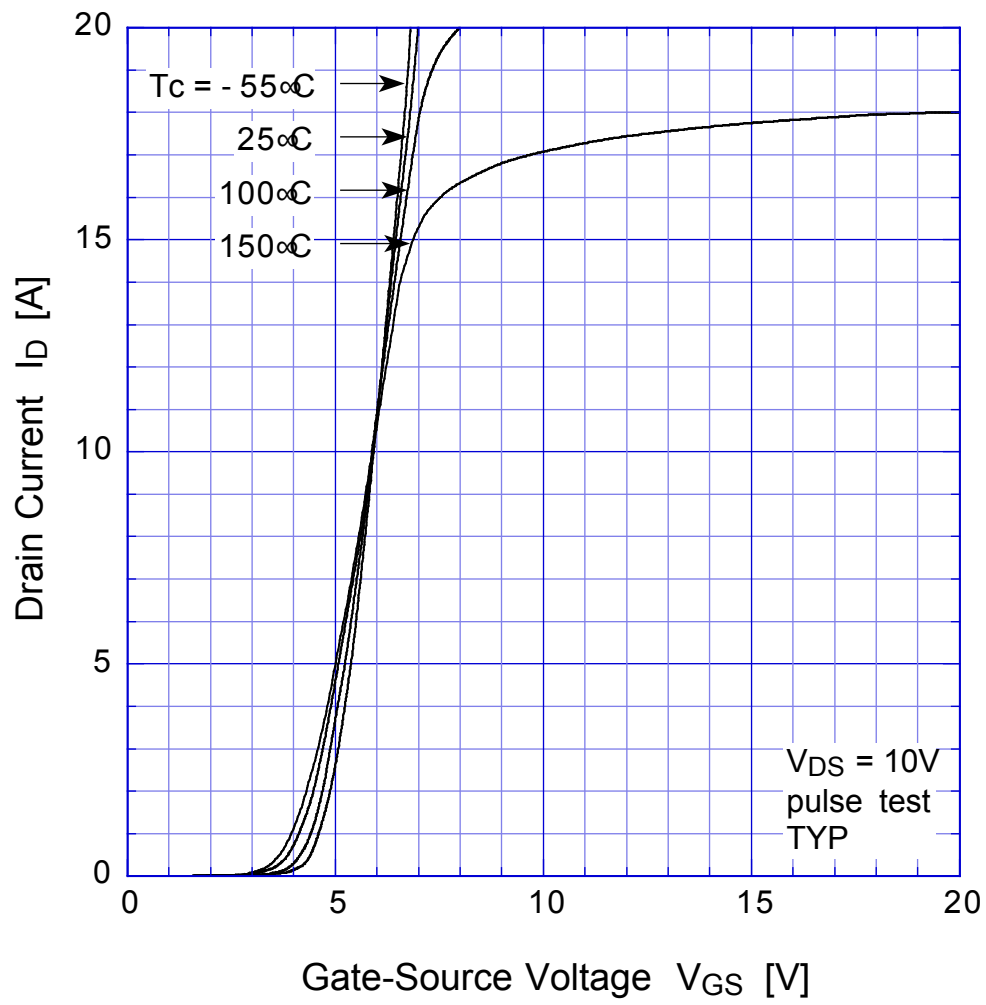
Item	Symbol	Conditions	Ratings	Unit
Storage Temperature	T_{stg}		-55~150	°C
Channel Temperature	T_{ch}		150	
Drain-Source Voltage	V_{DSS}		200	V
Gate-Source Voltage	V_{GSS}		±30	
Continuous Drain Current(DC)	I_D		10	A
Continuous Drain Current(Peak)	I_{DP}		20	
Continuous Source Current(DC)	I_S		10	
Total Power Dissipation	P_T		40	W
Single Pulse Avalanche Current	I_{AS}	$T_{ch} = 25^{\circ}C$	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 $T_c = 25^\circ\text{C}$

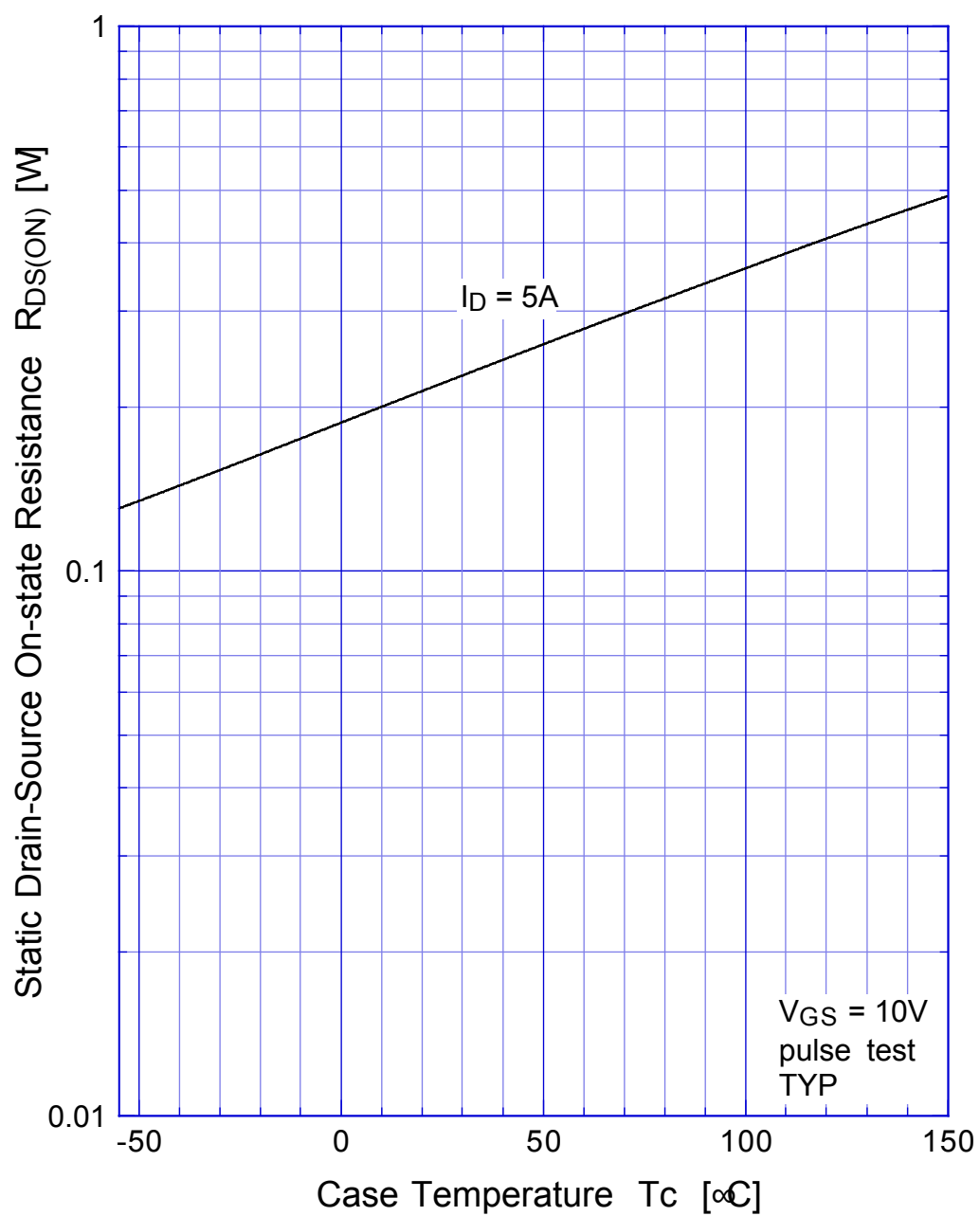
Item	Symbol	Conditions	Min.	Typ.	Max.	Unit
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D = 1\text{mA}$, $V_{GS} = 0\text{V}$	200			V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 200\text{V}$, $V_{GS} = 0\text{V}$			250	μA
Gate-Source Leakage Current	I_{GSS}	$V_{GS} = \pm 30\text{V}$, $V_{DS} = 0\text{V}$			± 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	

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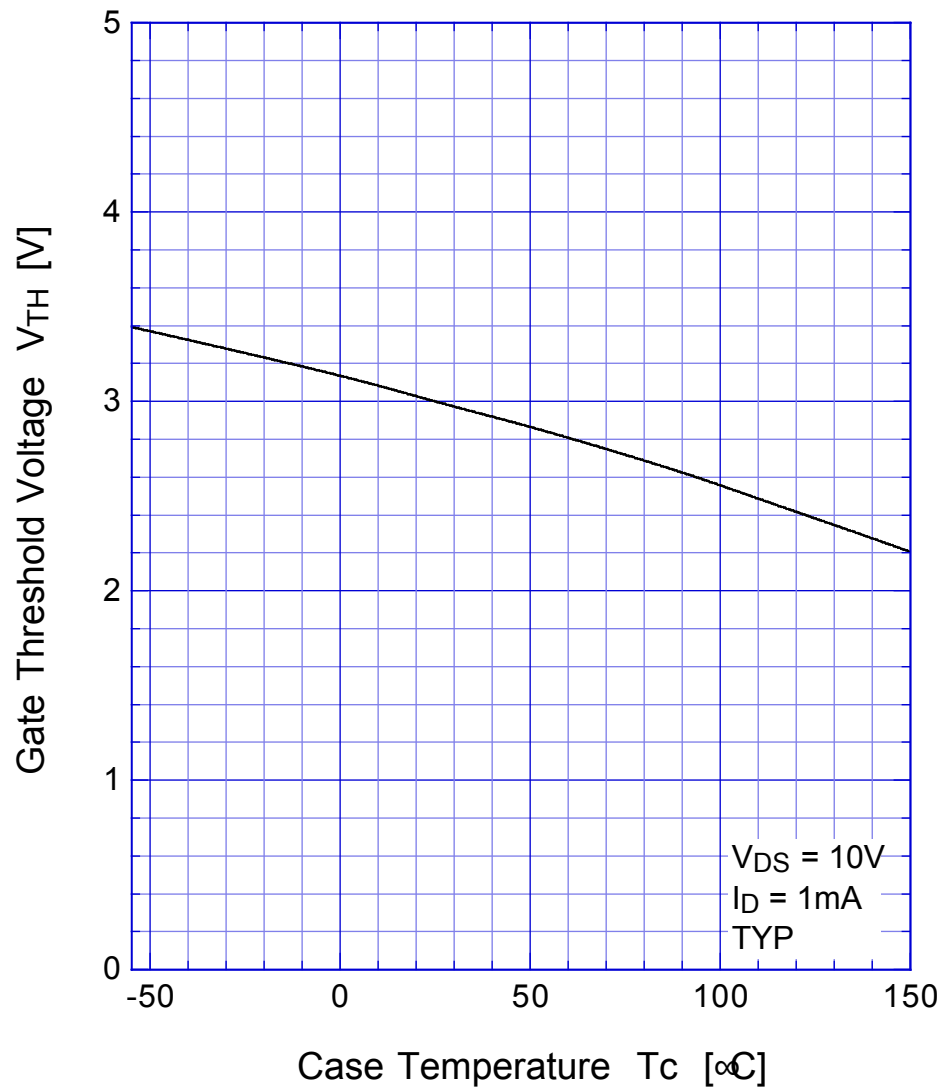
Transfer Characteristics



2SK2559 Static Drain-Source On-state Resistance

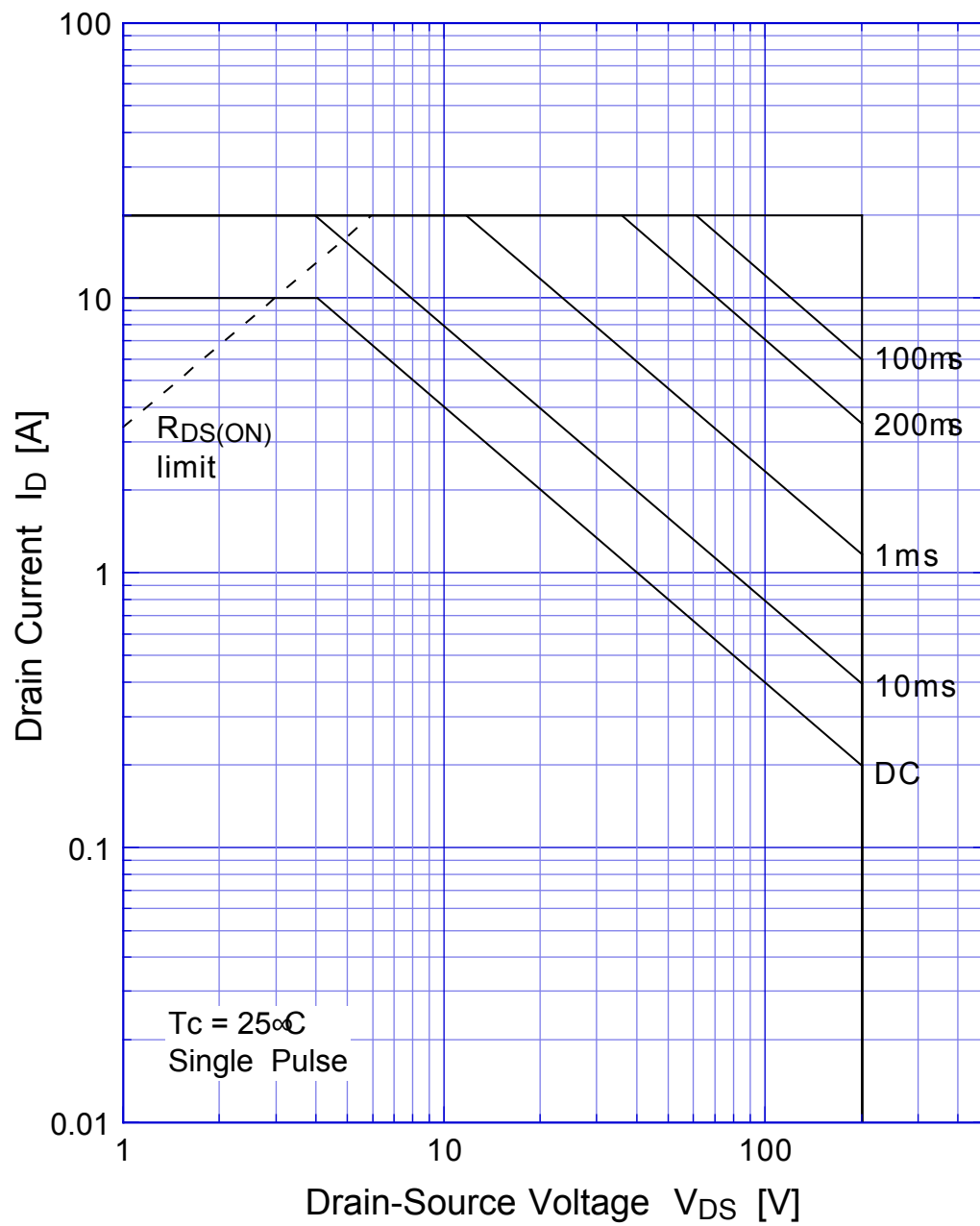


2SK2559 Gate Threshold Voltage

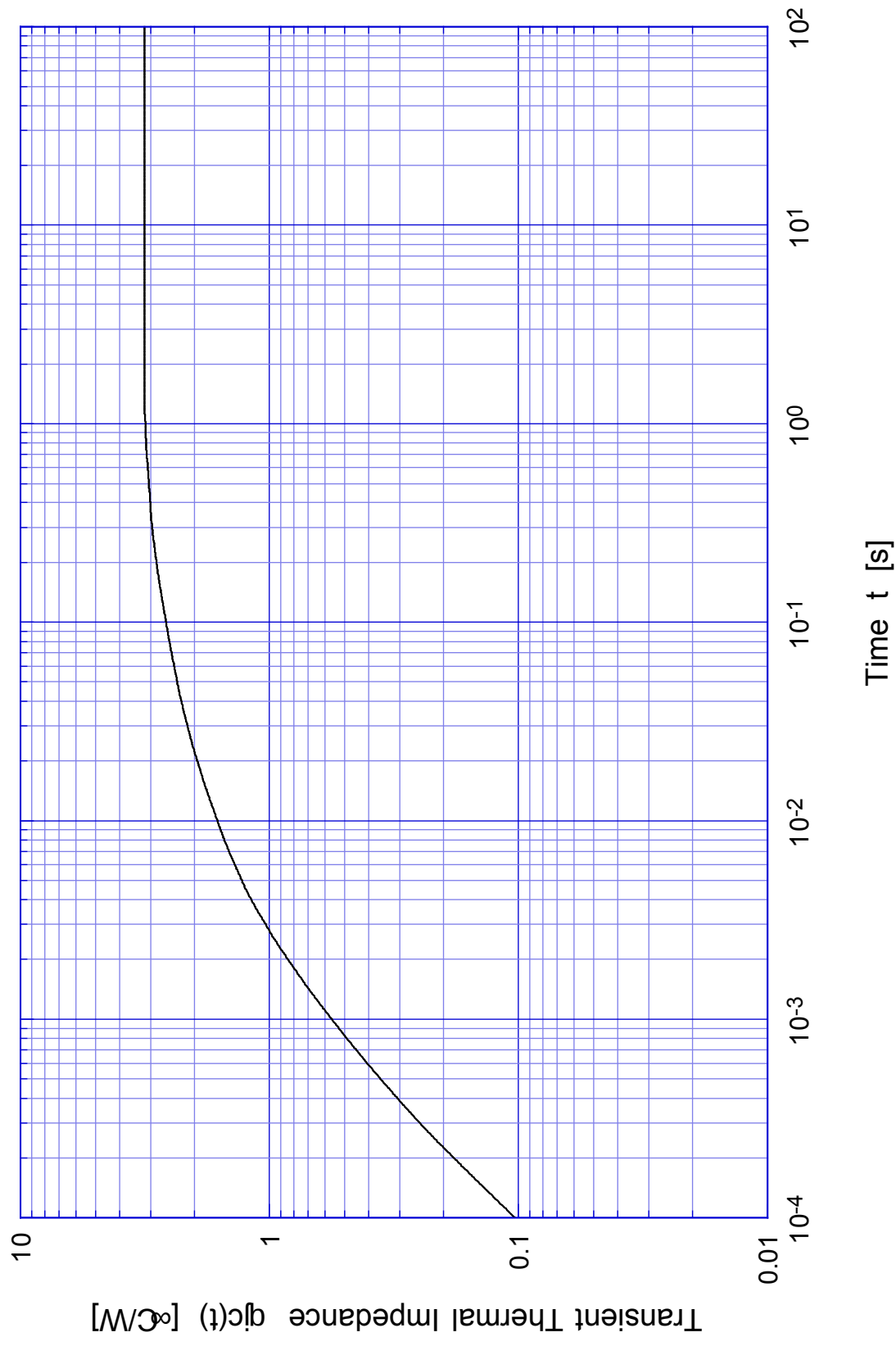


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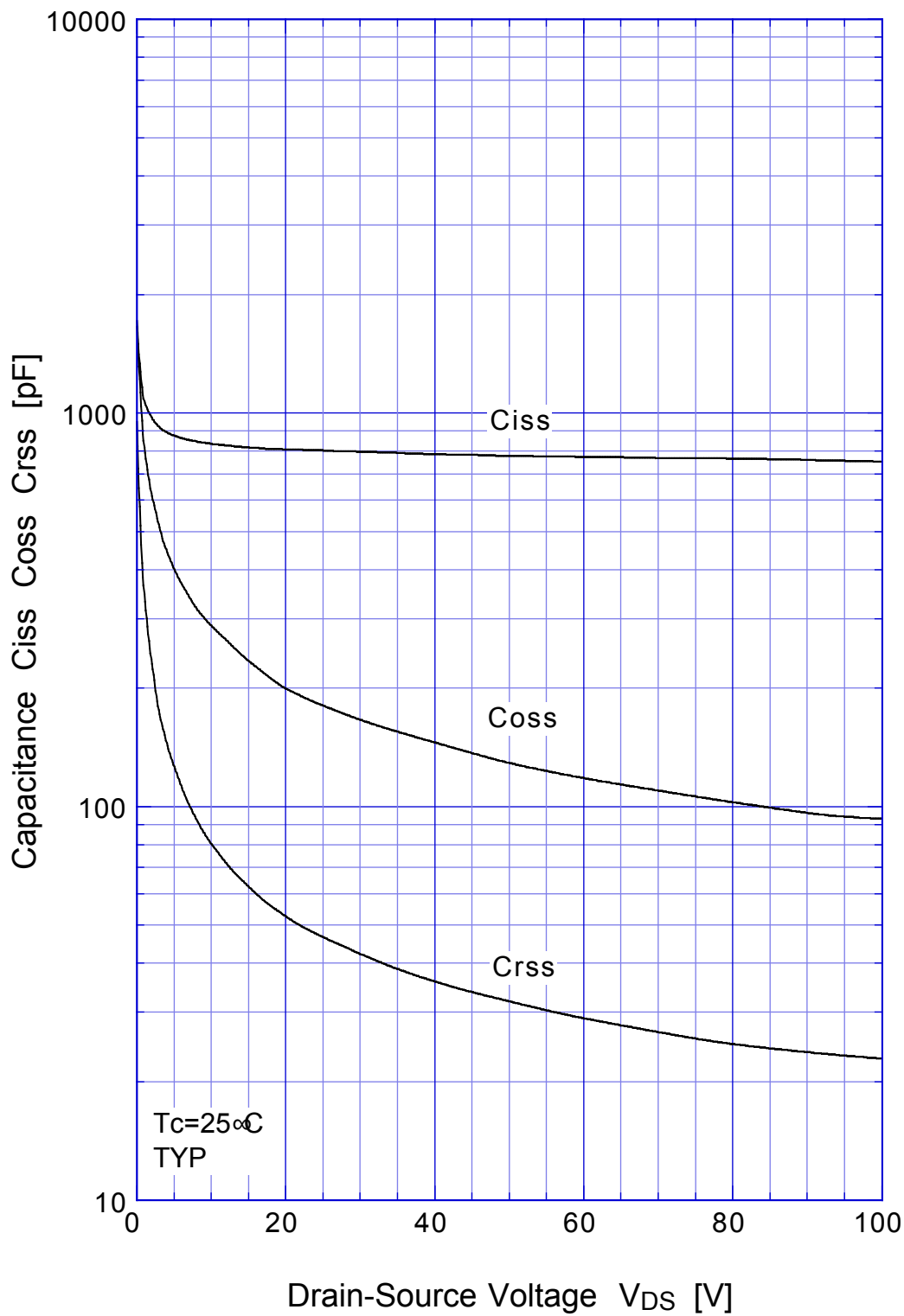
Safe Operating Area



2SK2559 Transient Thermal Impedance

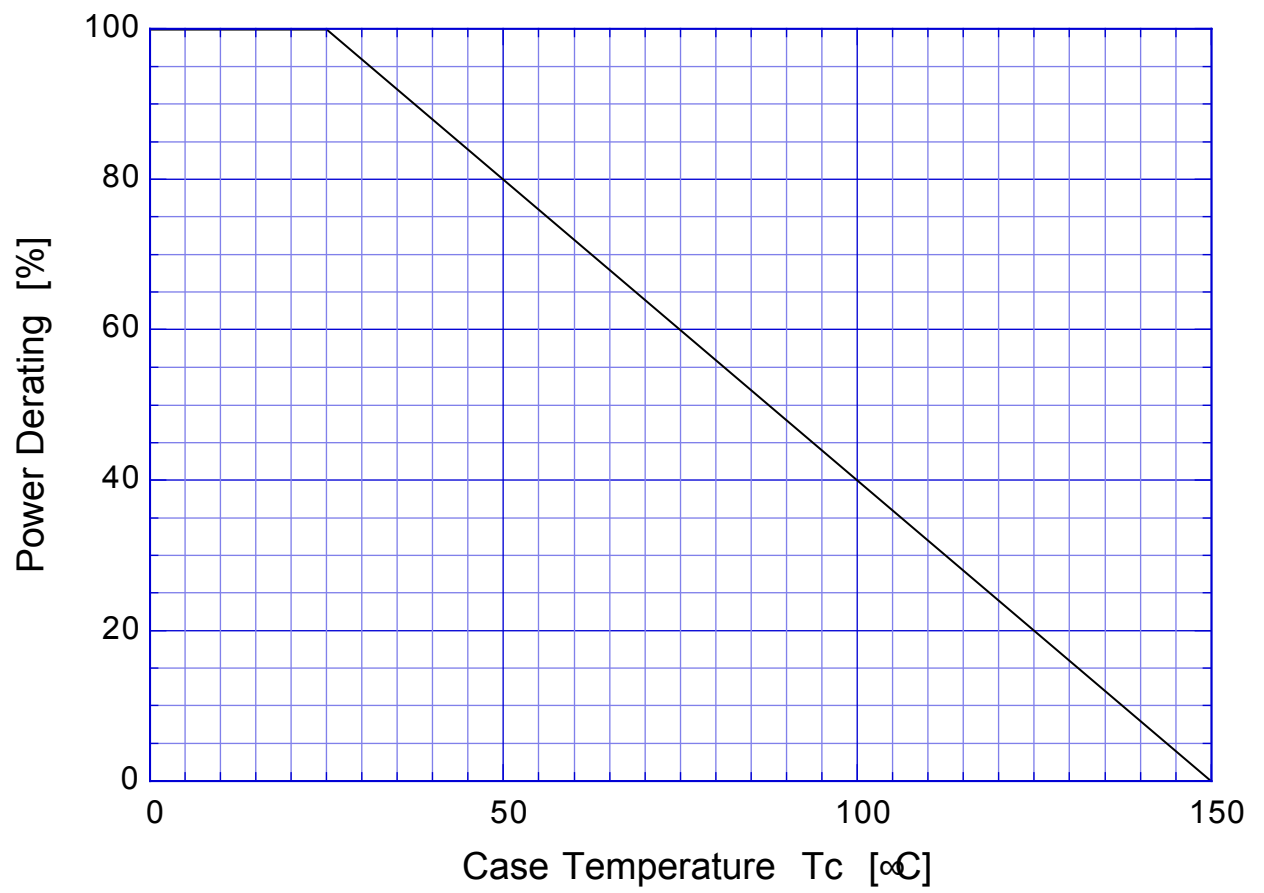


2SK2559 Capacitance



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Power Derating



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Gate Charge Characteristics

