

VX-2 Series Power MOSFET

N-Channel Enhancement type

**2SK2188**  
**(F10F50VX2)**

**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**

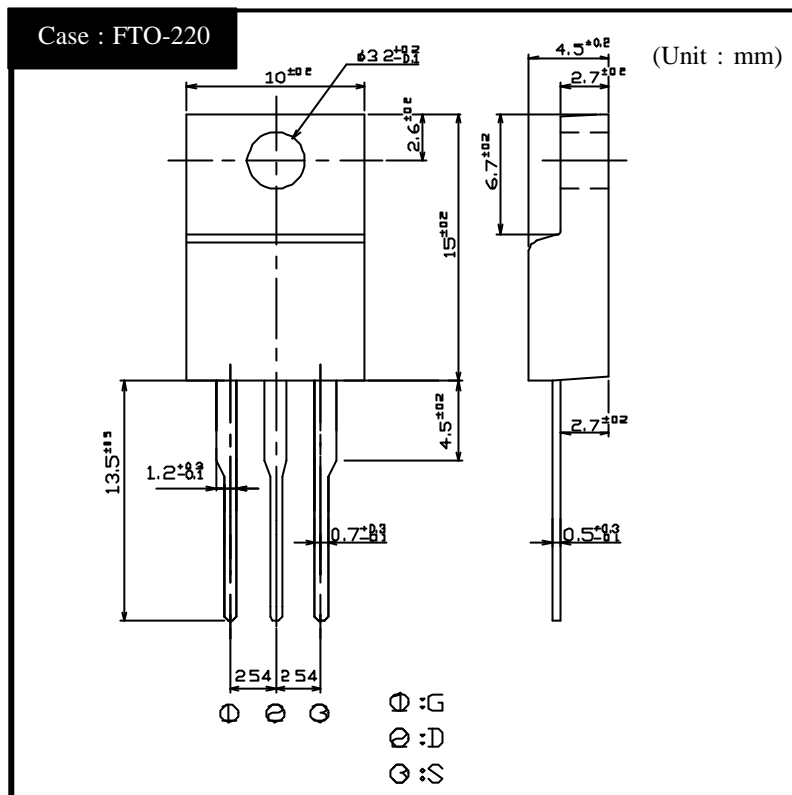
Switching power supply of AC 100V input  
High voltage power supply  
Inverter

**RATINGS**

Absolute Maximum Ratings (Tc = 25 )

Item	Symbol	Conditions	Ratings	Unit
Storage Temperature	T <sub>stg</sub>		-55 ~ 150	
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	10	A
Dielectric Strength	V <sub>dis</sub>	Terminals to case, AC 1 minute	2	kV
Mounting Torque	TOR	(Recommended torque : 0.3N·m )	0.5	N·m

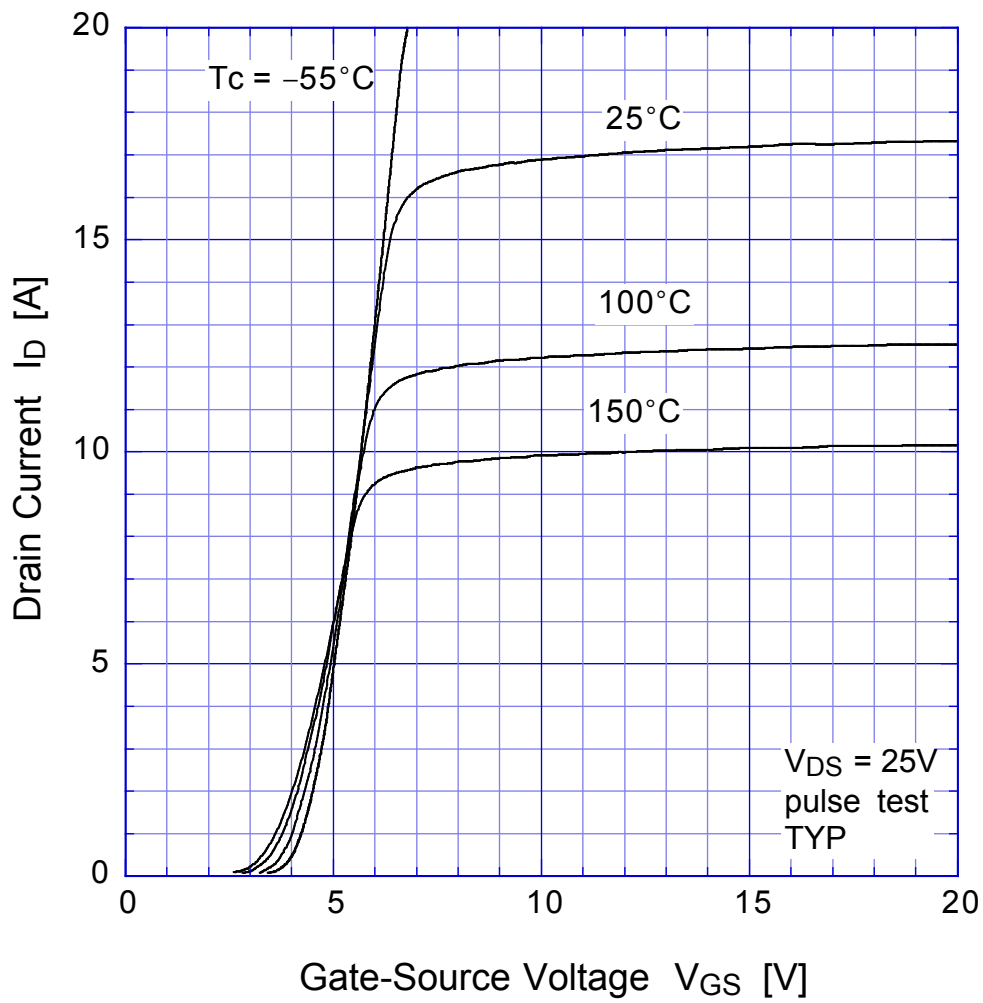
**OUTLINE DIMENSIONS**



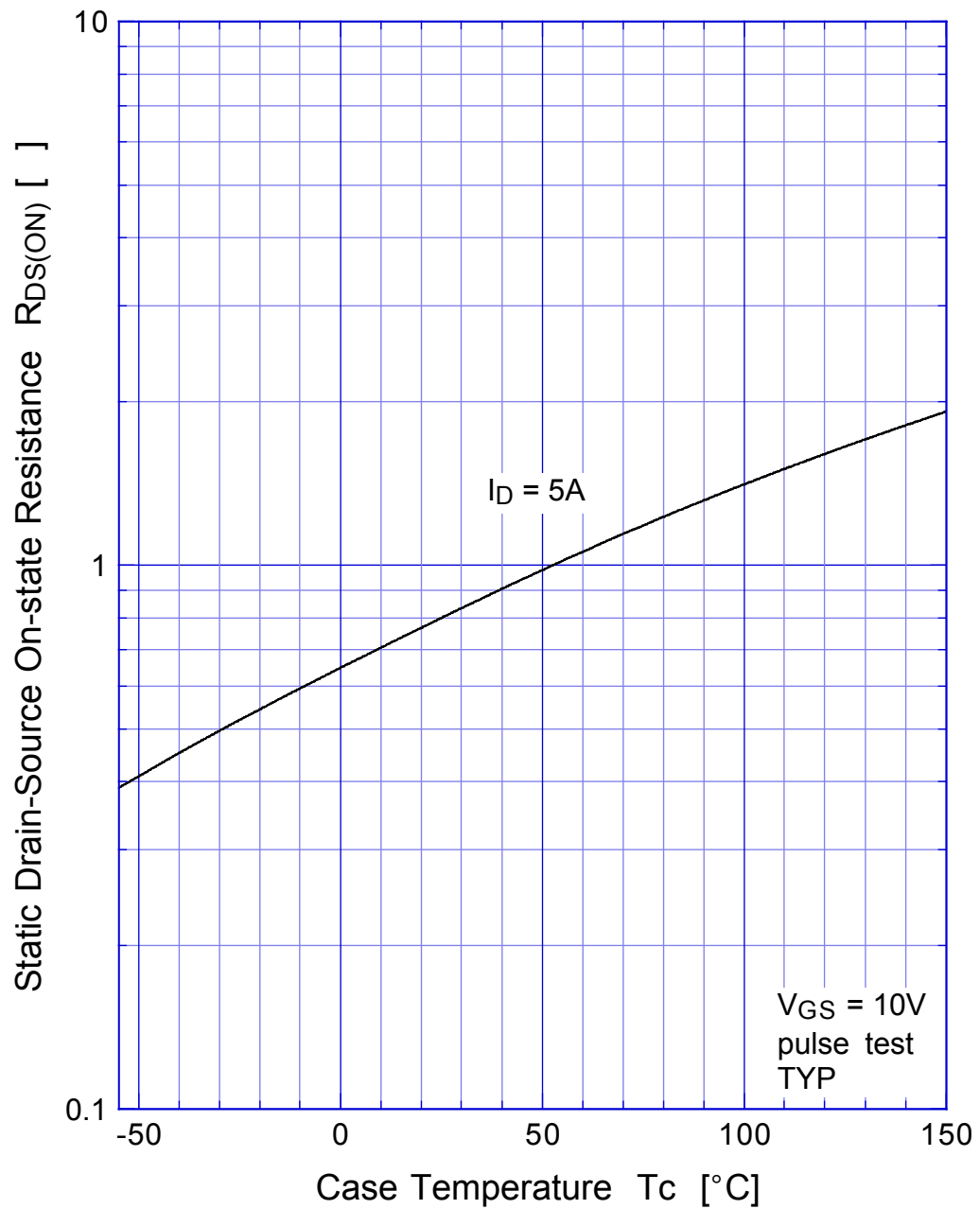
●Electrical Characteristics T<sub>c</sub> = 25°C

Item	Symbol	Conditions	Min.	Typ.	Max.	Unit
Drain-Source Breakdown Voltage	V(BR)DSS	ID = 1mA, VGS = 0V	500			V
Zero Gate Voltage Drain Current	IDSS	VDS = 500V, VGS = 0V			250	μ A
Gate-Source Leakage Current	IGSS	VGS = ±30V, VDS = 0V			±0.1	
Forward Transconductance	gfs	ID = 5A, VDS = 10V	2.4	6.3		S
Static Drain-Source On-state Resistance	RDS(ON)	ID = 5A, VGS = 10V		0.8	1.0	Ω
Gate Threshold Voltage	VTH	ID = 1mA, VDS = 10V	2.5	3.0	3.5	V
Source-Drain Diode Forwade Voltage	VSD	IS = 5A, VGS = 0V			1.5	
Thermal Resistance	θ jc	junction to case			3.12	°C/W
Total Gate Charge	Qg	VDD = 400V, VGS = 10V, ID = 10A		30		nC
Input Capacitance	Ciss	VDS = 10V, VGS = 0V, f = 1MHz		890		pF
Reverse Transfer Capacitance	Crss			70		
Output Capacitance	Coss			200		
Turn-On Time	ton	ID = 5A, VGS = 10V, RL = 30Ω		70	110	ns
Turn-Off Time	toff	VGS = 0V		140	220	

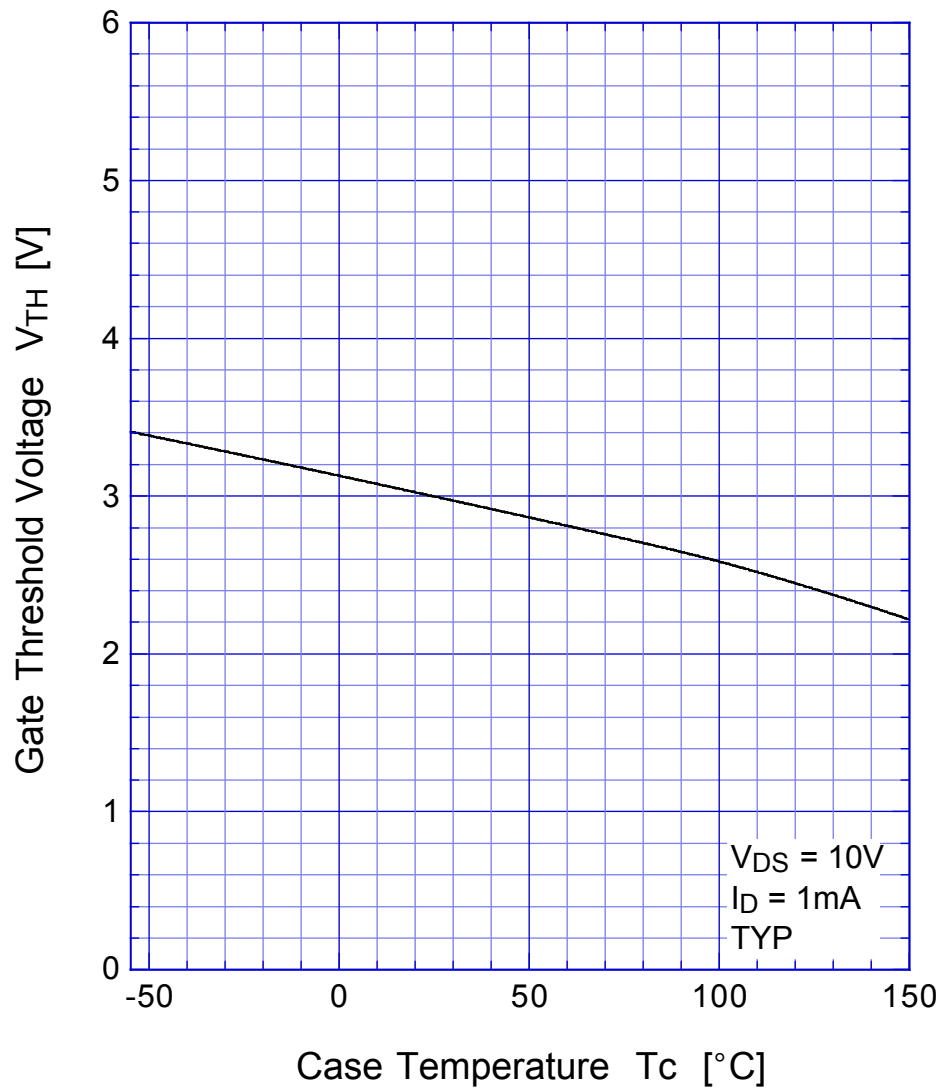
## 2SK2188 Transfer Characteristics



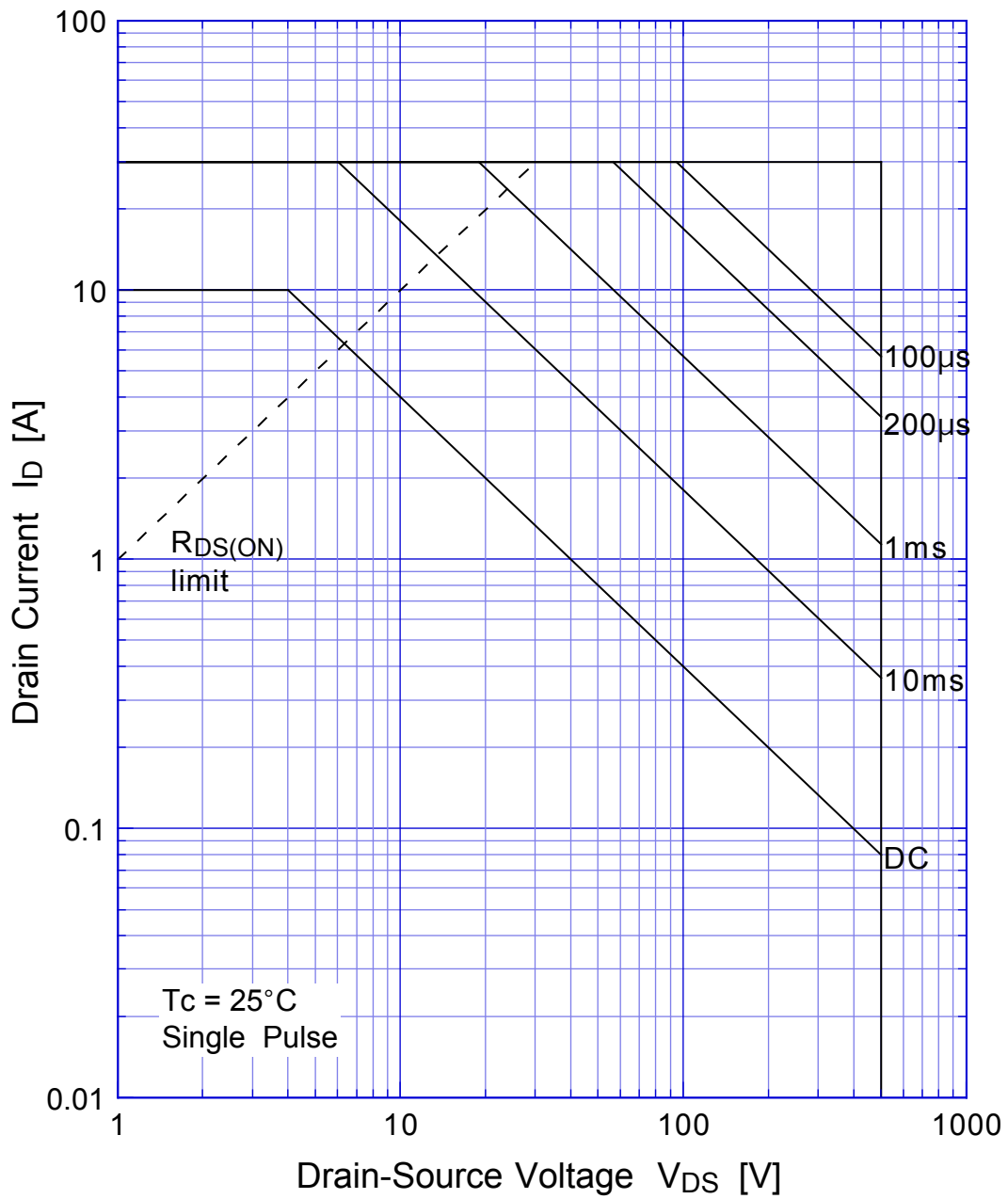
## 2SK2188 Static Drain-Source On-state Resistance



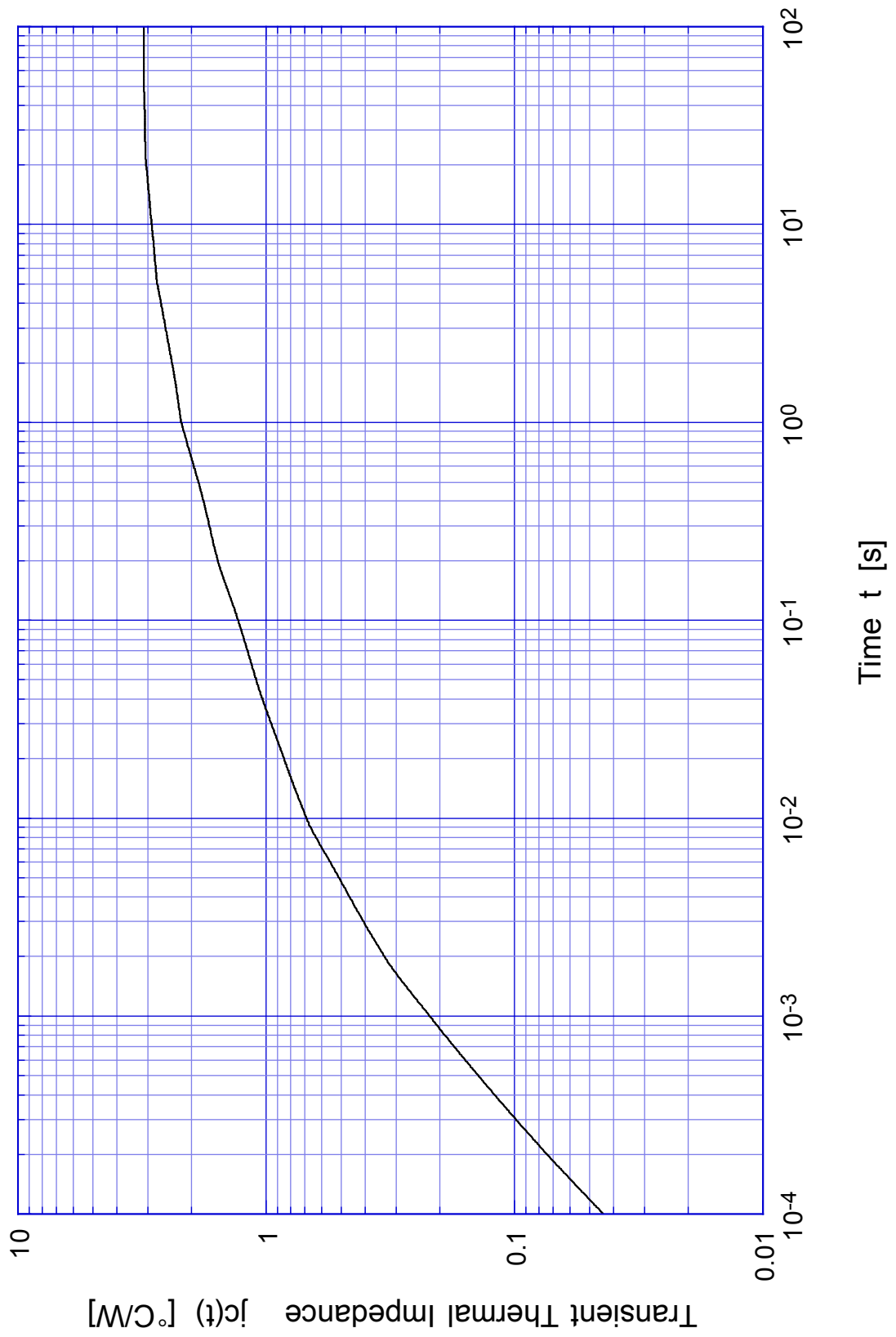
## 2SK2188 Gate Threshold Voltage



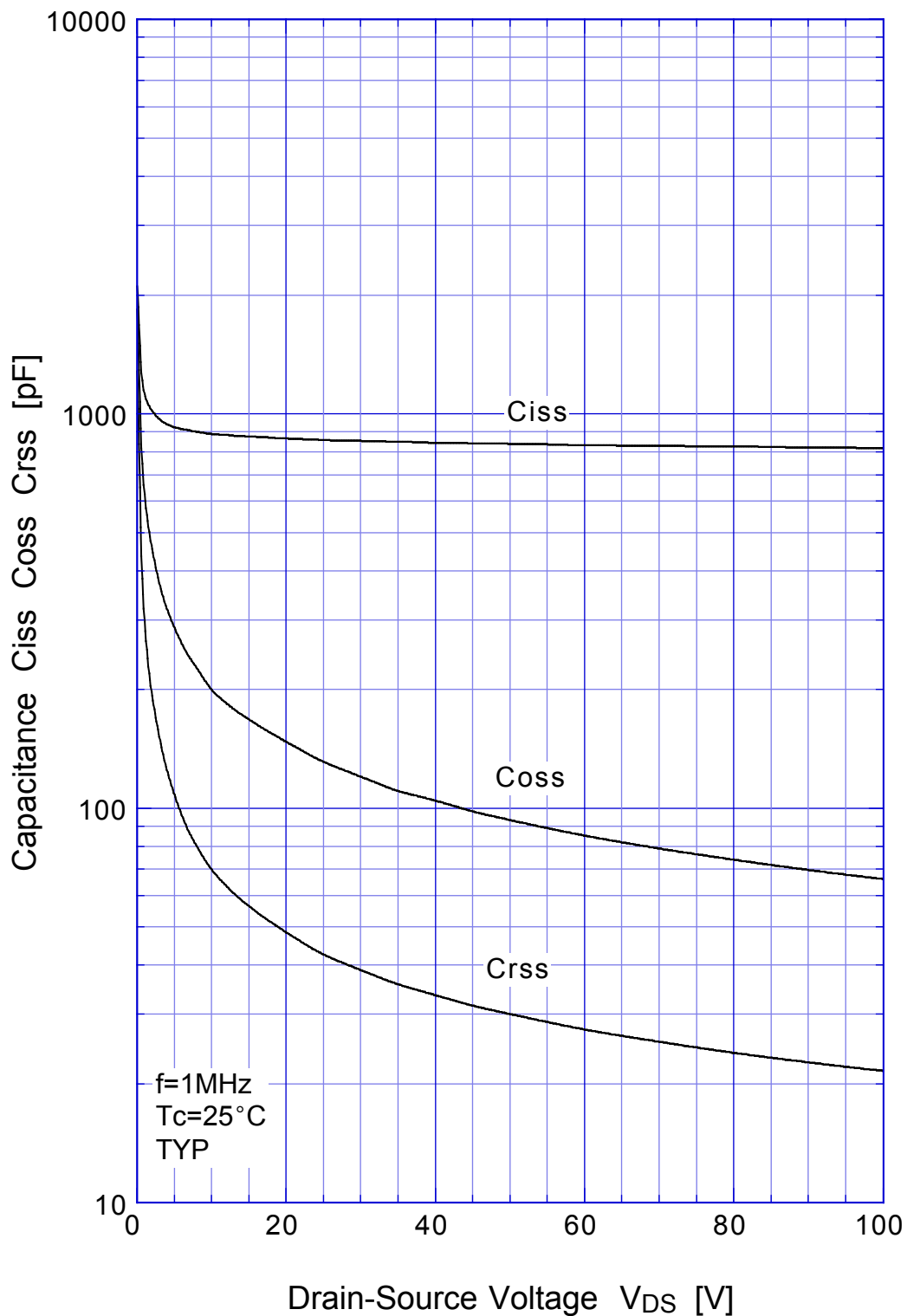
## 2SK2188 Safe Operating Area



### 2SK2188 Transient Thermal Impedance



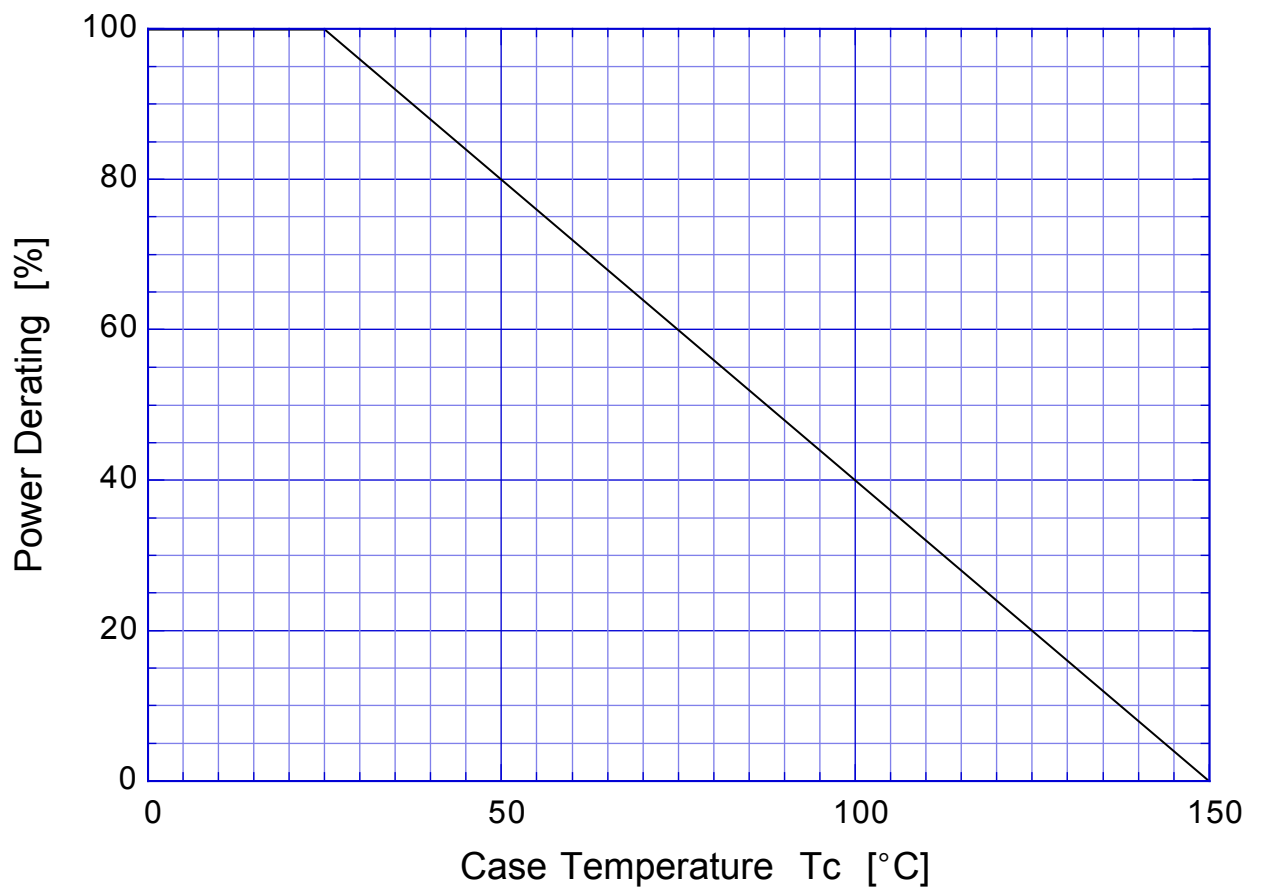
## 2SK2188 Capacitance





## 2SK2188

## Power Derating



## 2SK2188 Gate Charge Characteristics

