

SHINDENGEN

VX-2 Series Power MOSFET

N-Channel Enhancement type

2SK2187
(F10S50VX2)

500V 10A

FEATURES

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

APPLICATION

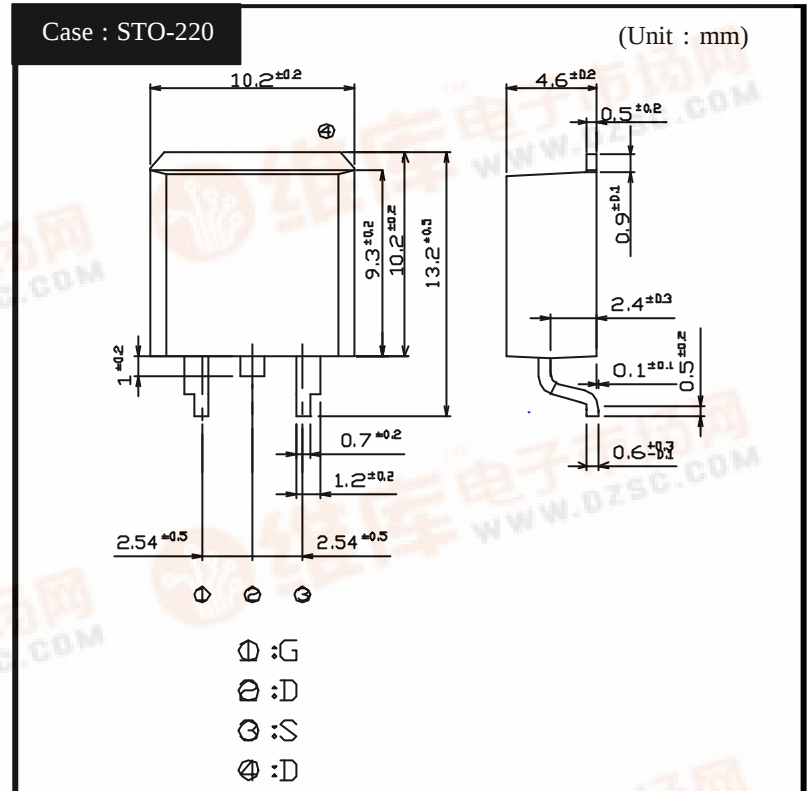
- Switching power supply of AC 100V input
- High voltage power supply
- Inverter

RATINGS

- Absolute Maximum Ratings ($T_c = 25$)

Item	Symbol	Conditions	Ratings	Unit
Storage Temperature	T_{stg}		-55 ~ 150	V
Channel Temperature	T_{ch}		150	
Drain-Source Voltage	V_{DSS}		500	
Gate-Source Voltage	V_{GSS}		± 30	
Continuous Drain Current (DC)	I_D		10	A
Continuous Drain Current (Peak)	I_{DP}		30	
Continuous Source Current (DC)	I_S		10	
Total Power Dissipation	P_T		60	W
Single Pulse Avalanche Current	I_{AS}	$T_{ch} = 25$	10	A

OUTLINE DIMENSIONS



VX-2 Series Power MOSFET

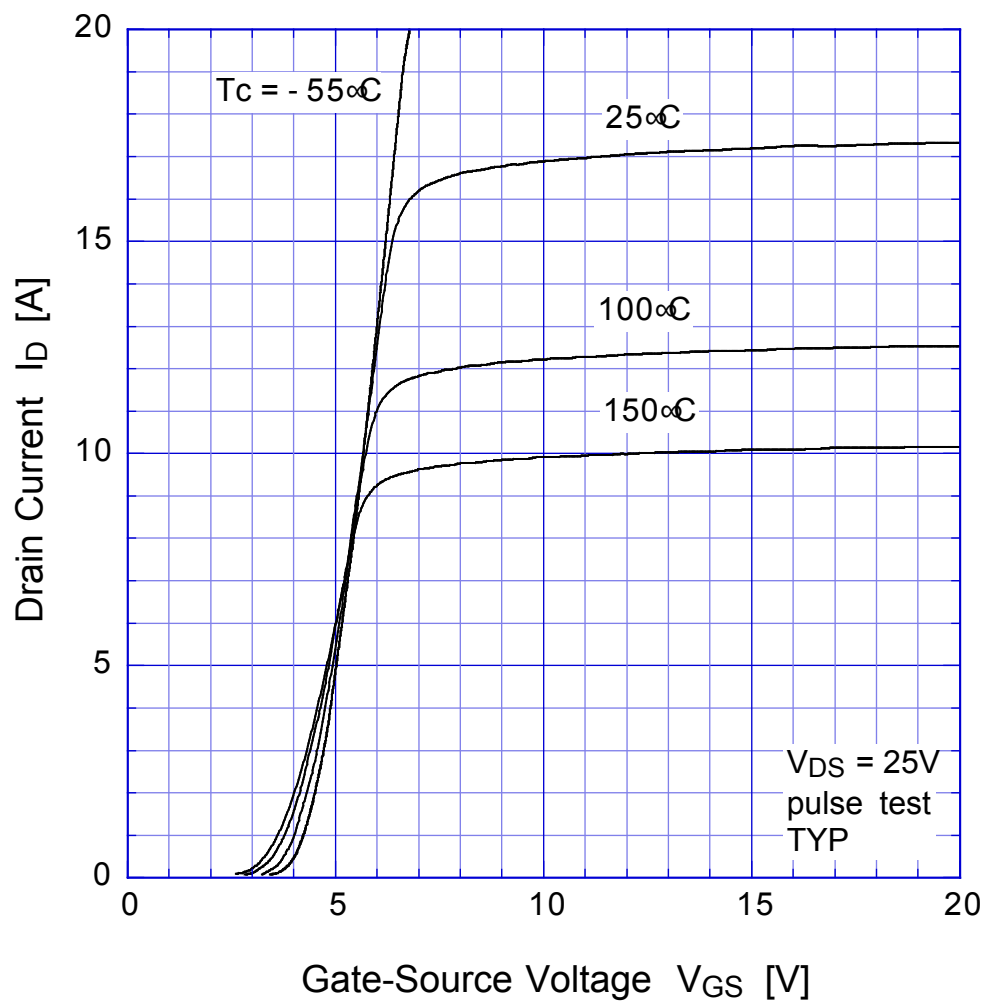
2SK2187 (F10S50VX2)

●Electrical Characteristics T_c = 25°C

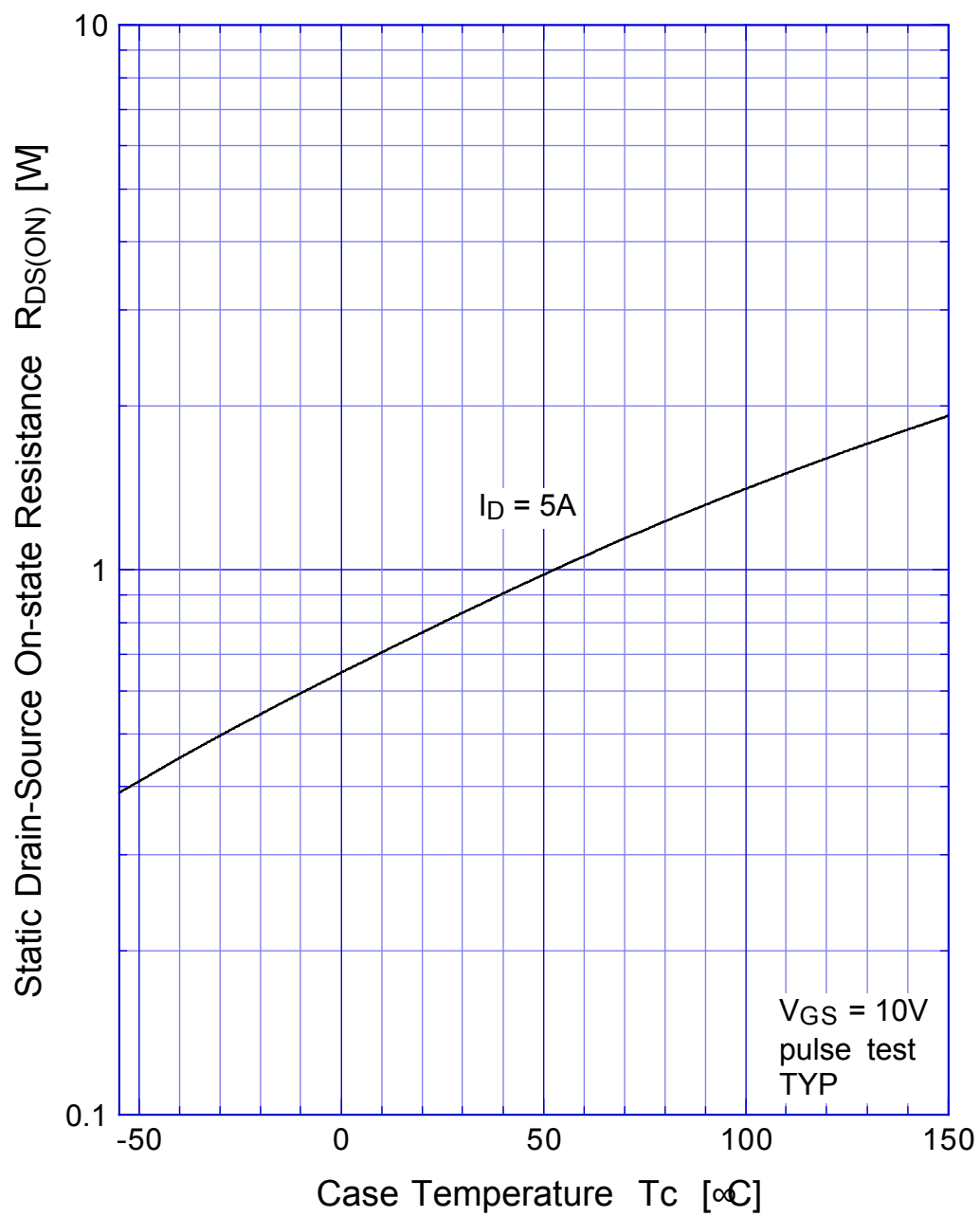
Item	Symbol	Conditions	Min.	Typ.	Max.	Unit
Drain-Source Breakdown Voltage	V(BR)DSS	I _D = 1mA, V _{GS} = 0V	500			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = 500V, V _{GS} = 0V			250	μ A
Gate-Source Leakage Current	I _{GSS}	V _{GS} = ±30V, V _{DS} = 0V			±0.1	
Forward Transconductance	g _{fs}	I _D = 5A, V _{DS} = 10V	2.4	6.3		S
Static Drain-Source On-state Resistance	R _{DS(ON)}	I _D = 5A, V _{GS} = 10V		0.8	1.0	Ω
Gate Threshold Voltage	V _{TH}	I _D = 1mA, V _{DS} = 10V	2.5	3.0	3.5	V
Source-Drain Diode Forward Voltage	V _{SD}	I _S = 5A, V _{GS} = 0V			1.5	
Thermal Resistance	θ _{jc}	junction to case			2.08	°C/W
Total Gate Charge	Q _g	V _{DD} = 400V, V _{GS} = 10V, I _D = 5A		30		nC
Input Capacitance	C _{iss}	V _{DS} = 10V, V _{GS} = 0V, f = 1MHz		890		pF
Reverse Transfer Capacitance	C _{rss}			70		
Output Capacitance	C _{oss}			200		
Turn-On Time	t _{on}	I _D = 5A, V _{GS} = 10V, R _L = 30 Ω		70	110	ns
Turn-Off Time	t _{off}			140	220	

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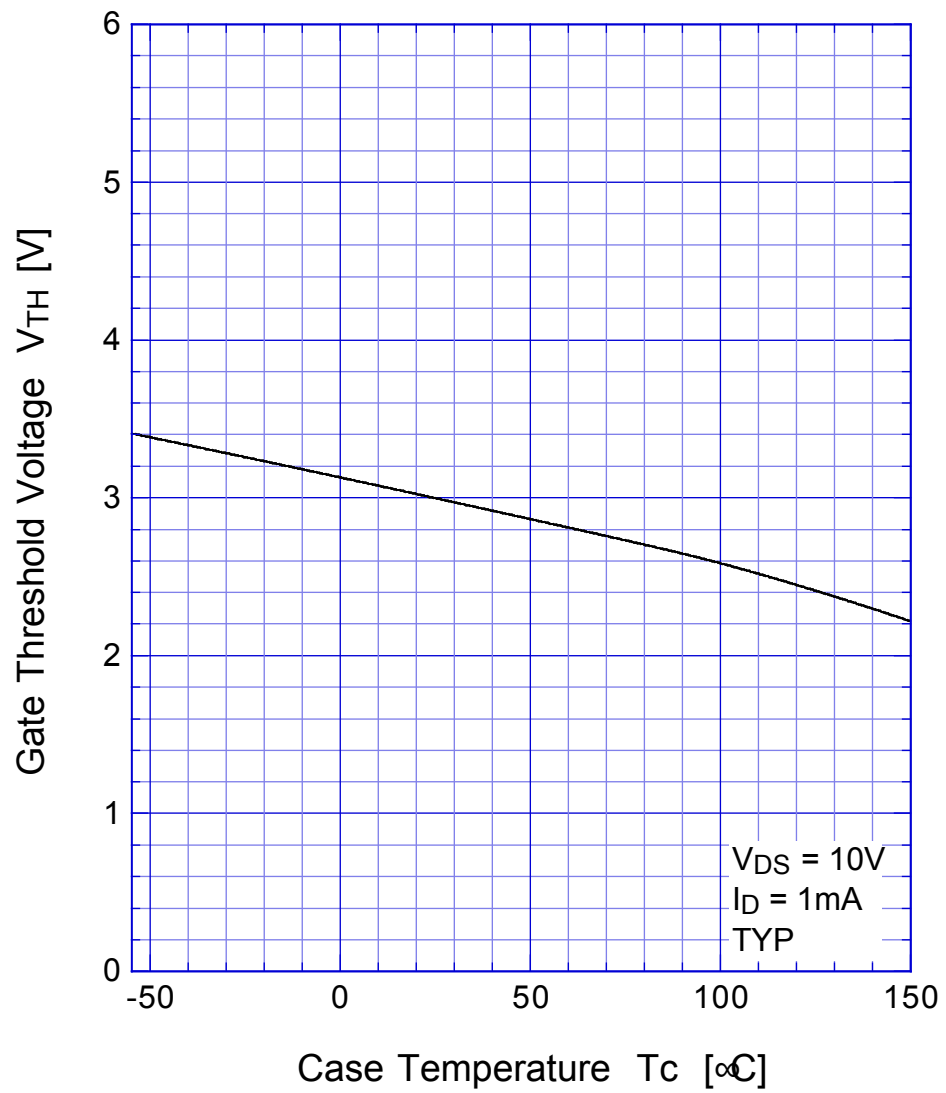
Transfer Characteristics



2SK2187 Static Drain-Source On-state Resistance

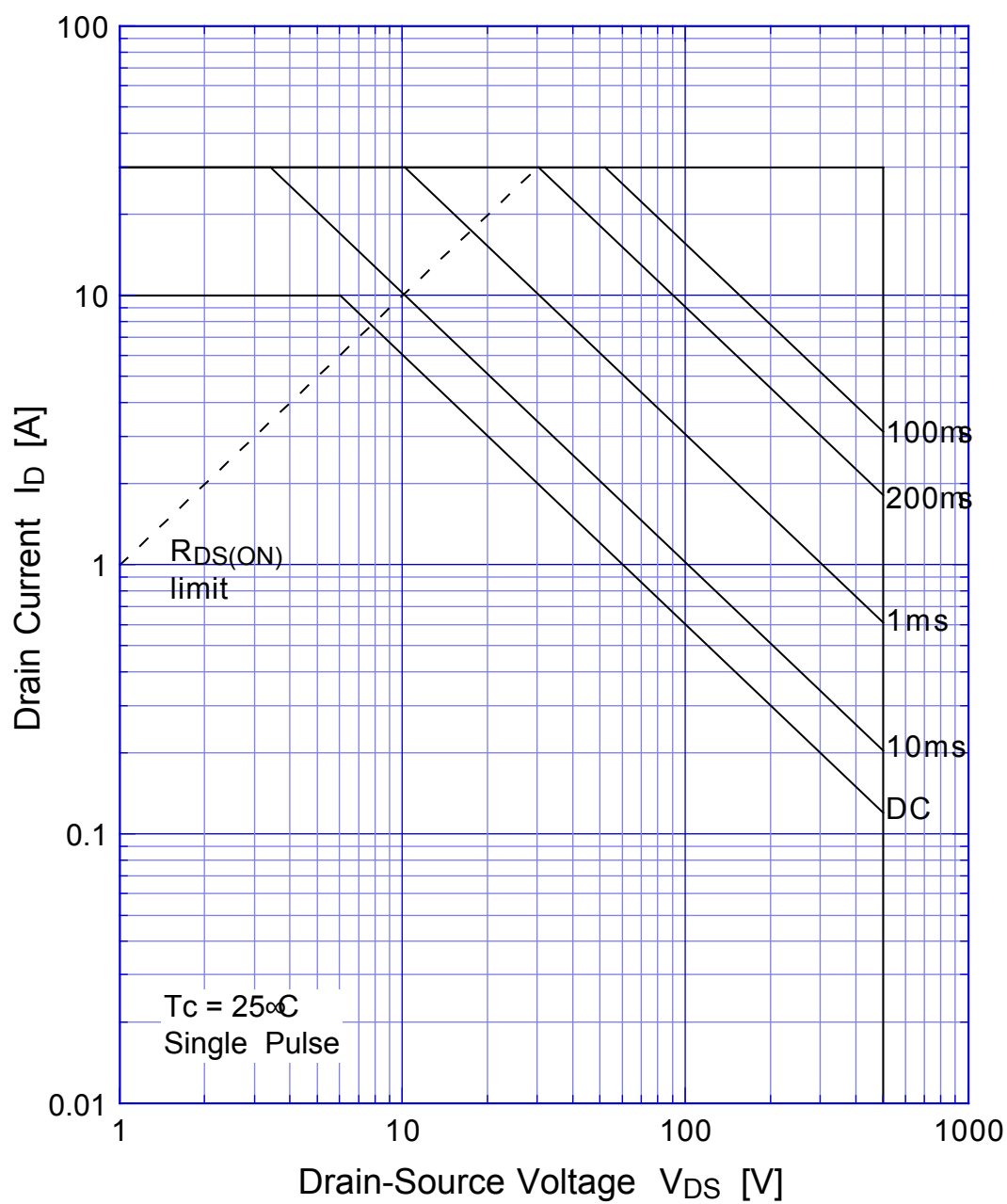


2SK2187 Gate Threshold Voltage

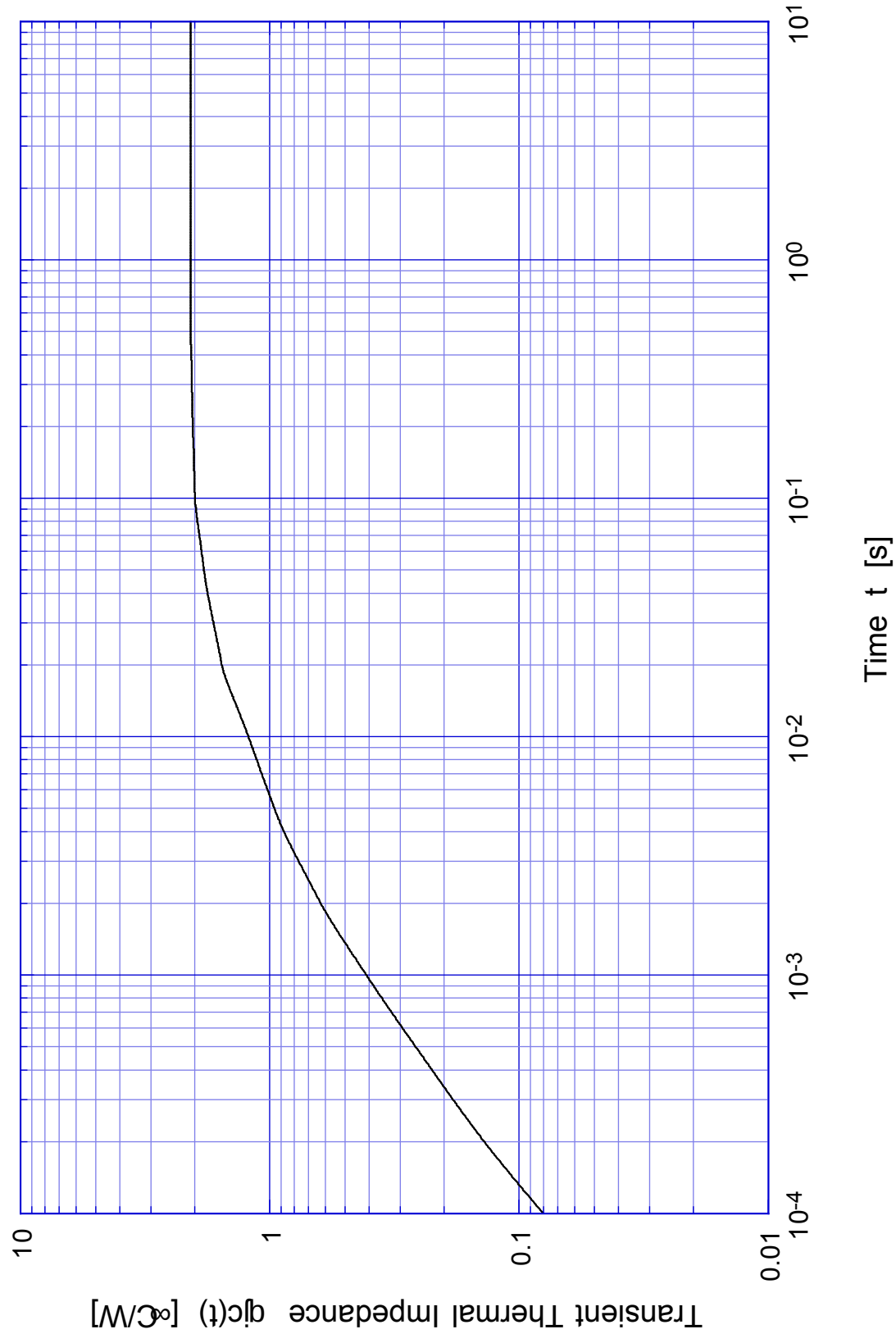


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Safe Operating Area

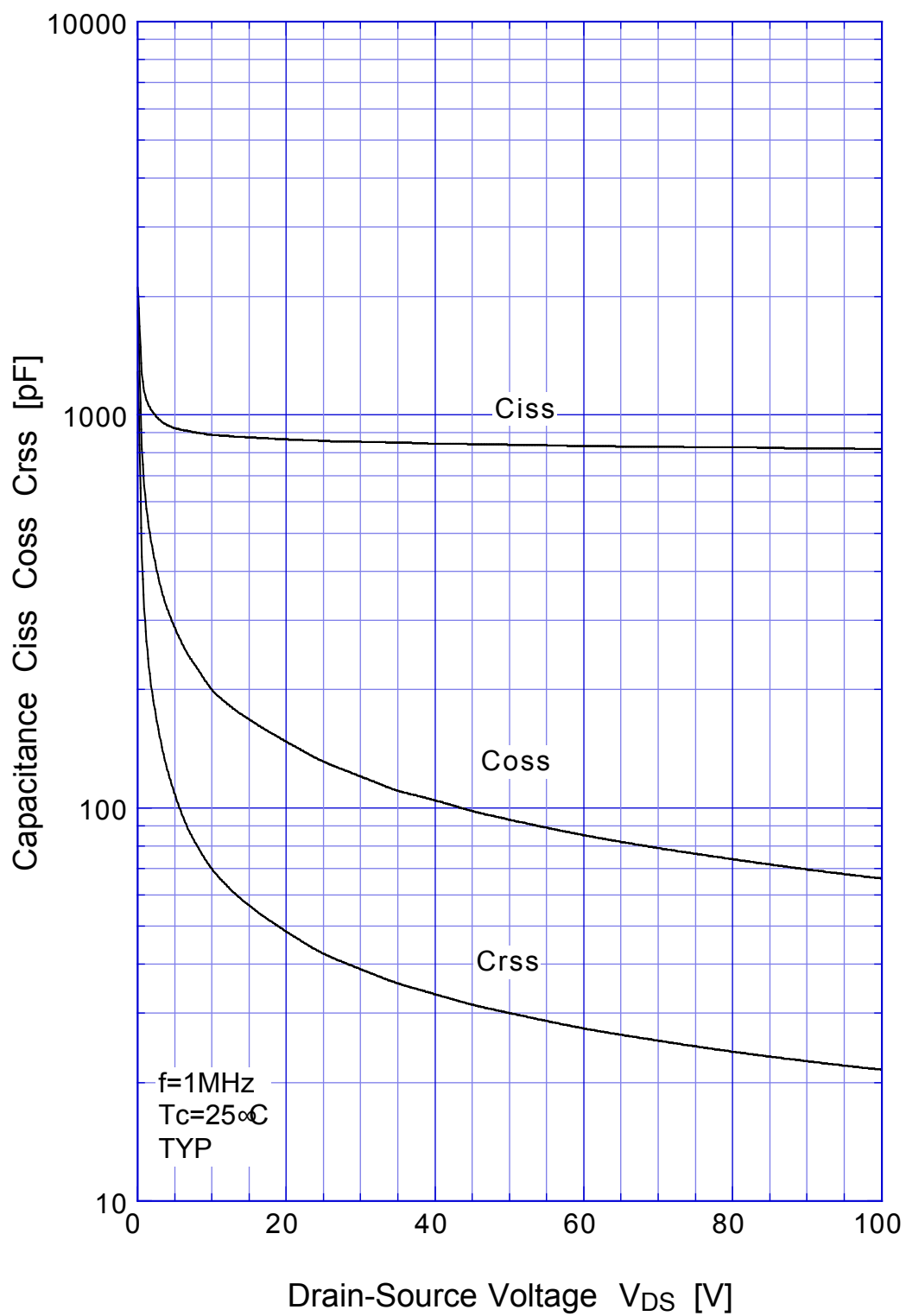


2SK2187 Transient Thermal Impedance



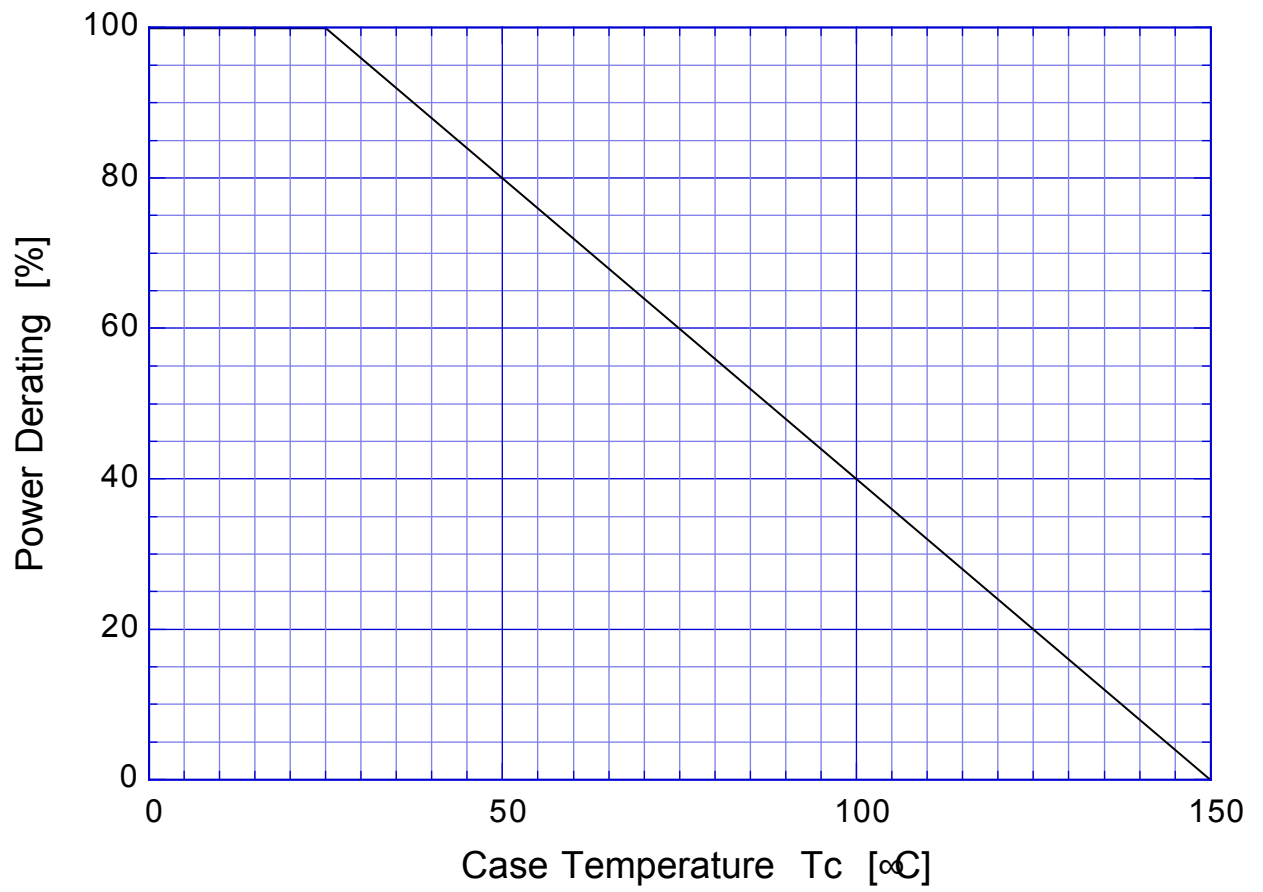
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Capacitance



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Power Derating



2SK2187 Gate Charge Characteristics

