

SHINDENGEN

VX-2 Series Power MOSFET

N-Channel Enhancement type

2SK2197
(FP20W50VX2)

500V 20A

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

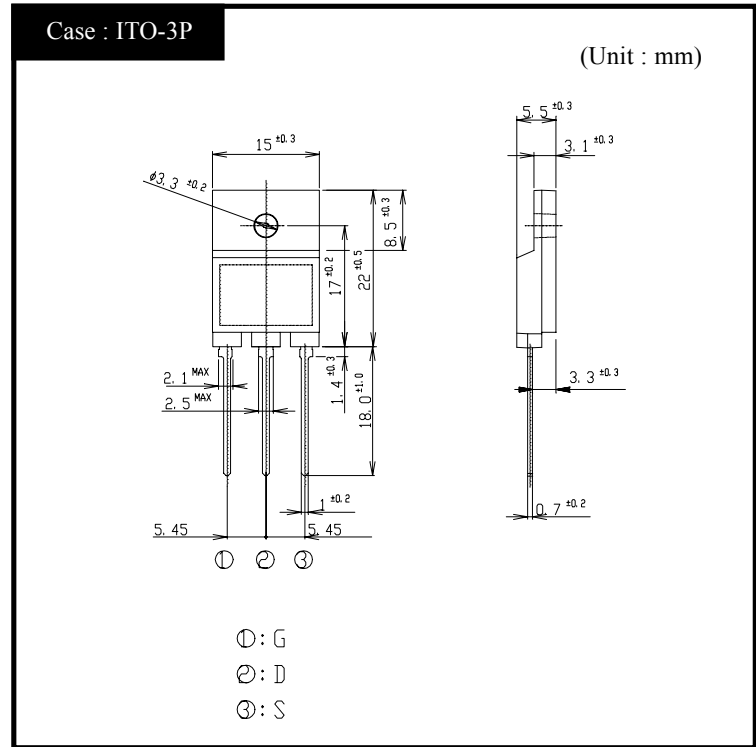
- Switching power supply of AC 100V input
- High voltage power supply
- Inverter

RATINGS

- Absolute Maximum Ratings (Tc = 25°C)

Item	Symbol	Conditions	Ratings	Unit
Storage Temperature	T _{stg}		-55~150	°C
Channel Temperature	T _{ch}		150	
Drain-Source Voltage	V _{DSS}		500	V
Gate-Source Voltage	V _{GSS}		±30	
Continuous Drain Current (DC)	I _D		20	A
Continuous Drain Current (Peak)	I _{DP}		60	
Continuous Source Current (DC)	I _S		20	
Total Power Dissipation	P _T		70	W
Single Pulse Avalanche Current	I _{AS}	T _{ch} = 25°C	20	A
Dielectric Strength	V _{dis}	Terminals to case, AC 1 minute	2	kV
Mounting Torque	TOR	(Recommended torque : 0.5N·m)	0.8	N·m

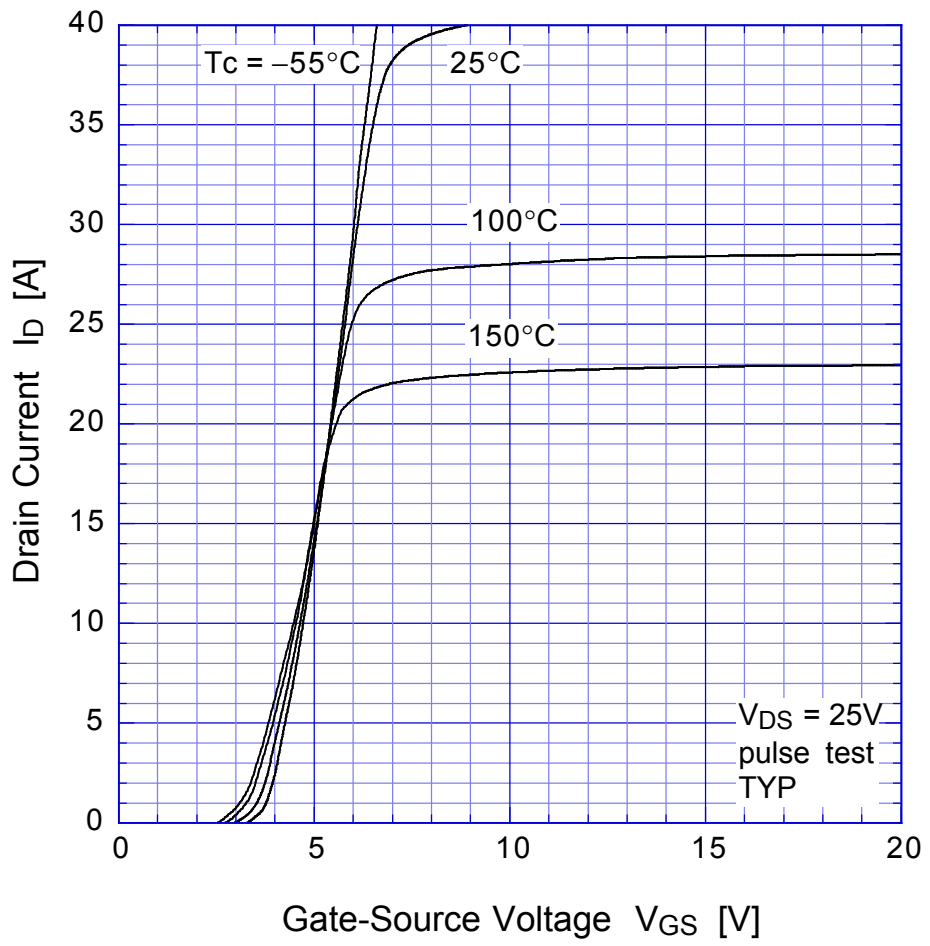
OUTLINE DIMENSIONS



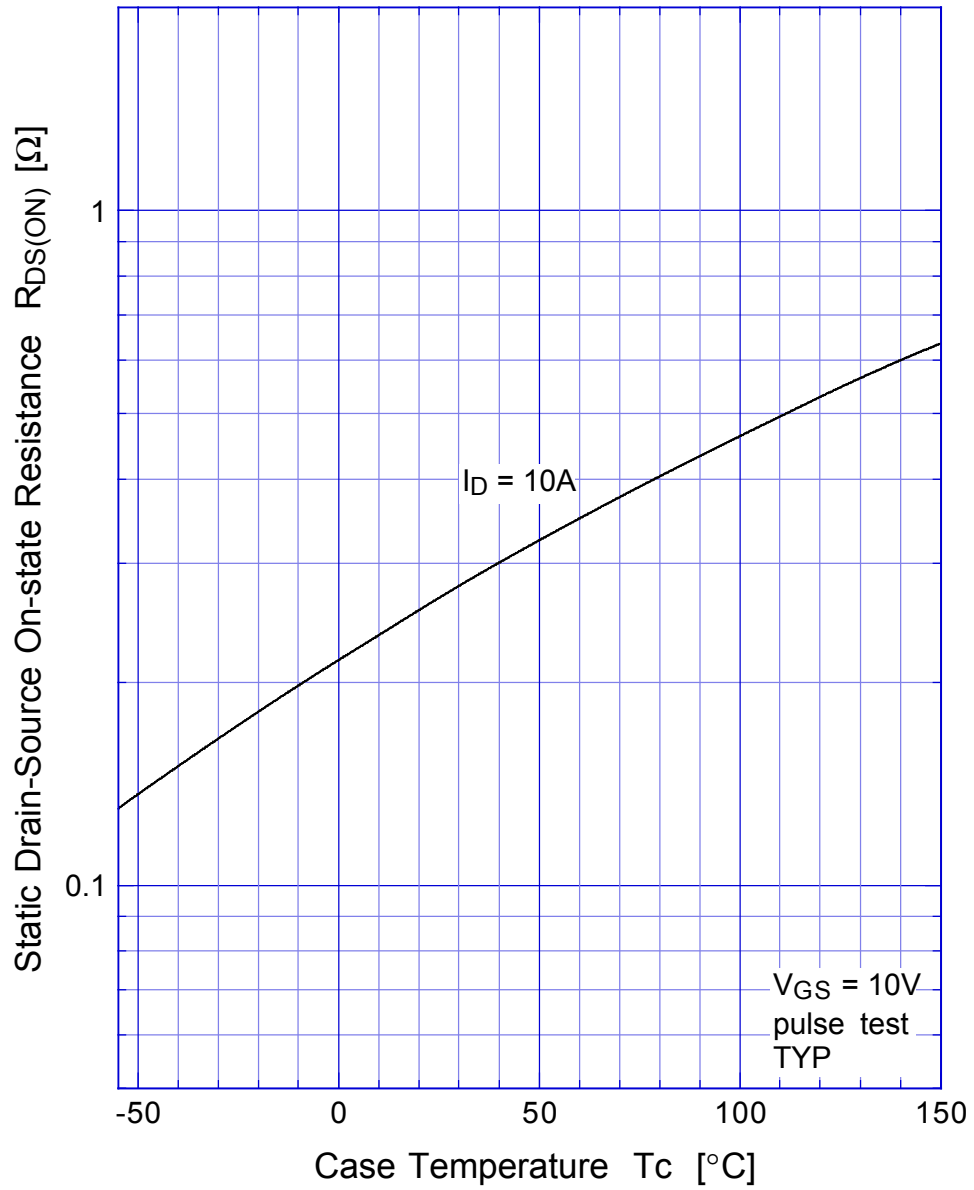
●Electrical Characteristics Tc = 25°C

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	μA
Gate-Source Leakage Current	I_{GSS}	$V_{GS} = \pm 30V, V_{DS} = 0V$			± 0.1	
Forward Transconductance	g_{fs}	$I_D = 10A, V_{DS} = 10V$	6	15		S
Static Drain-Source On-state Resistance	$R_{DS(ON)}$	$I_D = 10A, V_{GS} = 10V$		0.27	0.35	Ω
Gate Threshold Voltage	V_{TH}	$I_D = 1mA, V_{DS} = 10V$	2.5	3.0	3.5	V
Source-Drain Diode Forwade Voltage	V_{SD}	$I_S = 10A, V_{GS} = 0V$			1.5	
Thermal Resistance	θ_{jc}	junction to case			1.78	$^{\circ}C/W$
Total Gate Charge	Q_g	$V_{DD} = 400V, V_{GS} = 10V, I_D = 20A$		85		nC
Input Capacitance	C_{iss}	$V_{DS} = 10V, V_{GS} = 0V, f = 1MHz$		2400		pF
Reverse Transfer Capacitance	C_{rss}			170		
Output Capacitance	C_{oss}			500		
Turn-On Time	t_{on}	$I_D = 10A, V_{GS} = 10V, R_L = 15\Omega$		135	225	ns
Turn-Off Time	t_{off}			340	565	

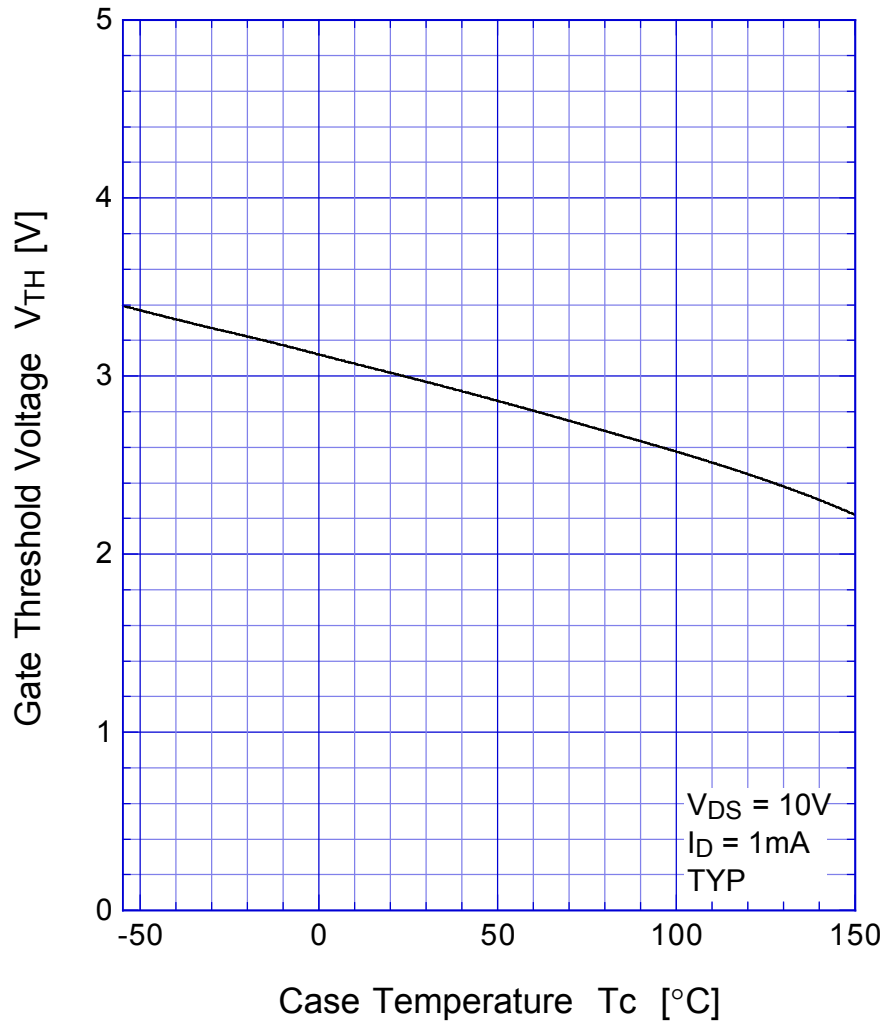
2SK2197 Transfer Characteristics



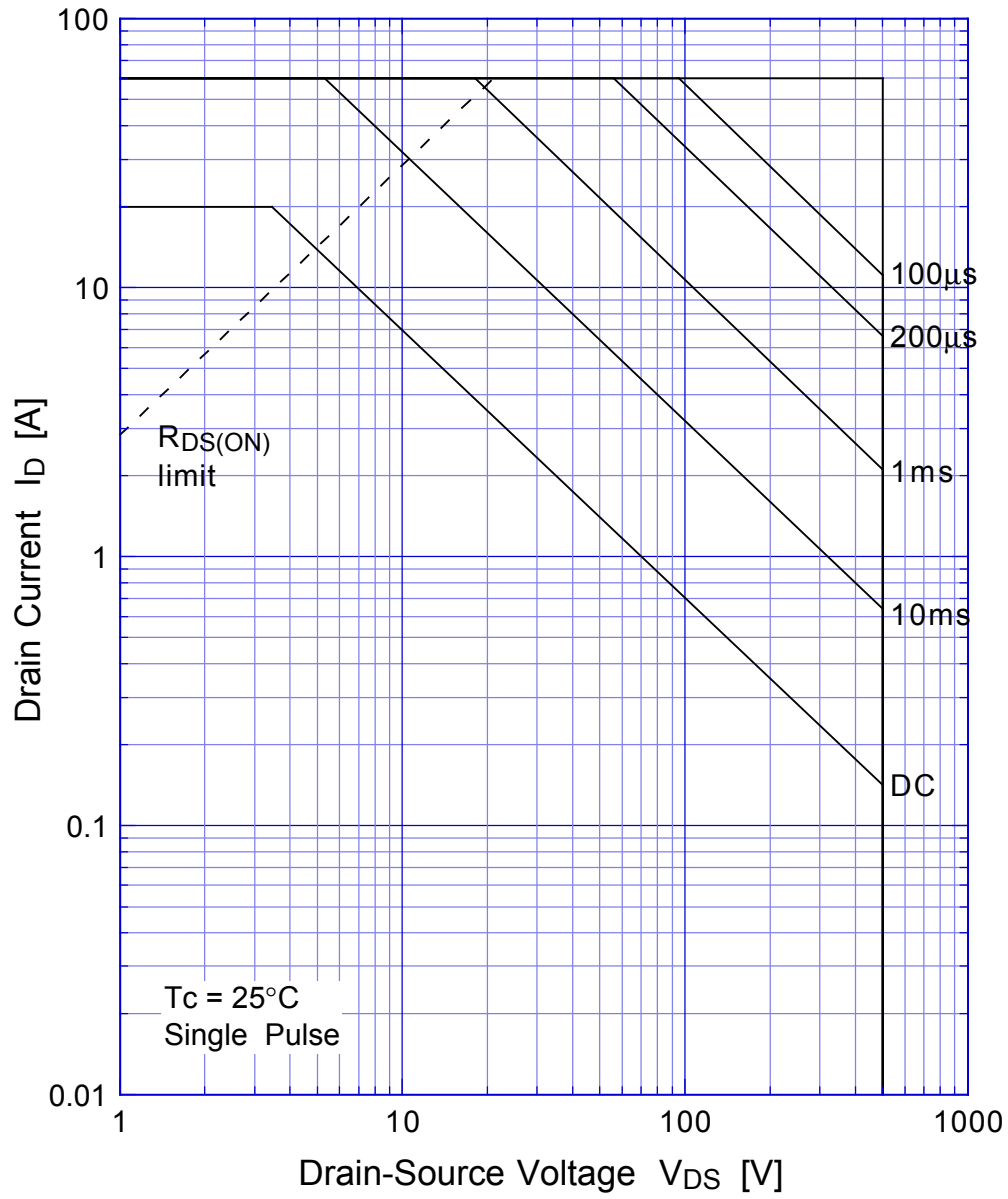
2SK2197 Static Drain-Source On-state Resistance



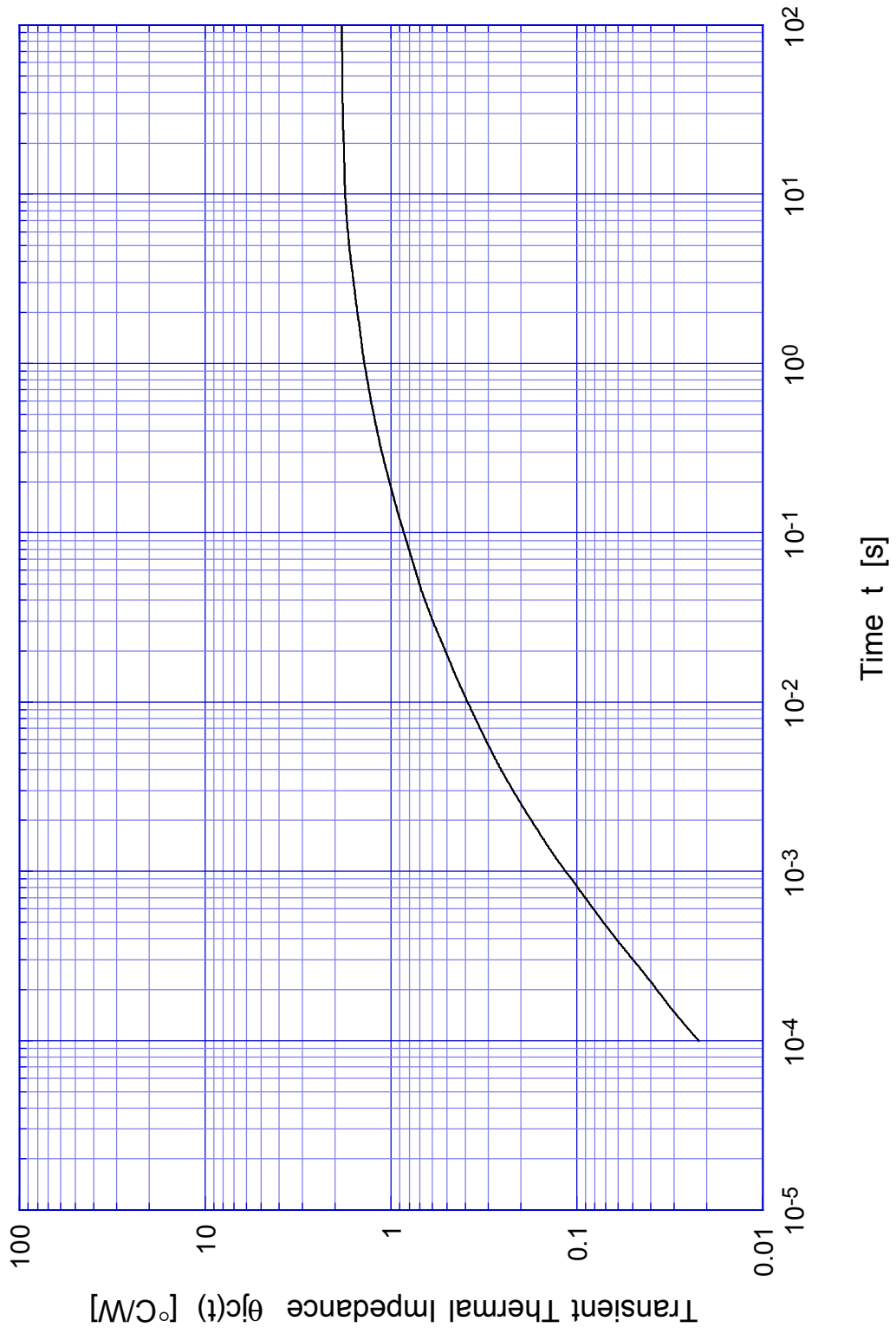
2SK2197 Gate Threshold Voltage



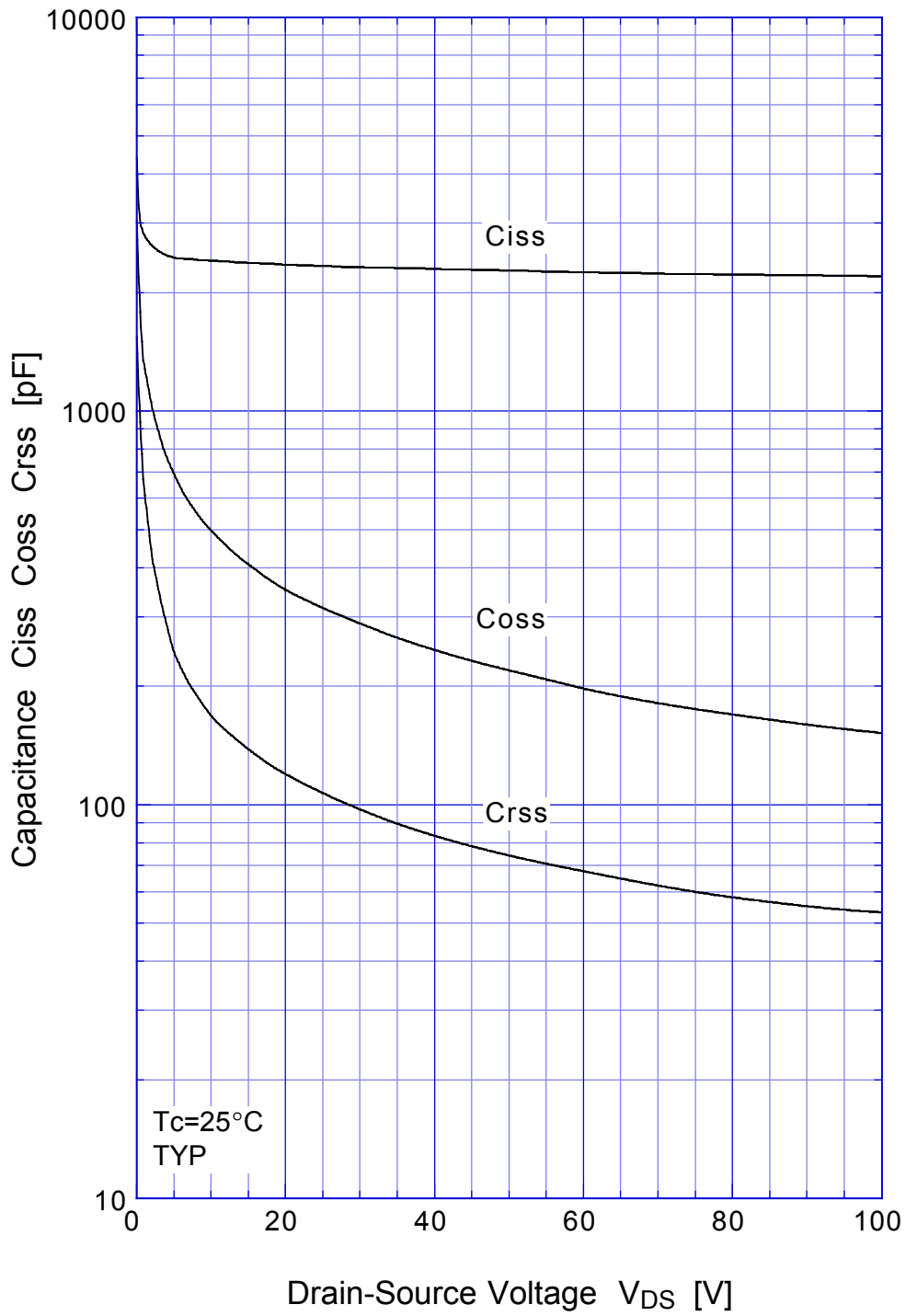
2SK2197 Safe Operating Area



2SK2197 Transient Thermal Impedance

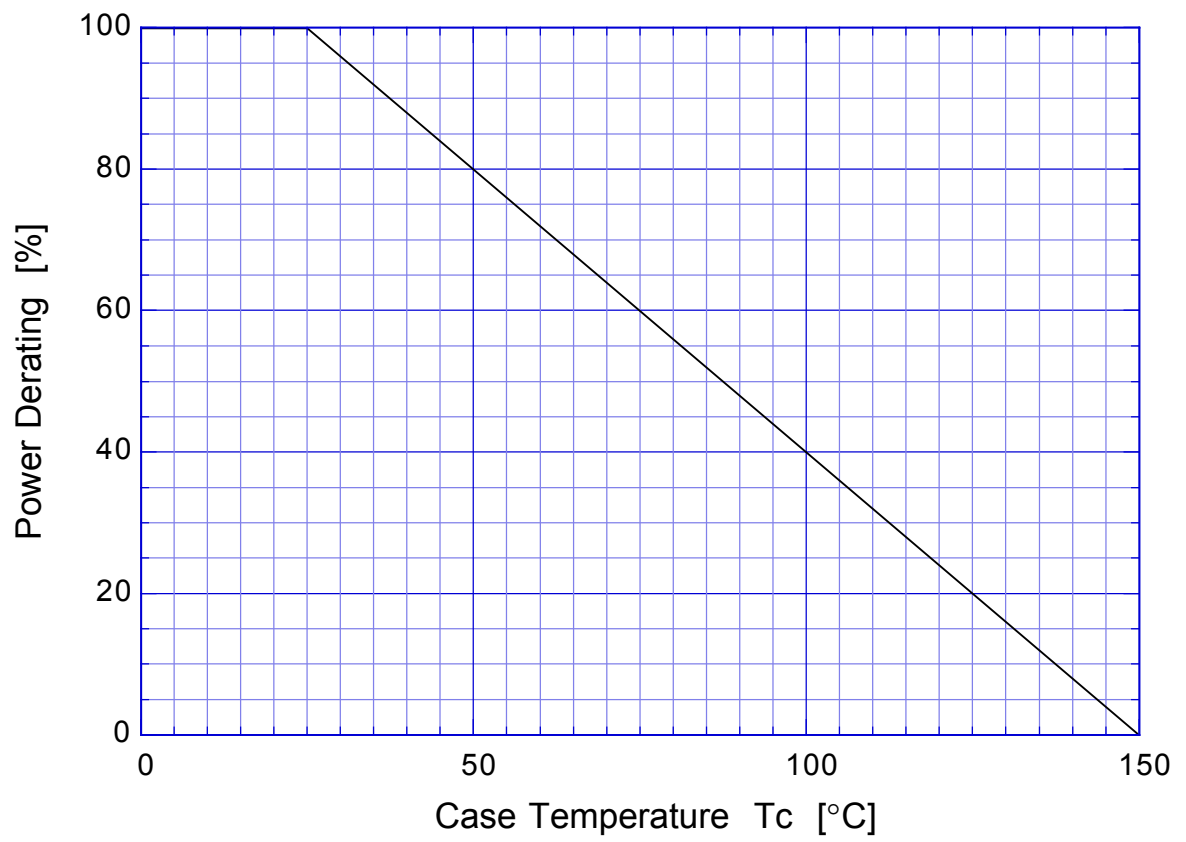


2SK2197 Capacitance



2SK2197

Power Derating



2SK2197 Gate Charge Characteristics

