

HVX-2 Series Power MOSFET

N-Channel Enhancement type

2SK2665
(F3S90HVX2)

900V 3A

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.
- Avalanche resistance guaranteed.

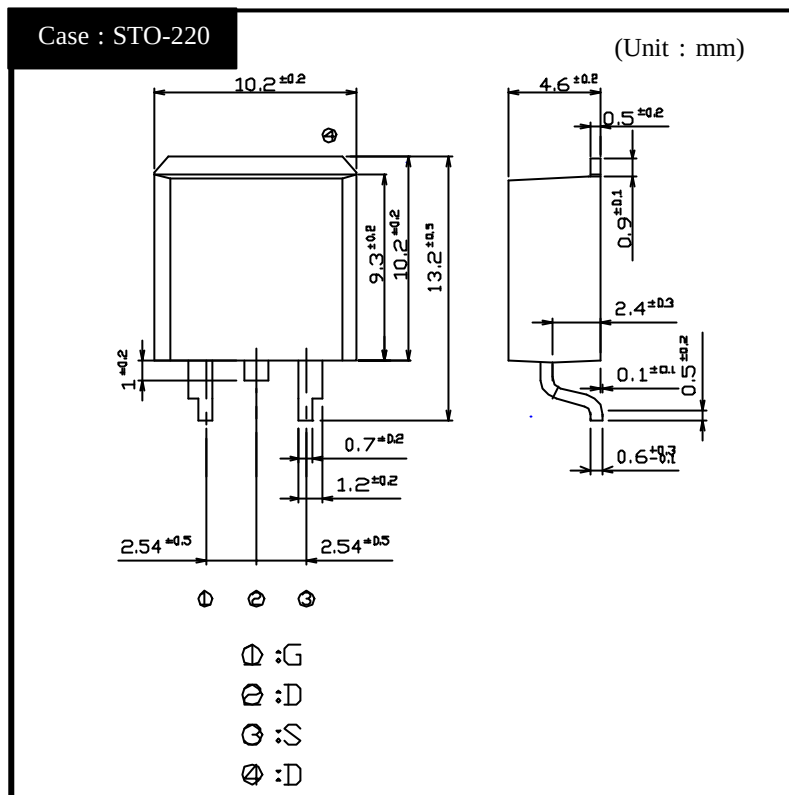
APPLICATION

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

OUTLINE DIMENSIONS

Case : STO-220

(Unit : mm)



RATINGS

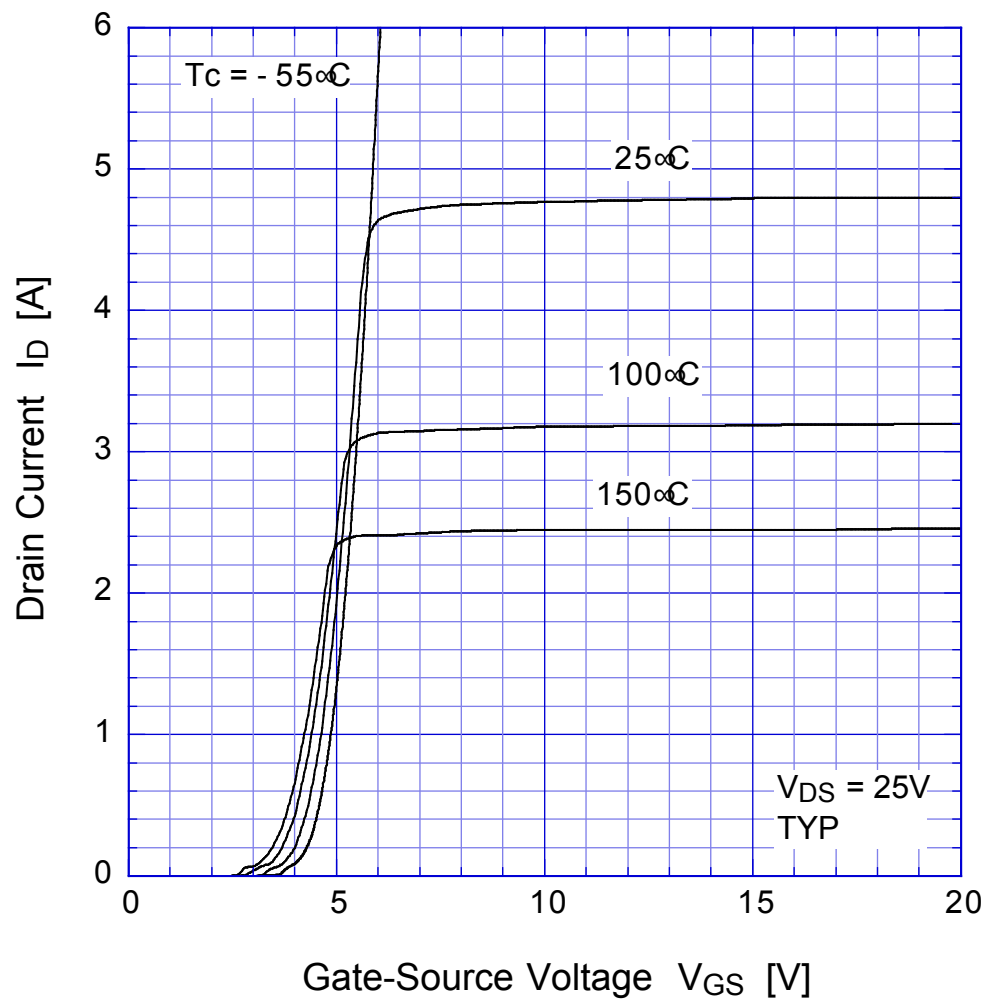
● Absolute Maximum Ratings $T_c = 25^\circ\text{C}$

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		3	A
Continuous Drain Current (Peak)	I_{DP}	Pulse width $\leq 10 \mu\text{s}$, Duty cycle $\leq 1/100$	6	
Continuous Source Current (DC)	I_S		3	
Total Power Dissipation	P_T		50	W
Repetitive Avalanche Current	I_{AR}	$T_{ch} = 150^\circ\text{C}$	3	A
Single Avalanche Energy	E_{AS}	$T_{ch} = 25^\circ\text{C}$	48	mJ
Repetitive Avalanche Energy	E_{AR}	$T_{ch} = 25^\circ\text{C}$	4.8	

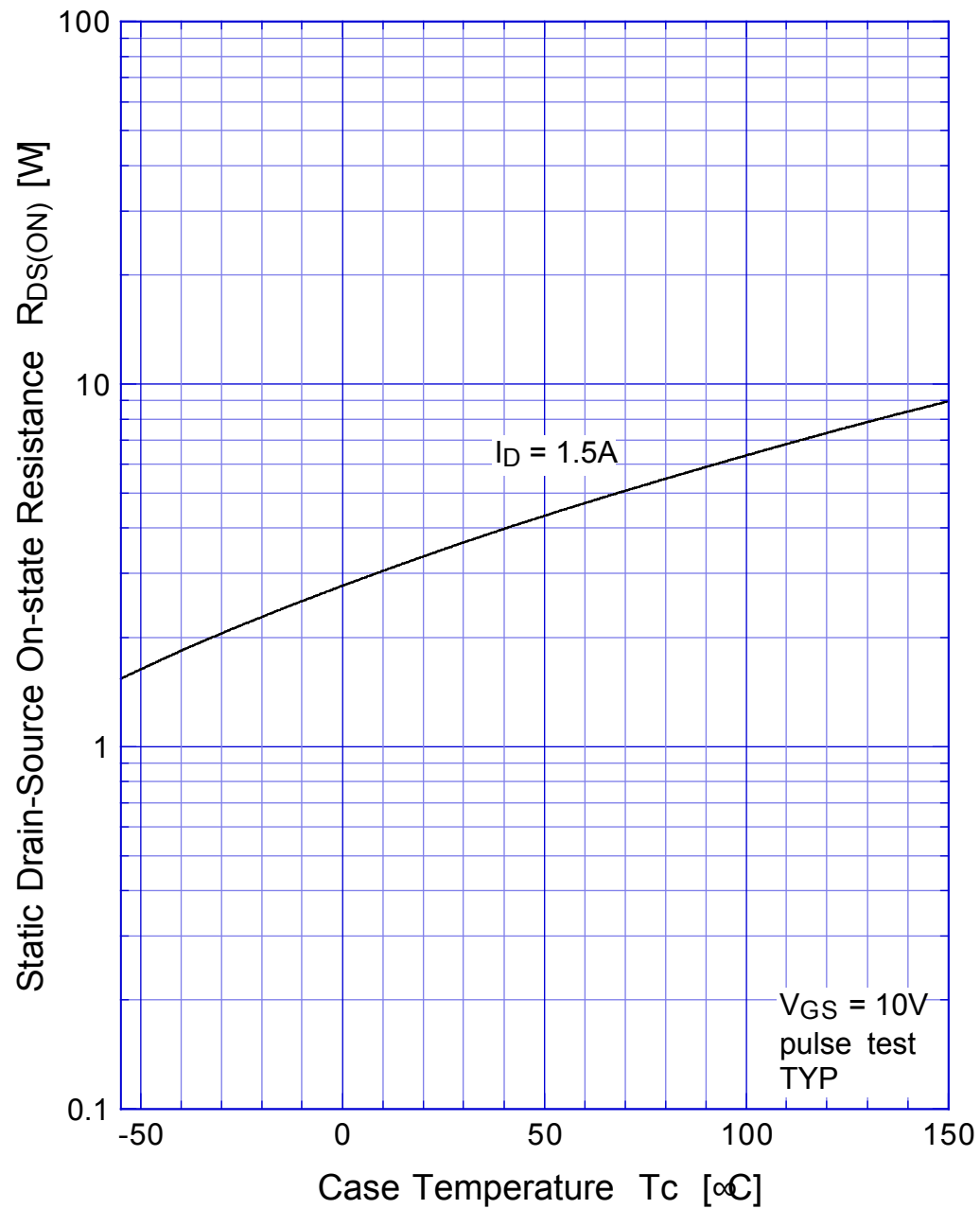
●Electrical Characteristics $T_c = 25^{\circ}\text{C}$

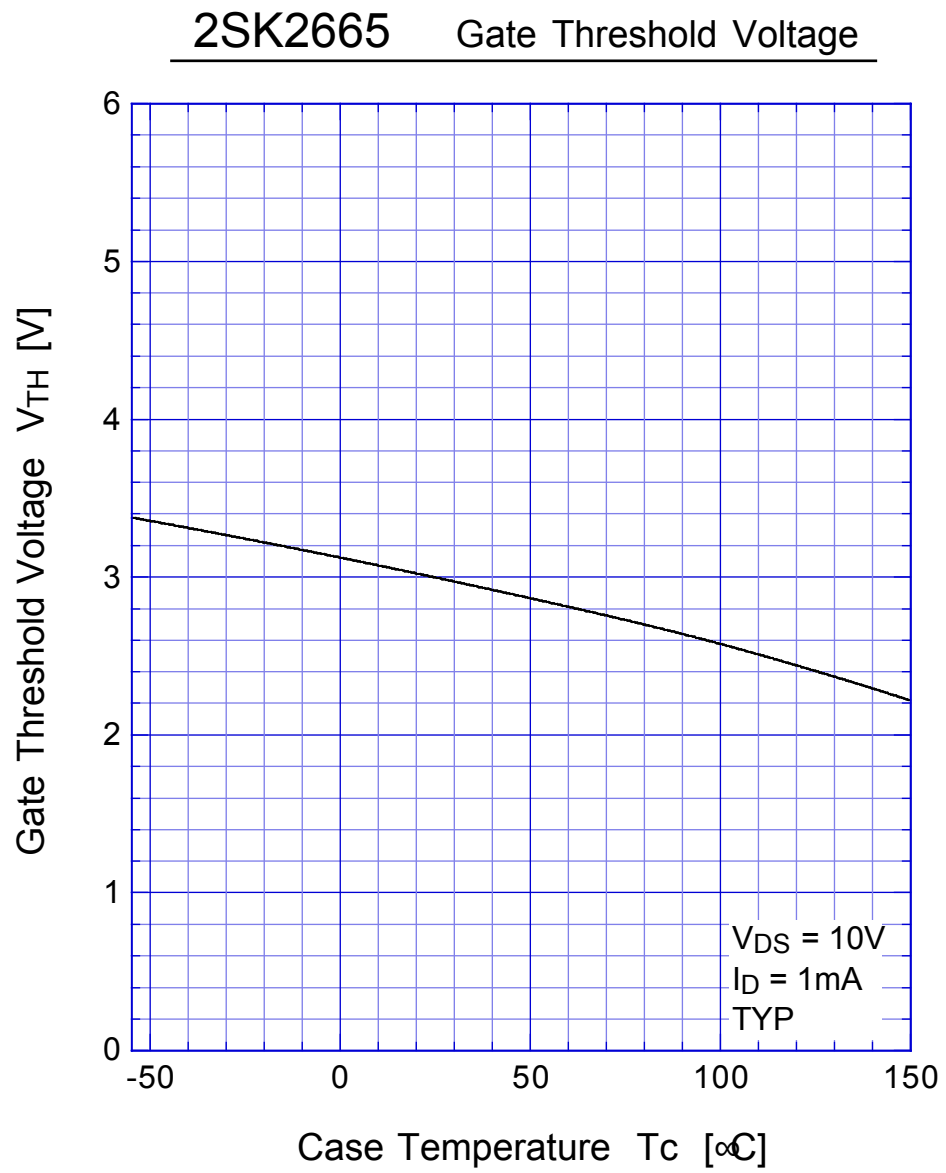
Item	Symbol	Conditions	Min.	Typ.	Max.	Unit
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D = 1\text{mA}$, $V_{GS} = 0\text{V}$	900			V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 900\text{V}$, $V_{GS} = 0\text{V}$			250	μA
Gate-Source Leakage Current	I_{GSS}	$V_{GS} = \pm 30\text{V}$, $V_{DS} = 0\text{V}$			± 0.1	
Forward Transconductance	g_{fs}	$I_D = 1.5\text{A}$, $V_{DS} = 10\text{V}$	1.5	2.5		S
Static Drain-Source On-state Resistance	$R_{DS(ON)}$	$I_D = 1.5\text{A}$, $V_{GS} = 10\text{V}$		3.5	4.7	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}	$I_S = 1.5\text{A}$, $V_{GS} = 0\text{V}$			1.5	
Thermal Resistance	θ_{jc}	junction to case			2.5	$^{\circ}\text{C/W}$
Total Gate Charge	Q_g	$V_{DD} = 400\text{V}$, $V_{GS} = 10\text{V}$, $I_D = 3\text{A}$		30		nC
Input Capacitance	C_{iss}	$V_{DS} = 25\text{V}$, $V_{GS} = 0\text{V}$, $f = 1\text{MHz}$		630		pF
Reverse Transfer Capacitance	C_{rss}			16		
Output Capacitance	C_{oss}			67		
Turn-On Time	t_{on}	$I_D = 1.5\text{A}$, $V_{DD} = 150\text{V}$, $R_L = 100\Omega$		40	70	ns
Turn-Off Time	t_{off}			140	230	

2SK2665 Transfer Characteristics

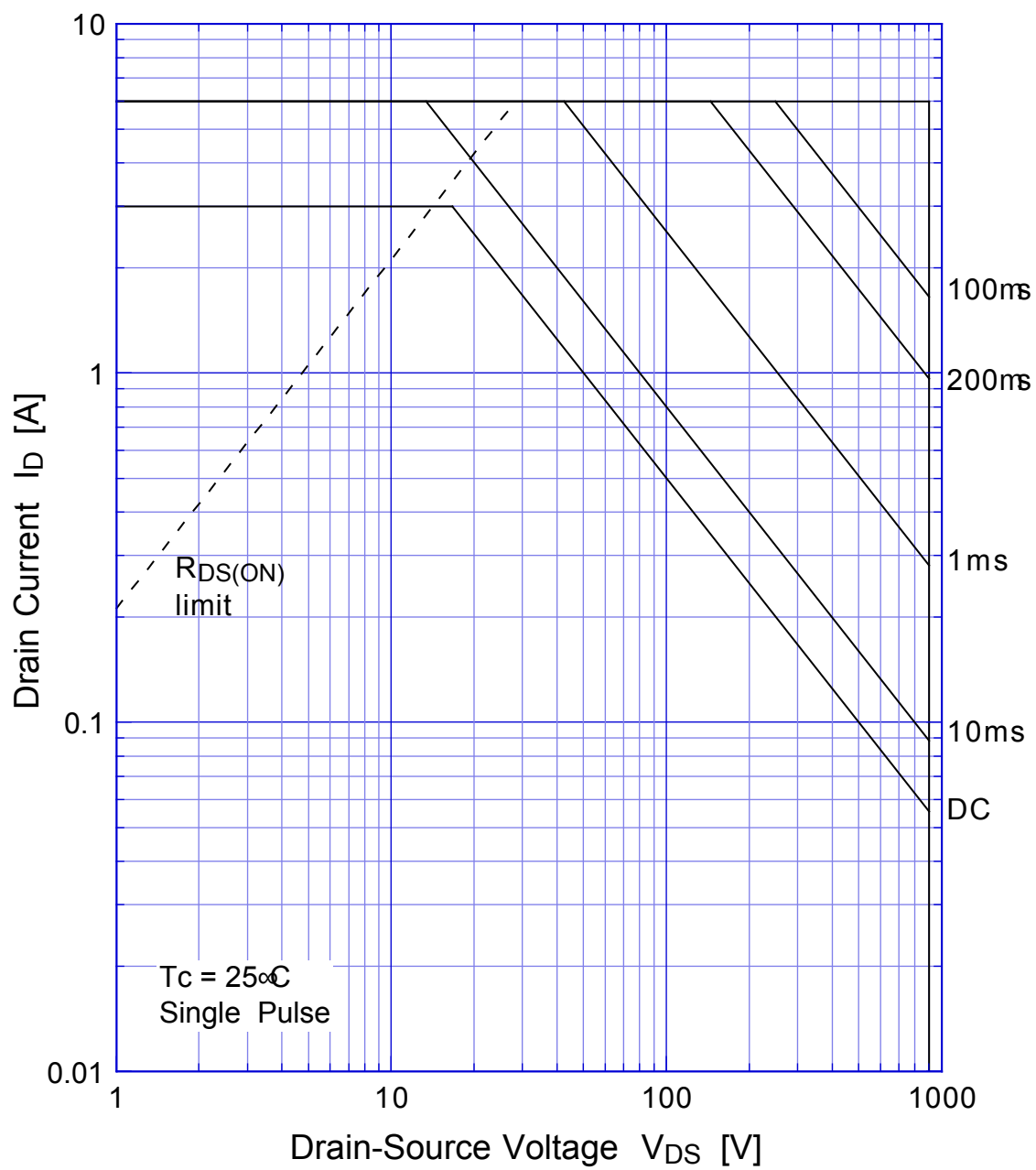


2SK2665 Static Drain-Source On-state Resistance

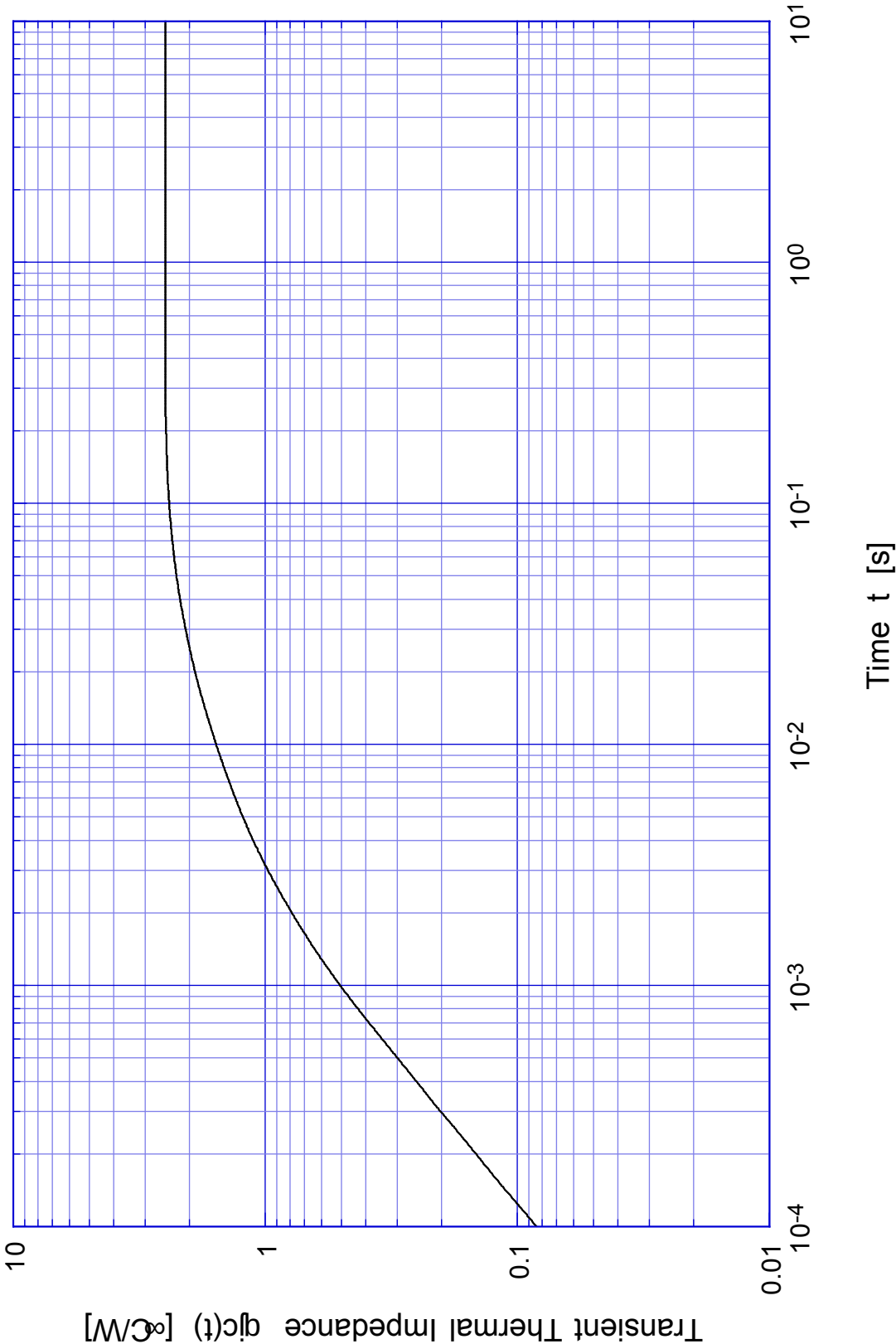




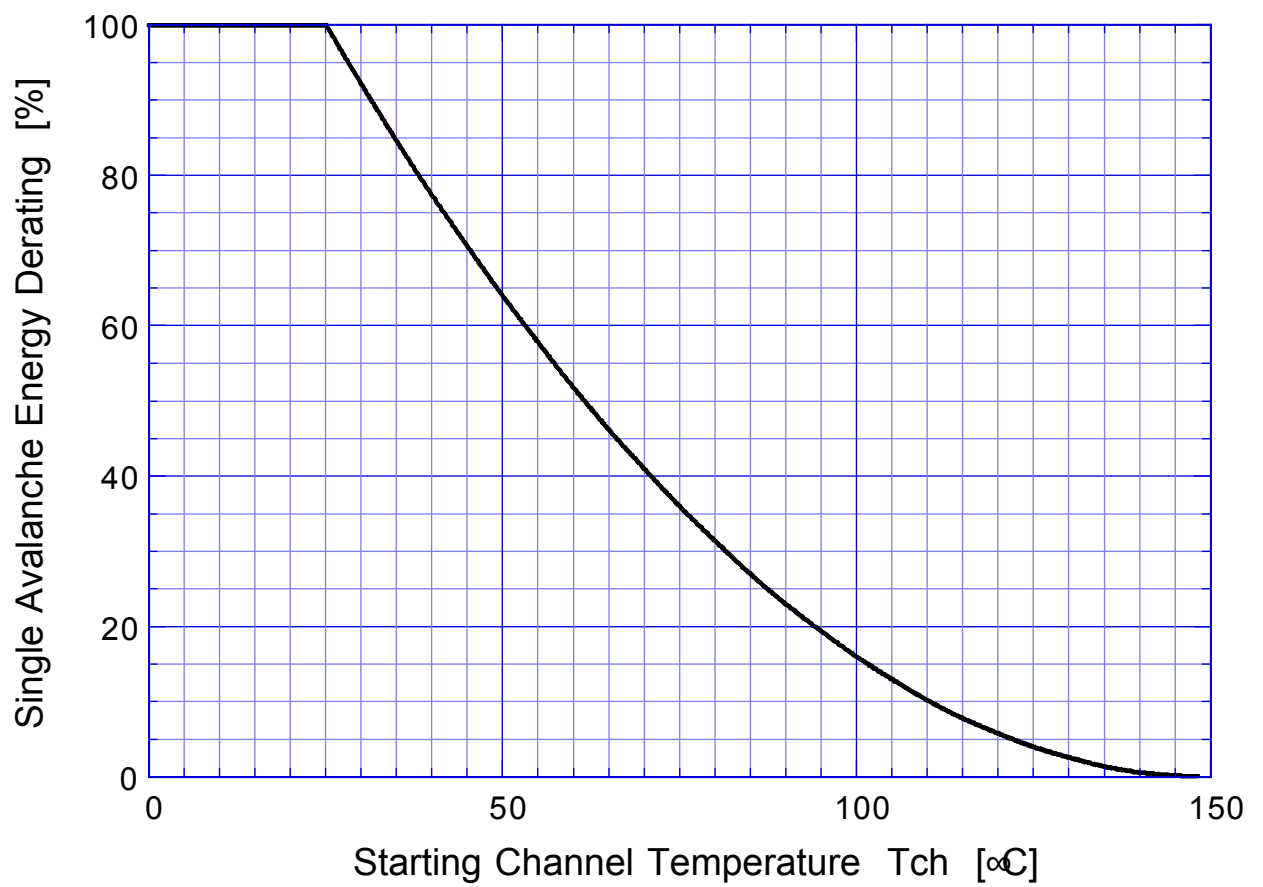
2SK2665 Safe Operating Area



2SK2665 Transient Thermal Impedance

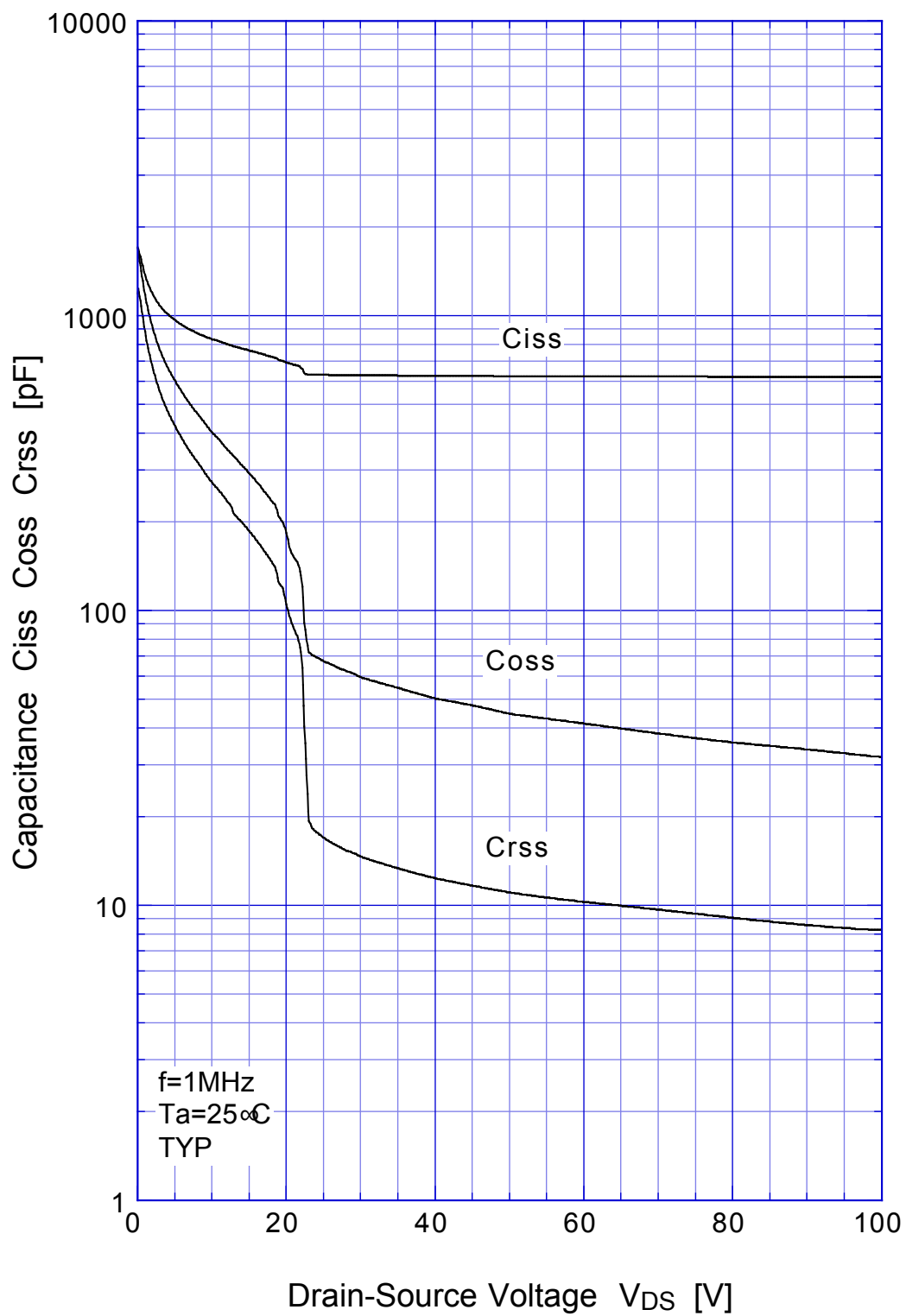


2SK2665 Single Avalanche Energy Derating

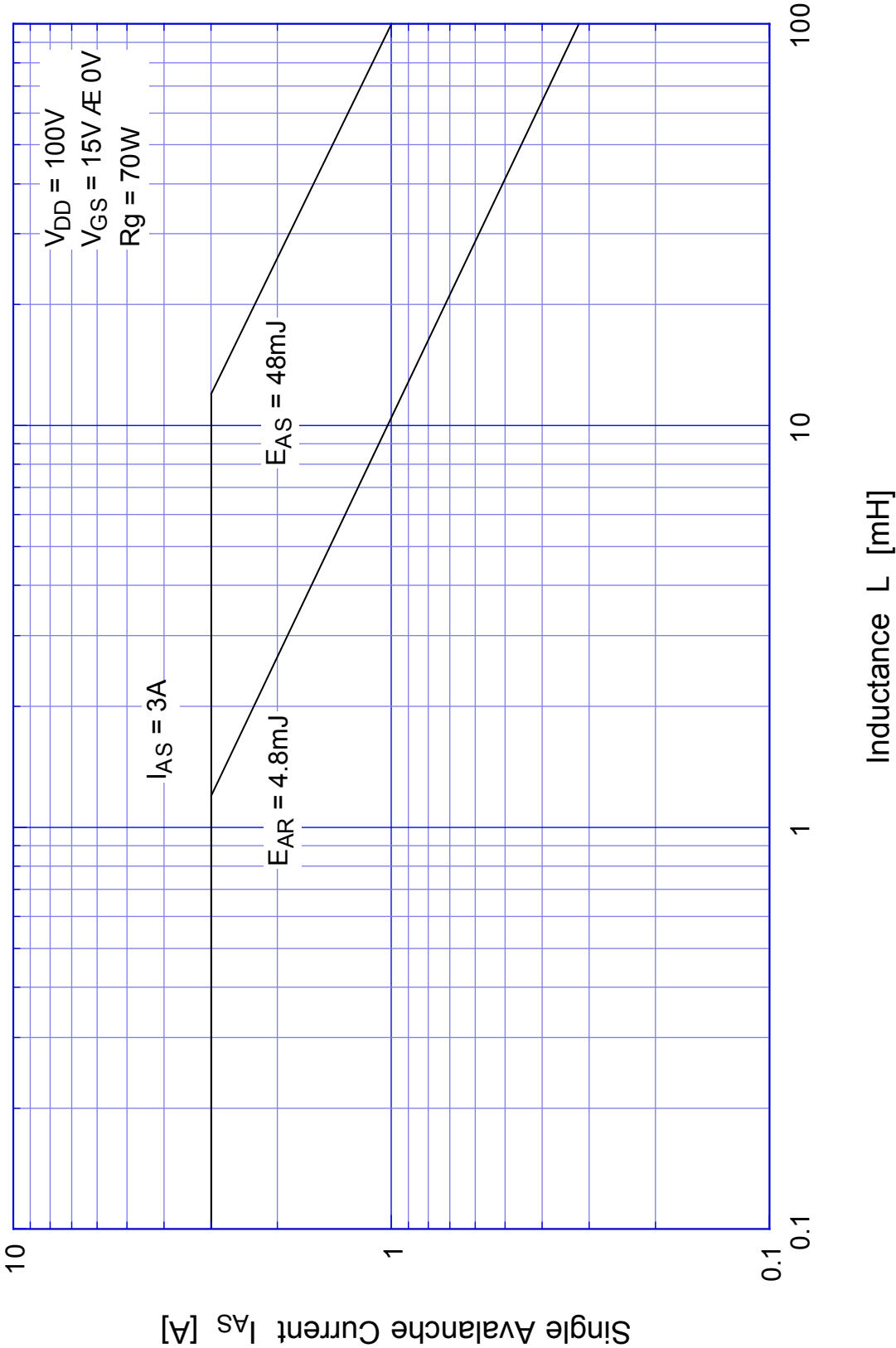


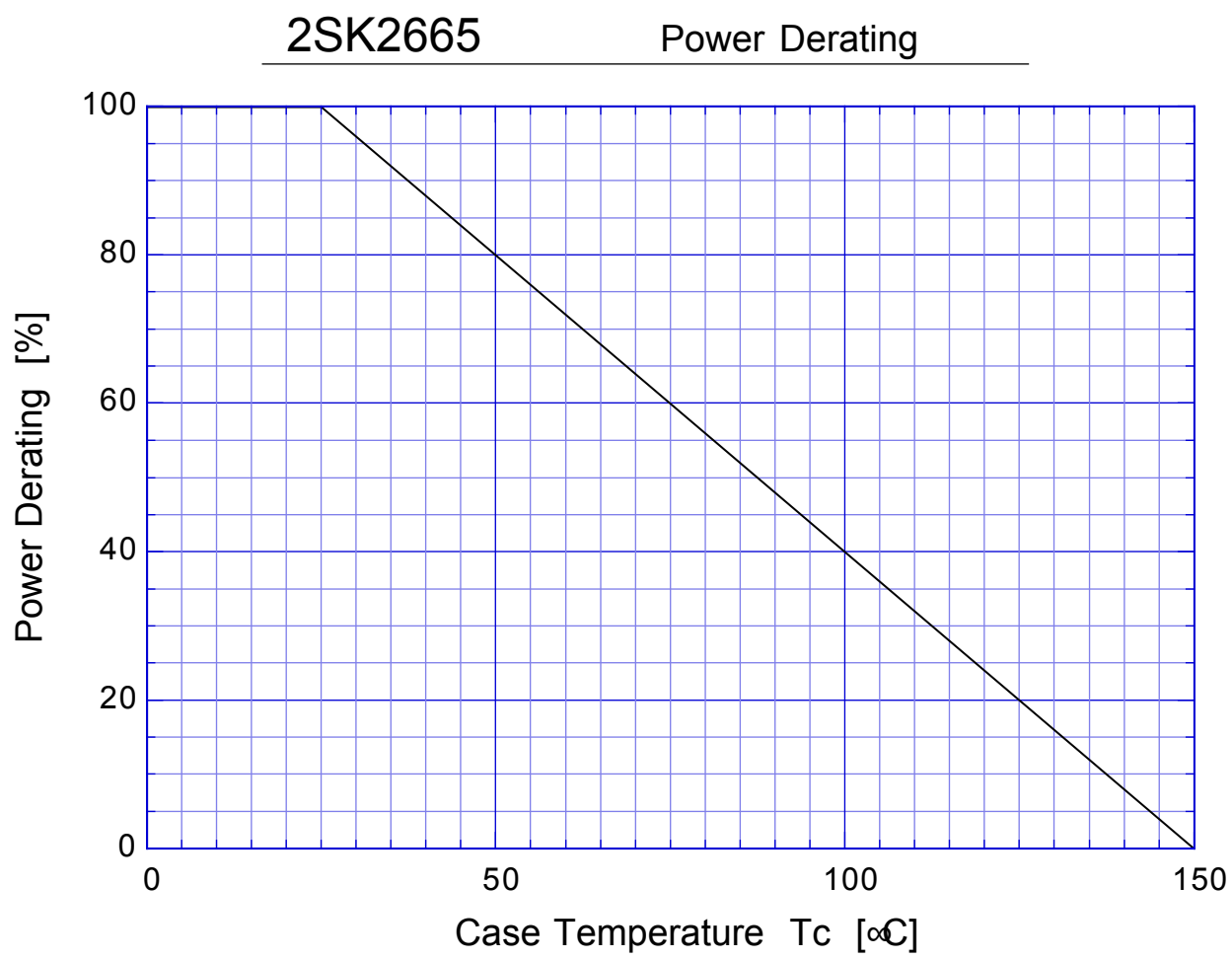
2SK2665

Capacitance



2SK2665 Single Avalanche Current - Inductive Load





2SK2665 Gate Charge Characteristics

