

2SK2190  
(FP10W50VX2)

500V 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

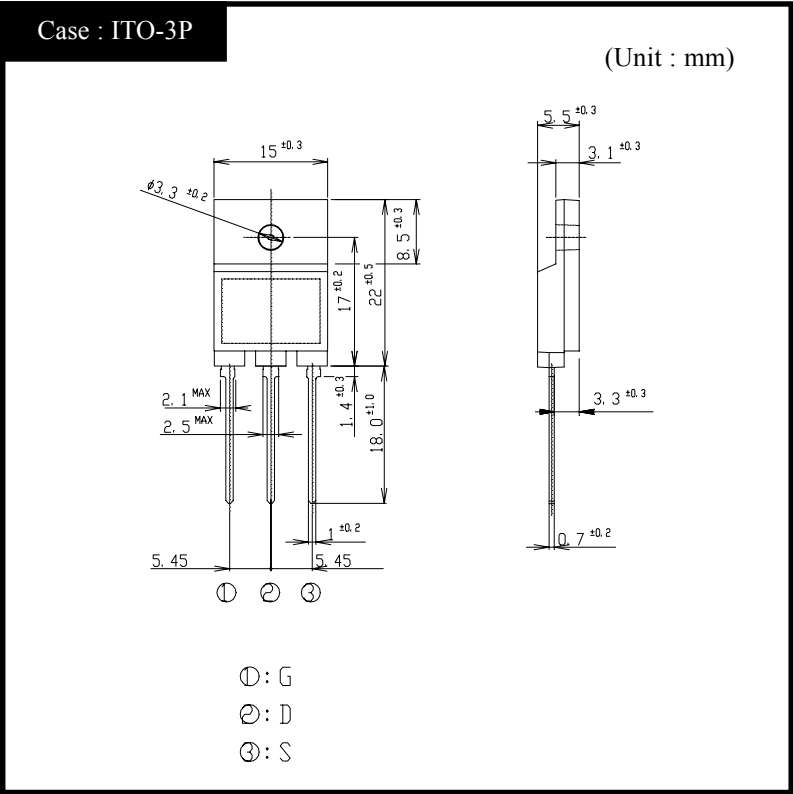
- Switching power supply of AC 100V input
- High voltage power supply
- Inverter

RATINGS

●Absolute Maximum Ratings (Tc = 25°C)

Item	Symbol	Conditions	Ratings	Unit
Storage Temperature	T <sub>stg</sub>		-55~150	°C
Channel Temperature	T <sub>ch</sub>		150	
Drain-Source Voltage	V <sub>DSS</sub>		500	V
Gate-Source Voltage	V <sub>GSS</sub>		±30	
Continuous Drain Current (DC)	I <sub>D</sub>		10	A
Continuous Drain Current (Peak)	I <sub>DP</sub>		30	
Continuous Source Current (DC)	I <sub>S</sub>		10	
Total Power Dissipation	P <sub>T</sub>		40	W
Single Pulse Avalanche Current	I <sub>AS</sub>	T <sub>ch</sub> = 25°C	10	A
Dielectric Strength	V <sub>dis</sub>	Terminals to case, AC 1 minute	2	kV
Mounting Torque	TOR	( Recommended torque : 0.5N·m )	0.8	N·m

OUTLINE DIMENSIONS

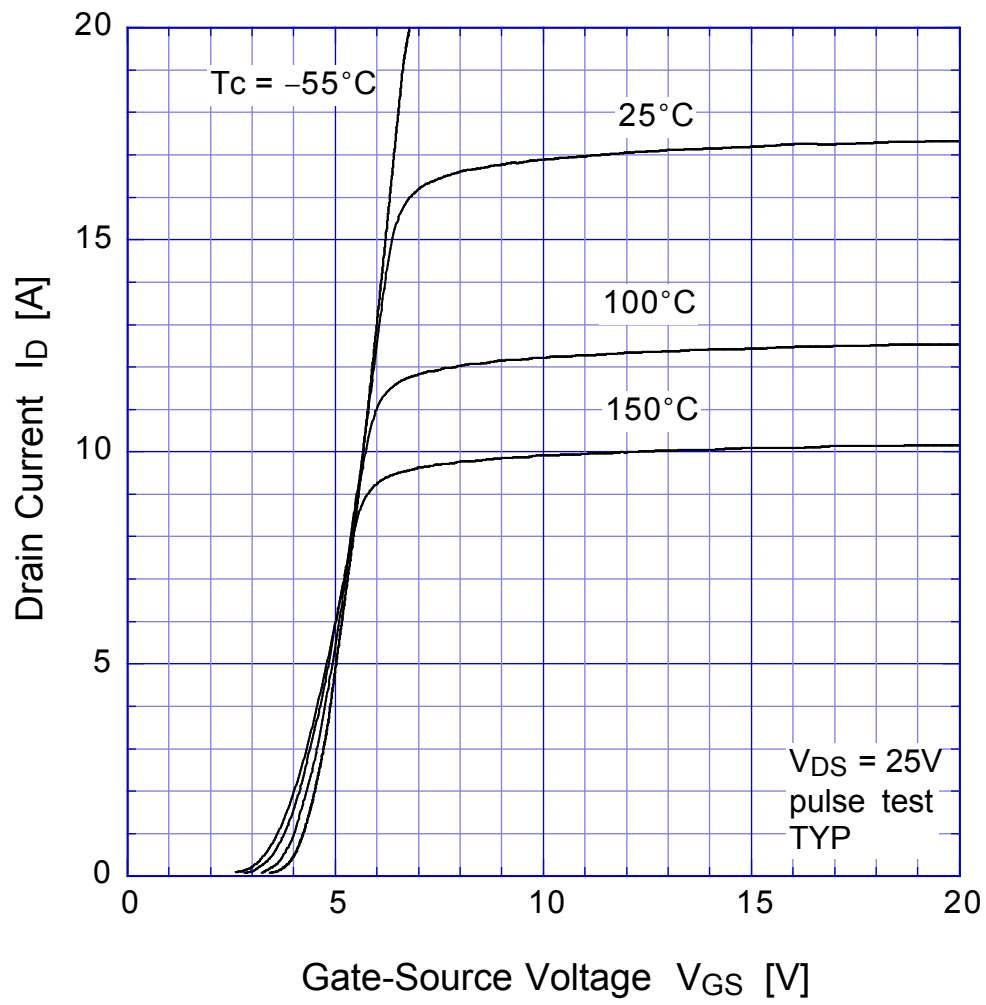


## ●Electrical Characteristics T<sub>c</sub> = 25°C

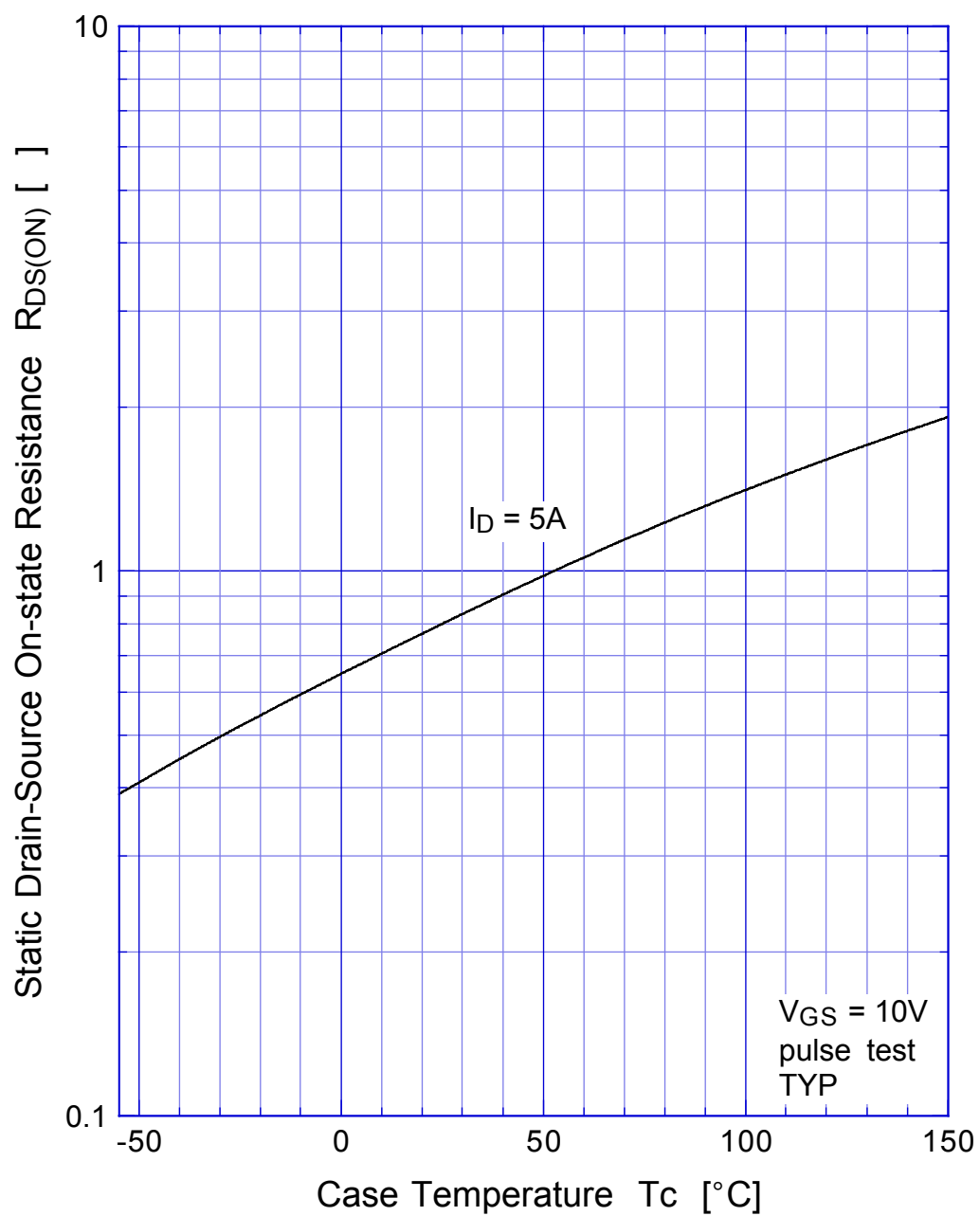
Item	Symbol	Conditions	Min.	Typ.	Max.	Unit
Drain-Source Breakdown Voltage	V(BR)DSS	I <sub>D</sub> = 1mA, V <sub>GS</sub> = 0V	500			V
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> = 500V, V <sub>GS</sub> = 0V			250	μ A
Gate-Source Leakage Current	I <sub>GSS</sub>	V <sub>GS</sub> = ±30V, V <sub>DS</sub> = 0V			±0.1	
Forward Transconductance	g <sub>fs</sub>	I <sub>D</sub> = 5A, V <sub>DS</sub> = 10V	2.4	6.3		S
Static Drain-Source On-state Resistance	R <sub>DS(ON)</sub>	I <sub>D</sub> = 5A, V <sub>GS</sub> = 10V		0.8	1.0	Ω
Gate Threshold Voltage	V <sub>TH</sub>	I <sub>D</sub> = 1mA, V <sub>DS</sub> = 10V	2.5	3.0	3.5	V
Source-Drain Diode Forwade Voltage	V <sub>SD</sub>	I <sub>S</sub> = 5A, V <sub>GS</sub> = 0V			1.5	
Thermal Resistance	θ <sub>jc</sub>	junction to case			3.12	°C/W
Total Gate Charge	Q <sub>g</sub>	V <sub>DD</sub> = 400V, V <sub>GS</sub> = 10V, I <sub>D</sub> = 10A		30		nC
Input Capacitance	C <sub>iss</sub>	V <sub>DS</sub> = 10V, V <sub>GS</sub> = 0V, f = 1MHz		890		pF
Reverse Transfer Capacitance	C <sub>rss</sub>			70		
Output Capacitance	C <sub>oss</sub>			200		
Turn-On Time	t <sub>on</sub>	I <sub>D</sub> = 5A, V <sub>GS</sub> = 10V, R <sub>L</sub> = 30Ω		70	110	ns
Turn-Off Time	t <sub>off</sub>			140	220	

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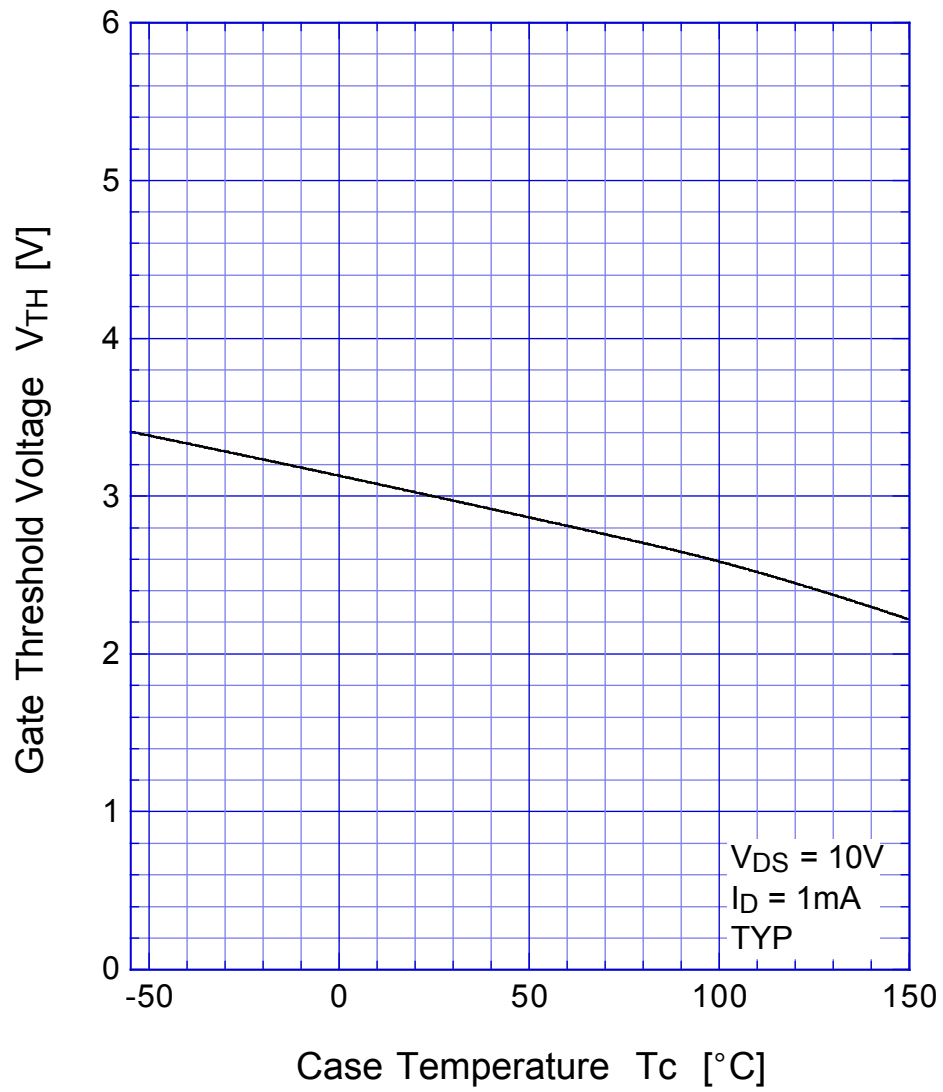
Transfer Characteristics



## 2SK2190 Static Drain-Source On-state Resistance

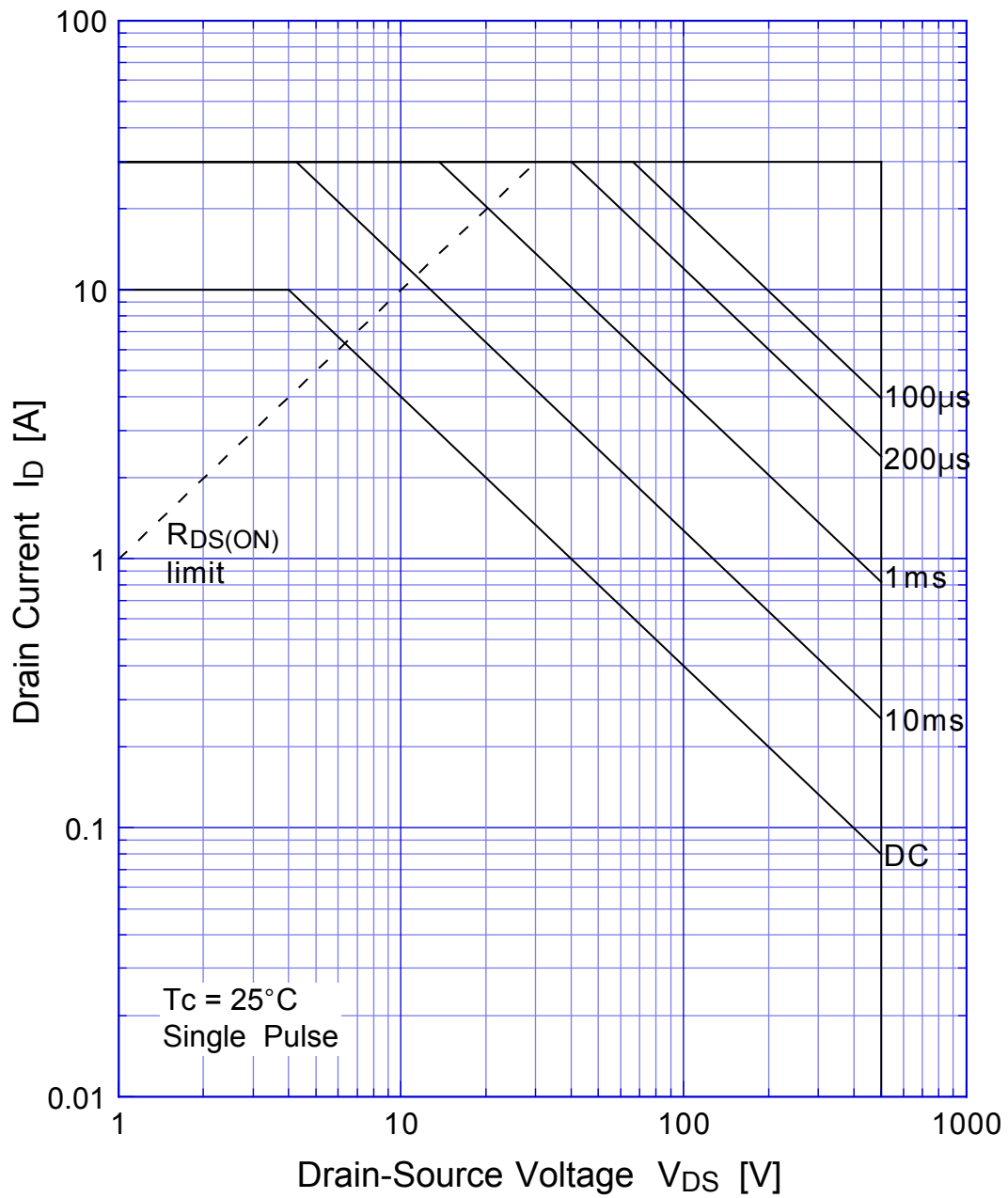


## 2SK2190 Gate Threshold Voltage

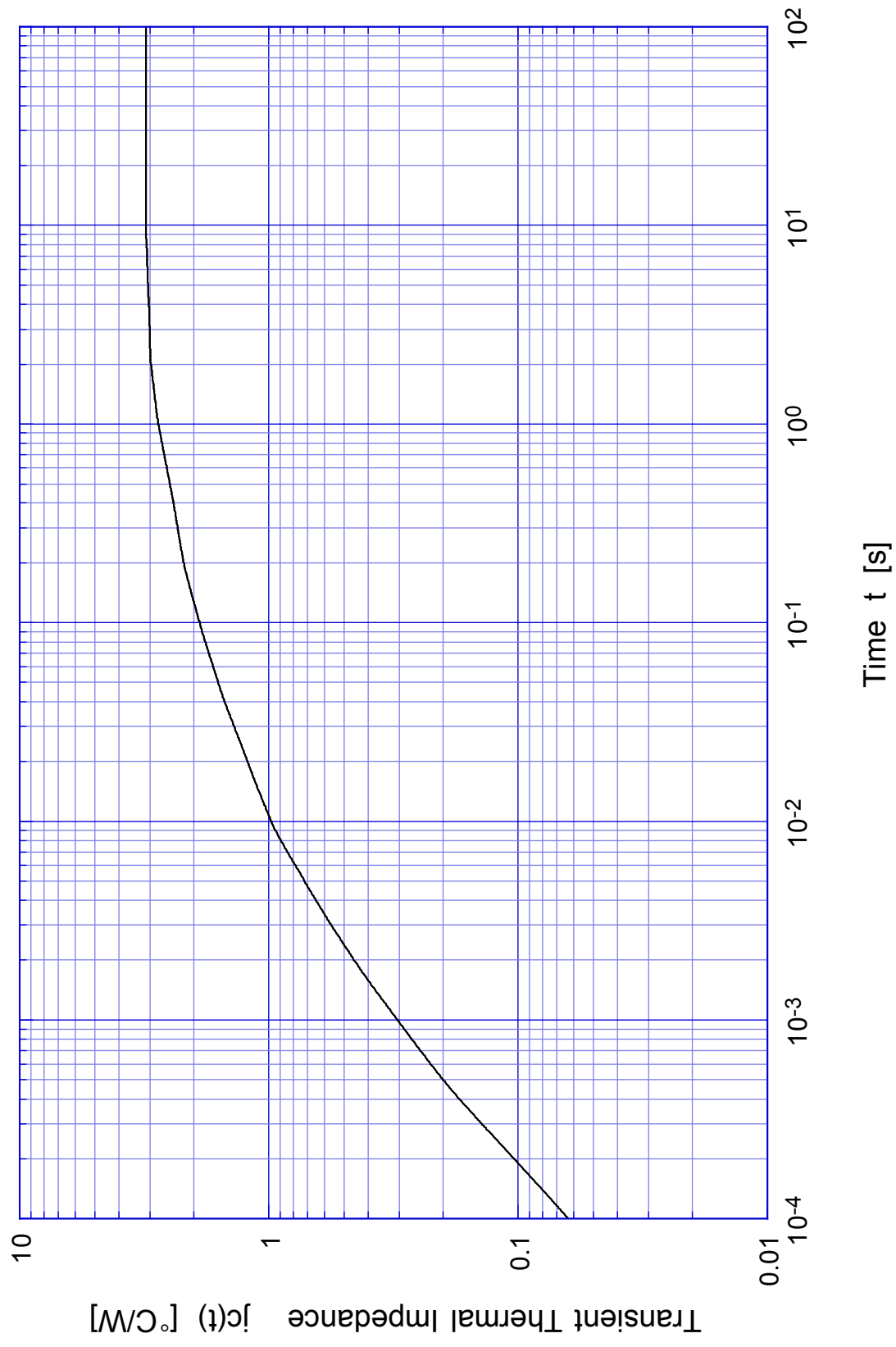


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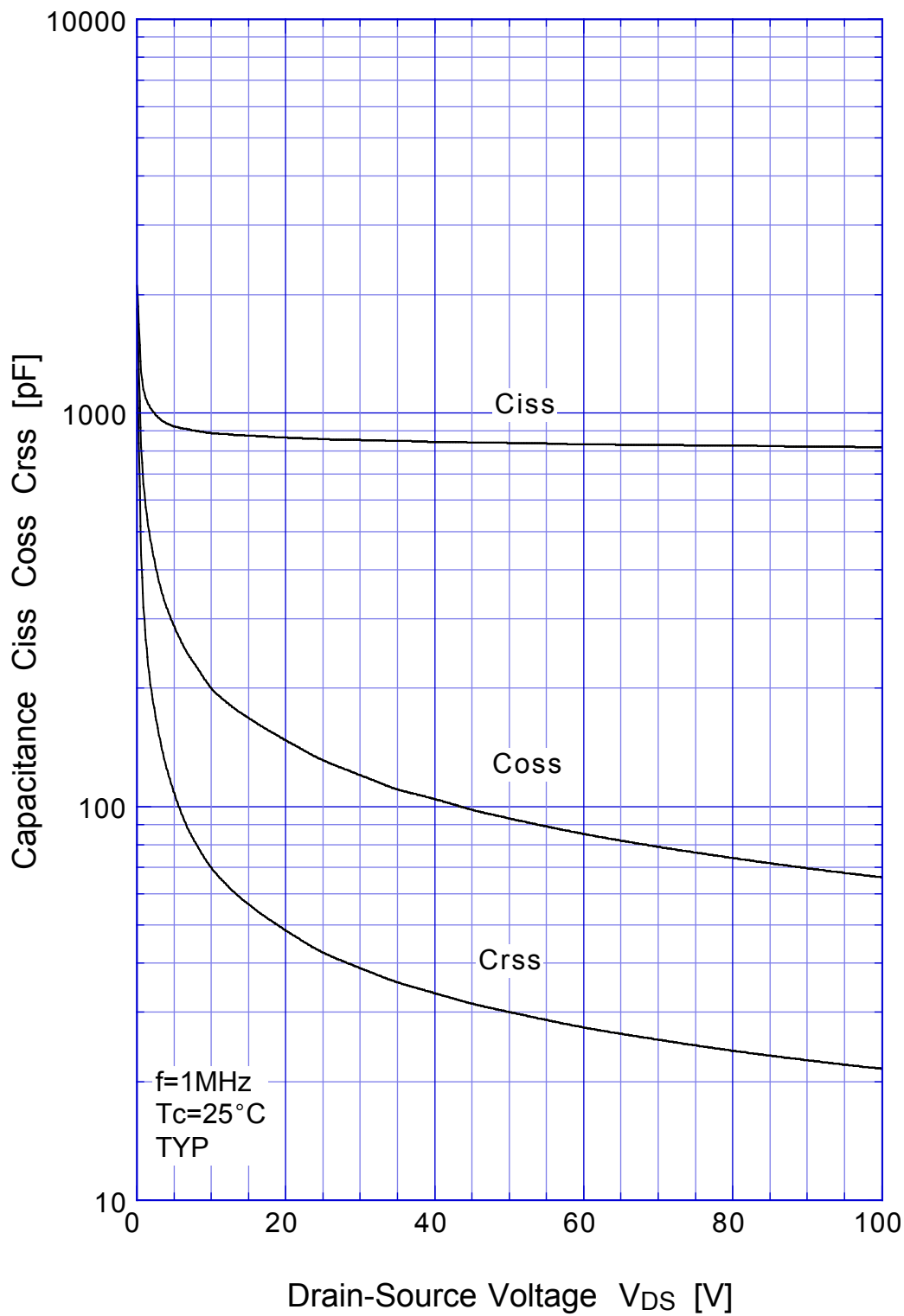
Safe Operating Area



# 2SK2190      Transient Thermal Impedance

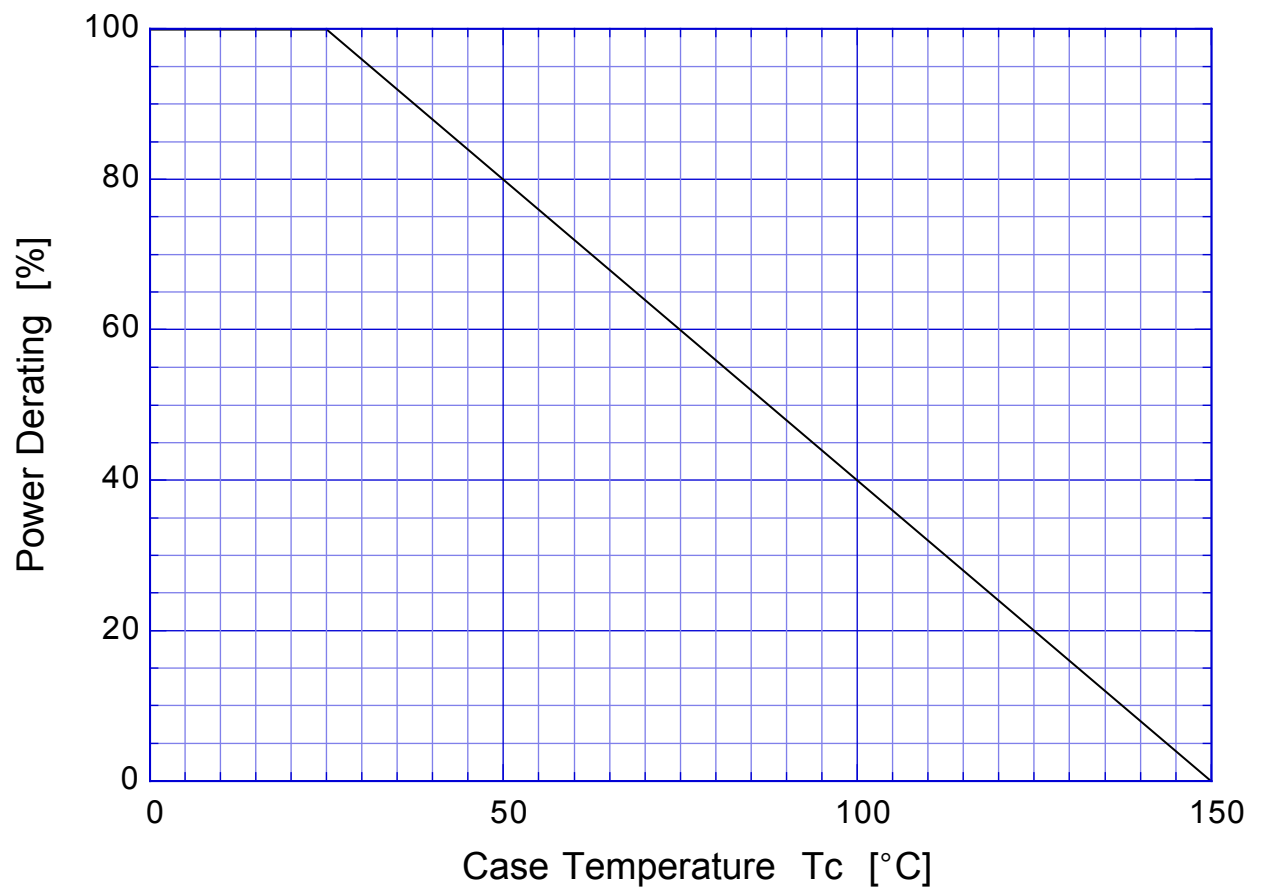


2SK2190 Capacitance



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Power Derating



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## Gate Charge Characteristics

