

HVX-2 Series Power MOSFET

N-Channel Enhancement type

2SK2670

(F5S90HVX2)

900V 5A

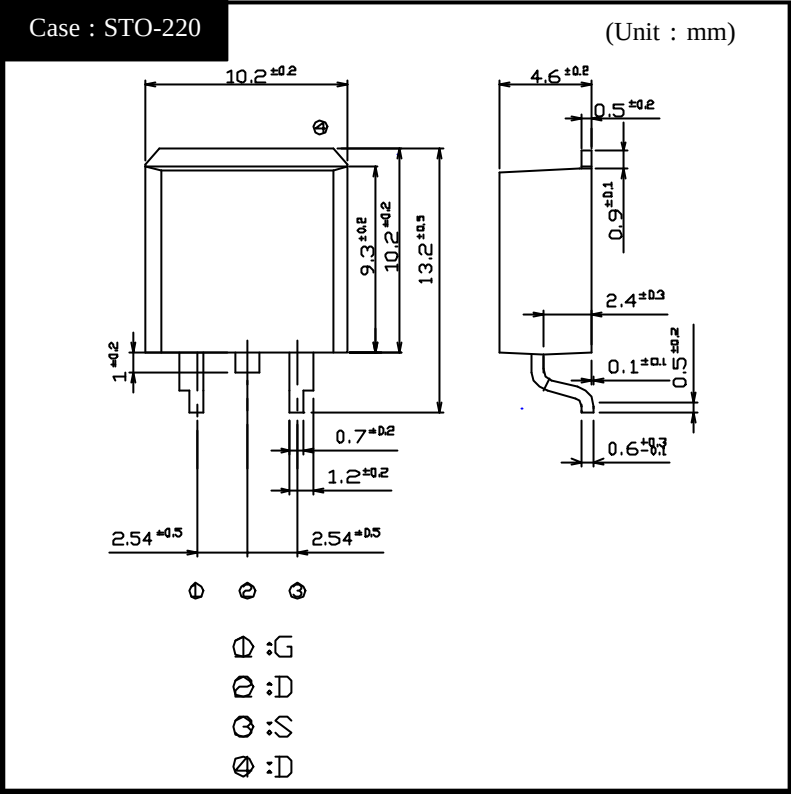
FEATURES

- Input capacitance (Ciss) is small.
Especially, input capacitance at 0 bias is small.
- The static Rds(on) is small.
- The switching time is fast.
- Avalanche resistance guaranteed.

APPLICATION

- Switching power supply of AC 240V input
- High voltage power supply
- Inverter

OUTLINE DIMENSIONS



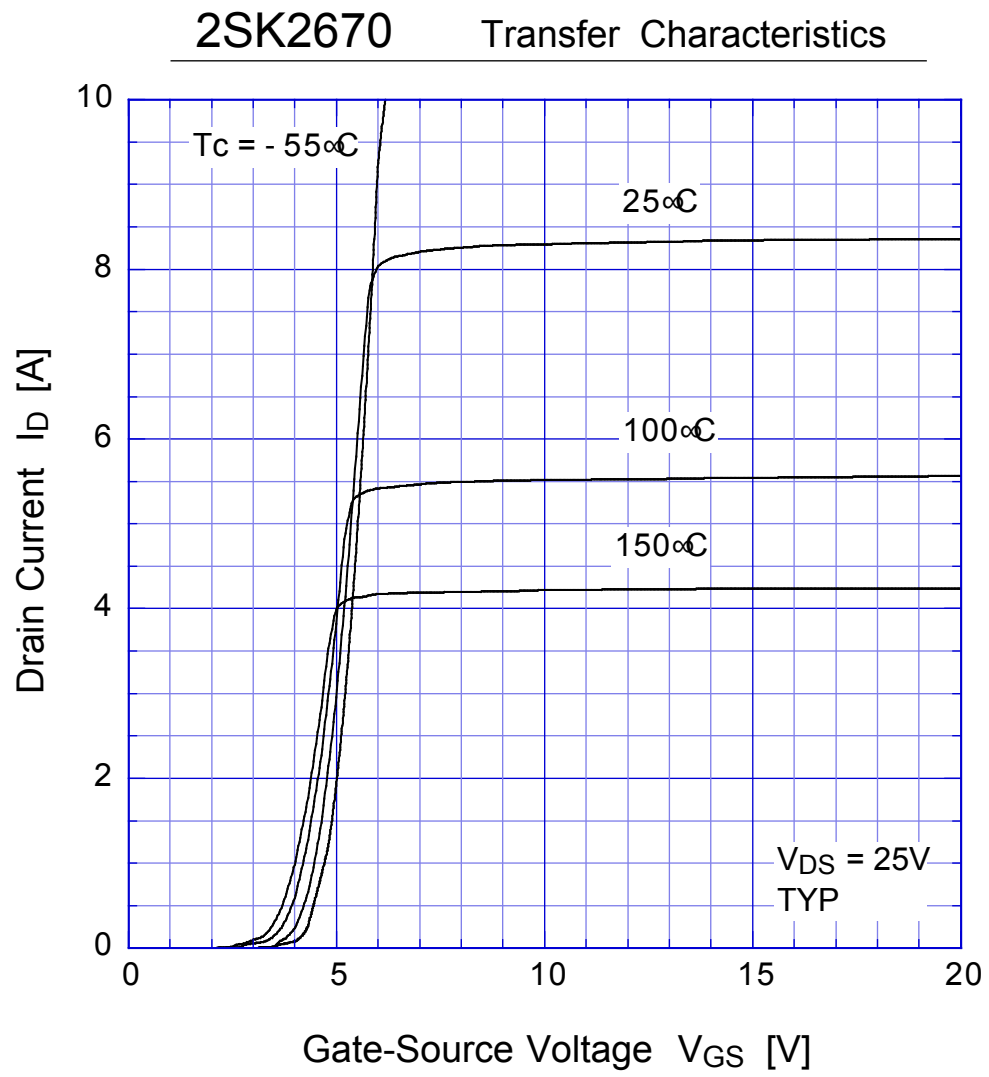
RATINGS

● Absolute Maximum Ratings $T_c = 25^{\circ}\text{C}$

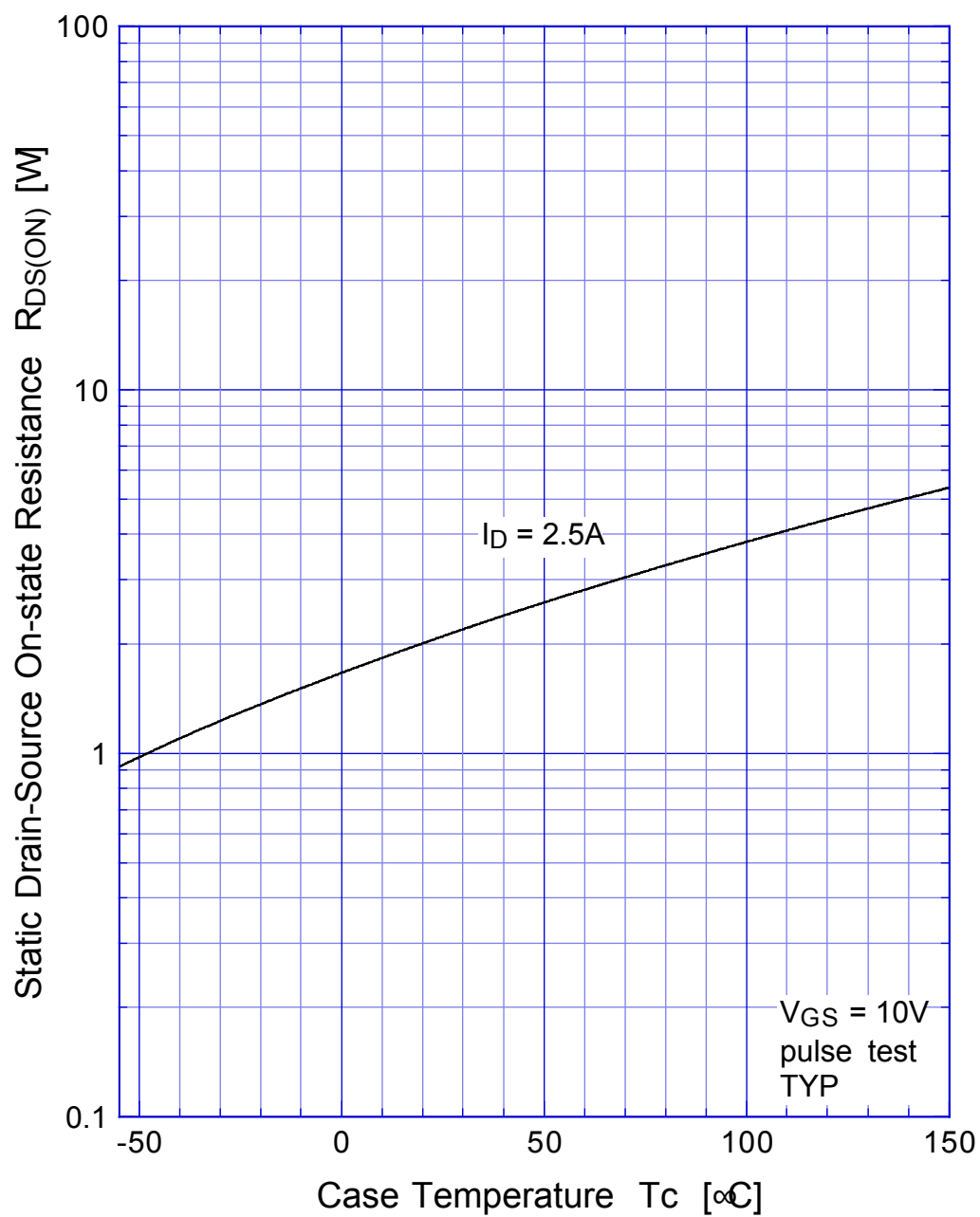
Item	Symbol	Conditions	Ratings	Unit
Storage Temperature	T_{stg}		-55~150	$^{\circ}\text{C}$
Channel Temperature	T_{ch}		150	
Drain-Source Voltage	V_{DSS}		900	V
Gate-Source Voltage	V_{GSS}		± 30	
Continuous Drain Current (DC)	I_{D}		5	A
Continuous Drain Current (Peak)	I_{DP}	Pulse width $\leq 10\ \mu\text{s}$, Duty cycle $\leq 1/100$	10	
Continuous Source Current (DC)	I_{S}		5	
Total Power Dissipation	P_{T}		60	W
Repetitive Avalanche Current	I_{AR}	$T_{\text{ch}} = 150^{\circ}\text{C}$	5	A
Single Avalanche Energy	E_{AS}	$T_{\text{ch}} = 25^{\circ}\text{C}$	100	
Repetitive Avalanche Energy	E_{AR}	$T_{\text{ch}} = 25^{\circ}\text{C}$	10	

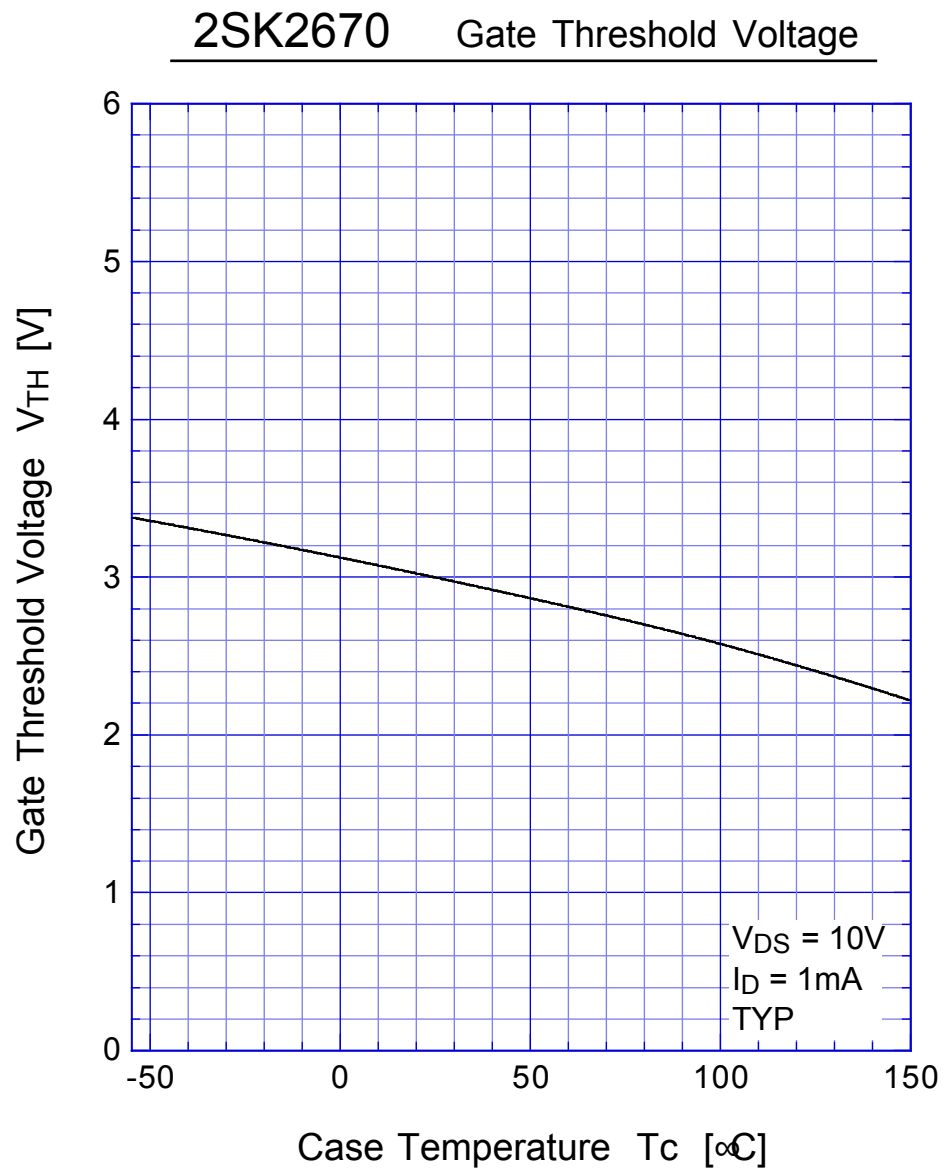
●Electrical Characteristics $T_c = 25^{\circ}\text{C}$

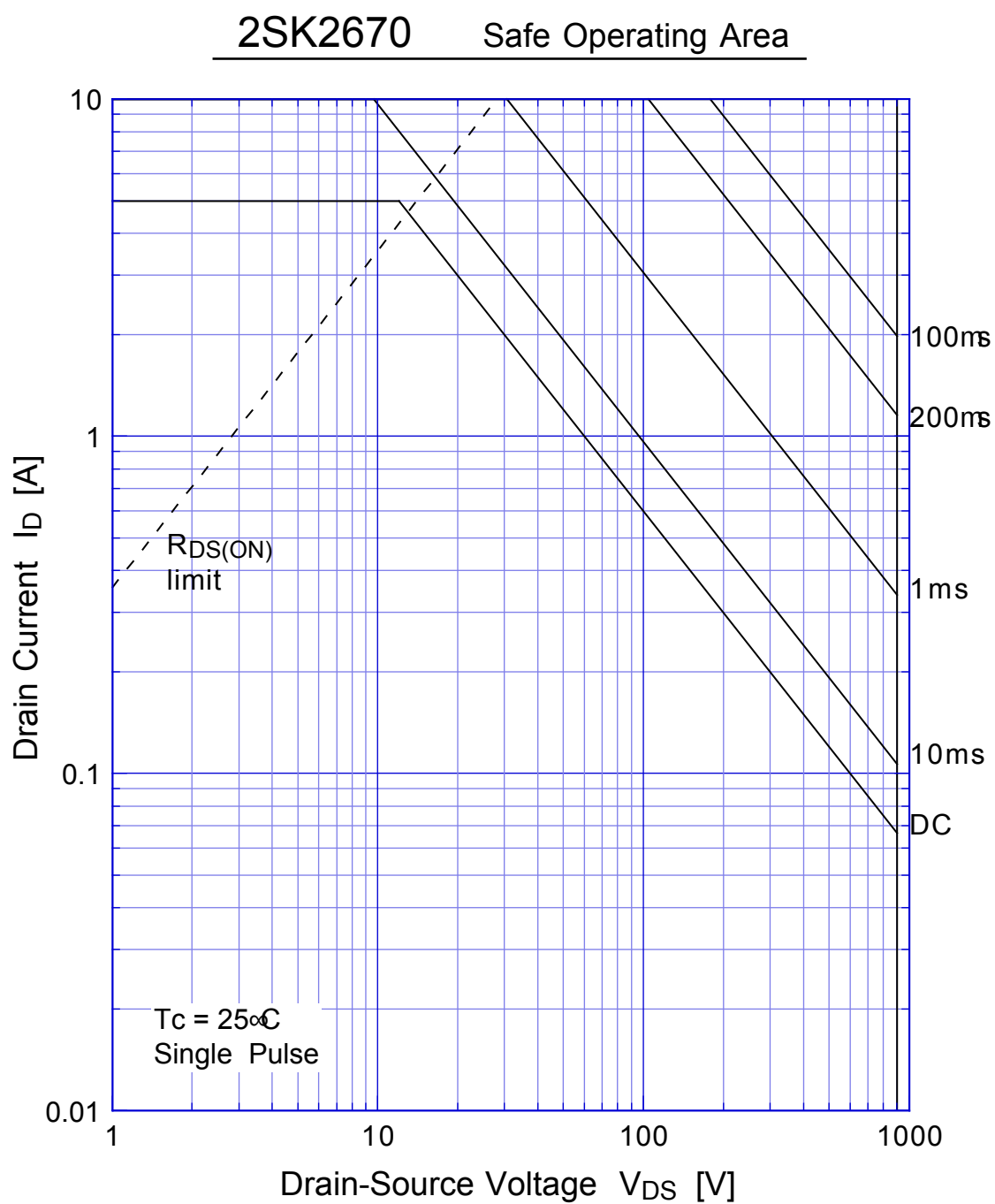
Item	Symbol	Conditions	Min.	Typ.	Max.	Unit
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D = 1\text{mA}$, $V_{GS} = 0\text{V}$	900			V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 900\text{V}$, $V_{GS} = 0\text{V}$			250	μA
Gate-Source Leakage Current	I_{GSS}	$V_{GS} = \pm 30\text{V}$, $V_{DS} = 0\text{V}$			± 0.1	
Forward Transconductance	g_{fs}	$I_D = 2.5\text{A}$, $V_{DS} = 10\text{V}$	2.4	4.0		S
Static Drain-Source On-state Resistance	$R_{DS(ON)}$	$I_D = 2.5\text{A}$, $V_{GS} = 10\text{V}$		2.1	2.8	Ω
Gate Threshold Voltage	V_{TH}	$I_D = 1\text{mA}$, $V_{DS} = 10\text{V}$	2.5	3.0	3.5	V
Source-Drain Diode Forward Voltage	V_{SD}	$I_S = 2.5\text{A}$, $V_{GS} = 0\text{V}$			1.5	
Thermal Resistance	θ_{jc}	junction to case			2.08	$^{\circ}\text{C}/\text{W}$
Total Gate Charge	Q_g	$V_{DD} = 400\text{V}$, $V_{GS} = 10\text{V}$, $I_D = 5\text{A}$		45		nC
Input Capacitance	C_{iss}	$V_{DS} = 25\text{V}$, $V_{GS} = 0\text{V}$, $f = 1\text{MHz}$		1140		pF
Reverse Transfer Capacitance	C_{rss}			23		
Output Capacitance	C_{oss}			105		
Turn-On Time	t_{on}	$I_D = 2.5\text{A}$, $V_{GS} = 10\text{V}$, $R_L = 60\Omega$		55	100	ns
Turn-Off Time	t_{off}			210	350	



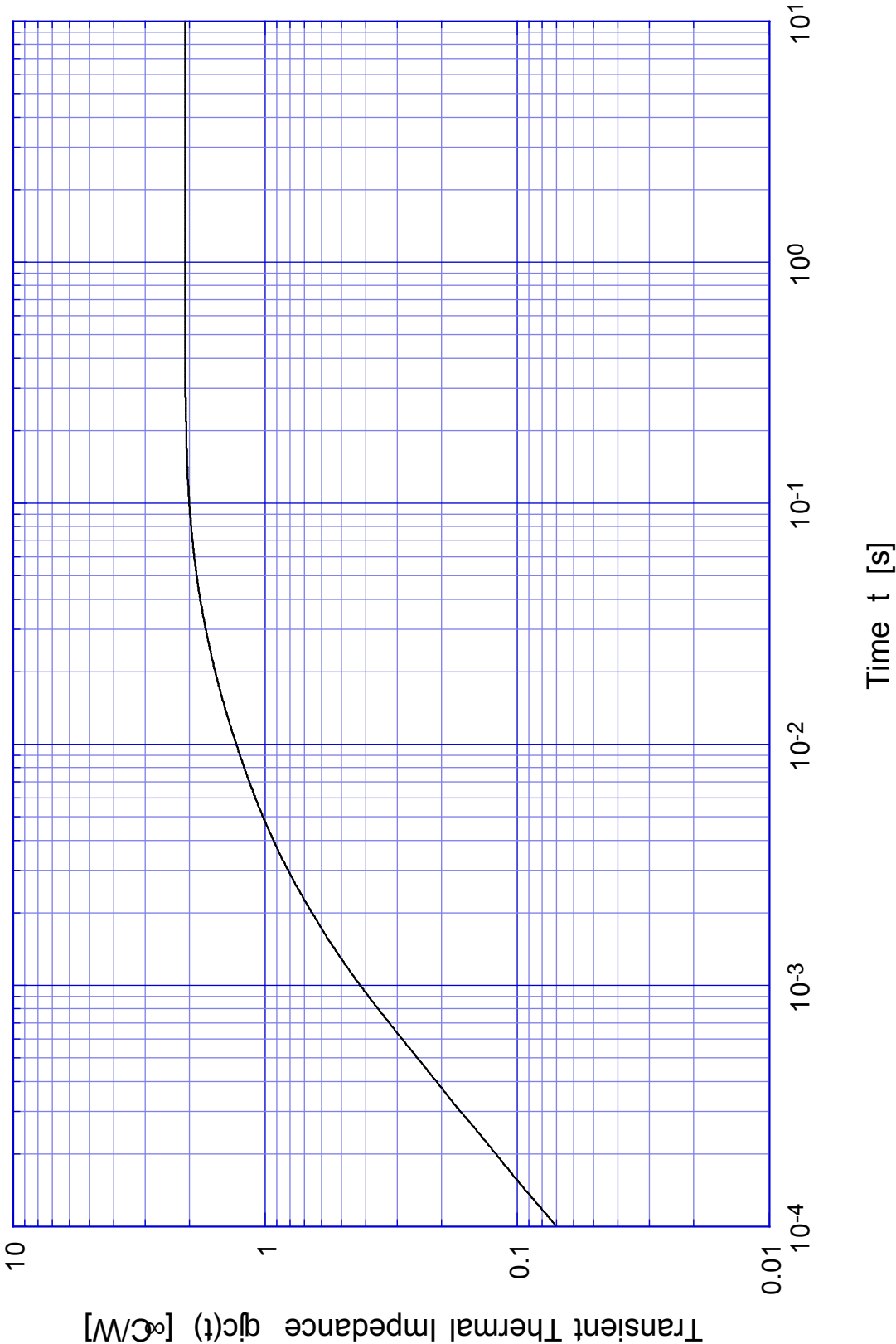
2SK2670 Static Drain-Source On-state Resistance



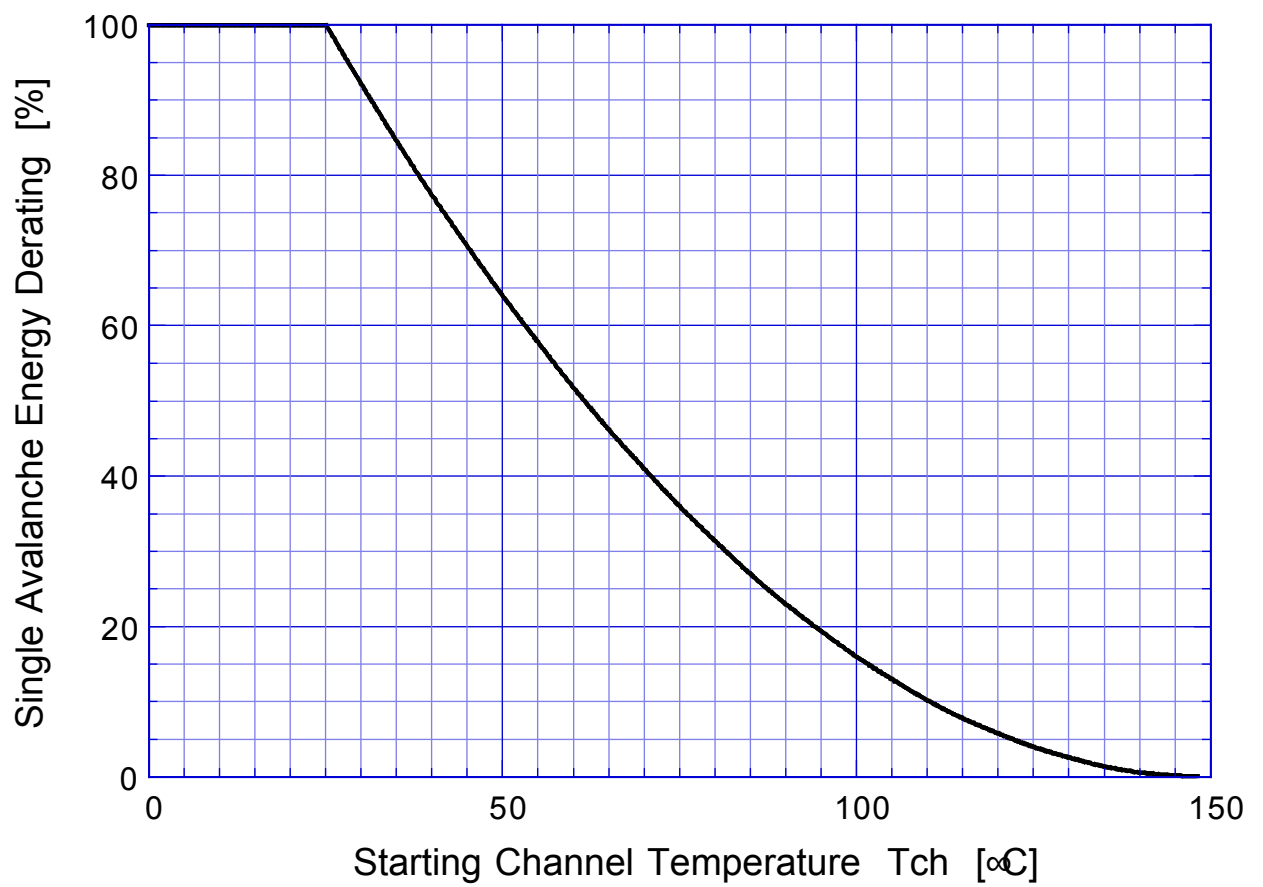




2SK2670 Transient Thermal Impedance

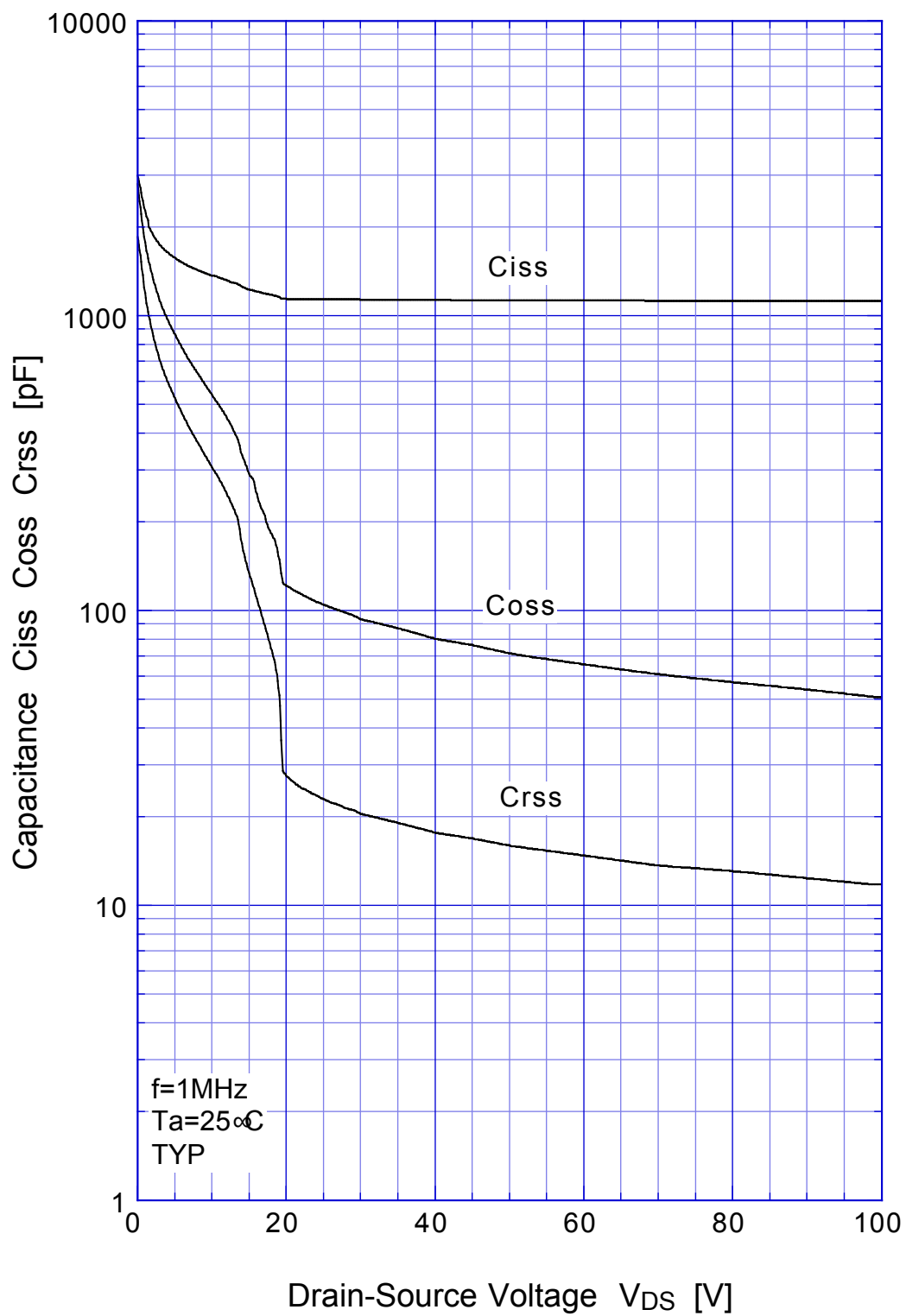


2SK2670 Single Avalanche Energy Derating

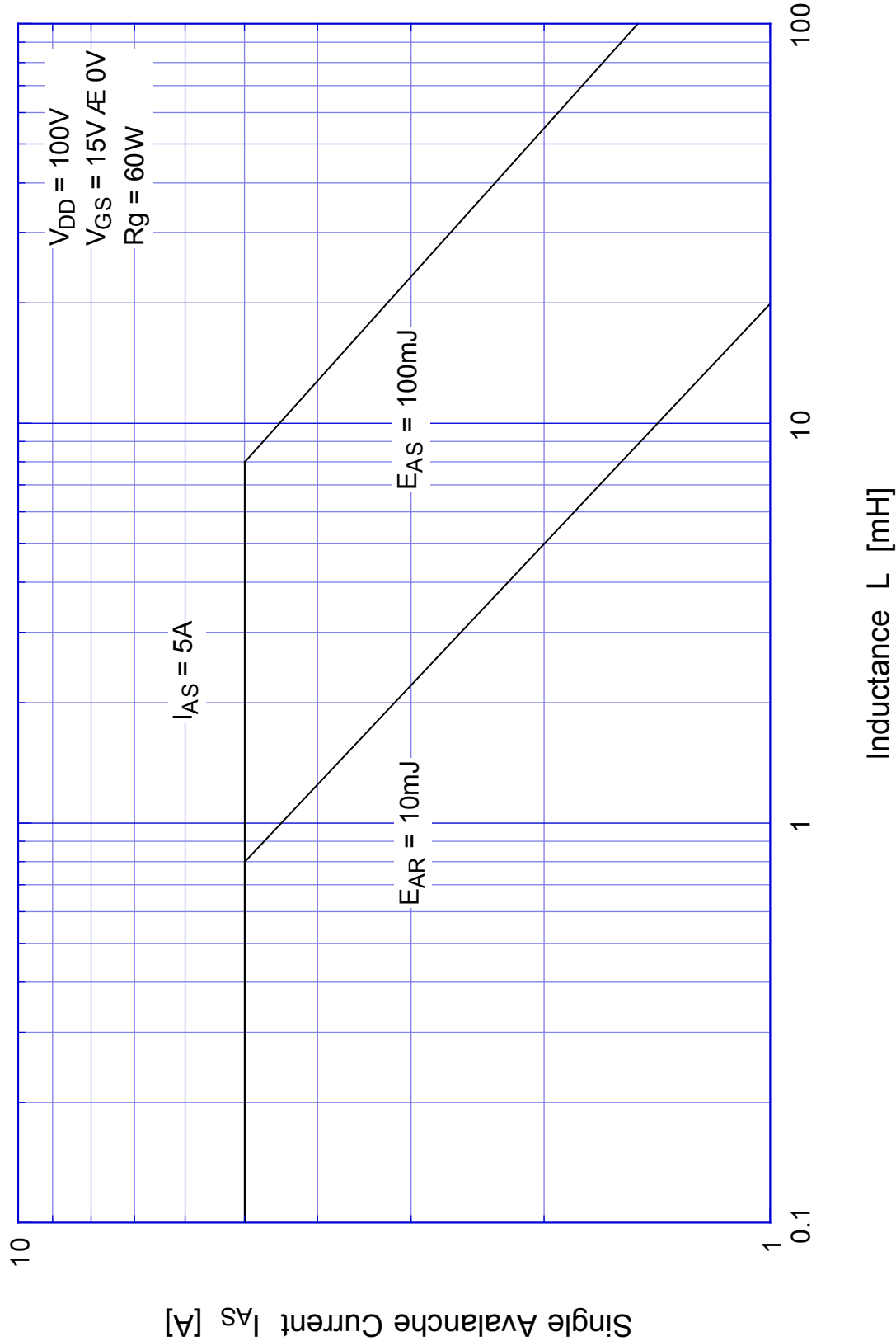


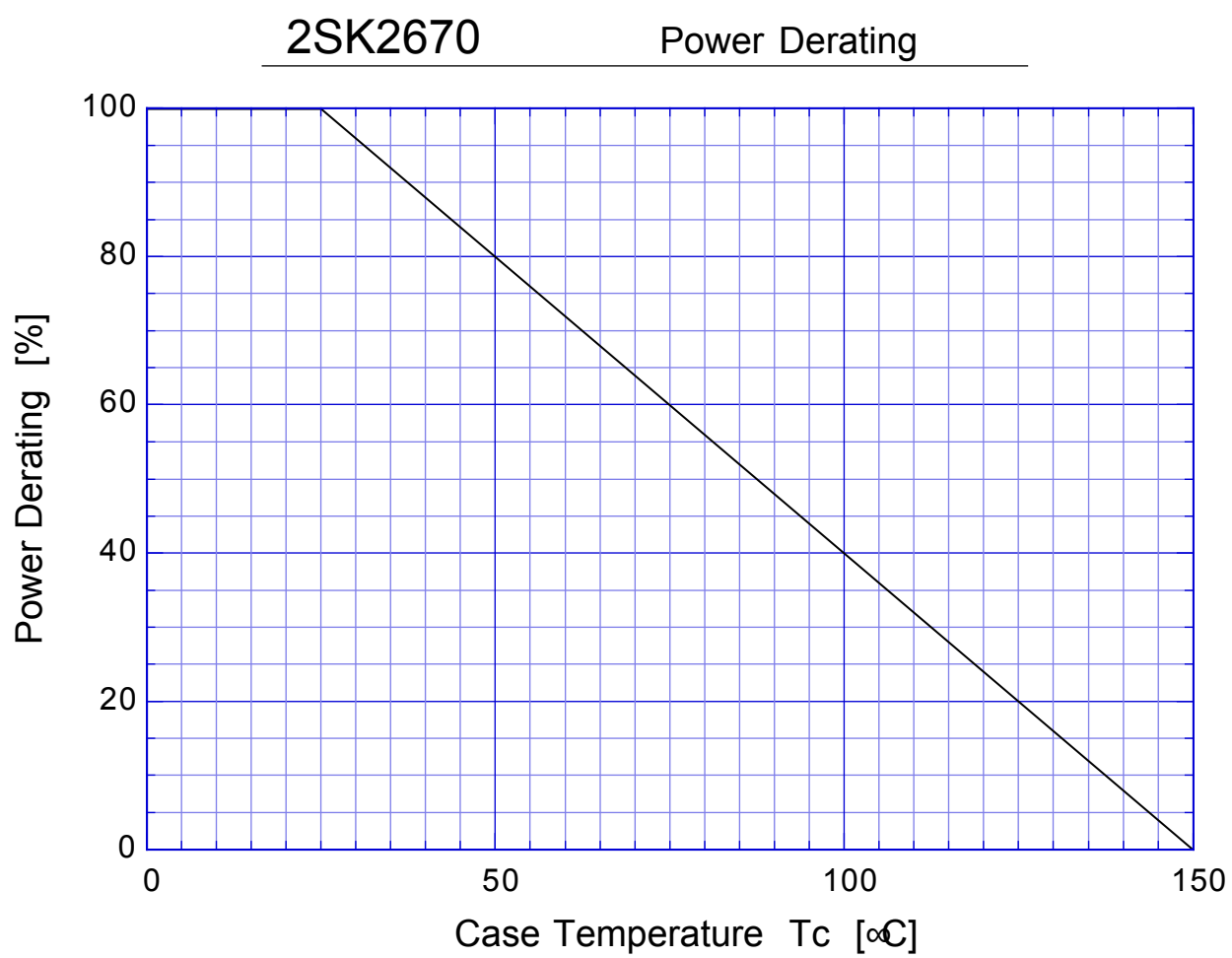
2SK2670

Capacitance



2SK2670 Single Avalanche Current - Inductive Load





2SK2670 Gate Charge Characteristics

