

2SK1931  
( F5E20 )

200V 5A

FEATURES

Applicable to 4V drive.  
The static Rds(on) is small.  
Built-in ZD for Gate Protection.

APPLICATION

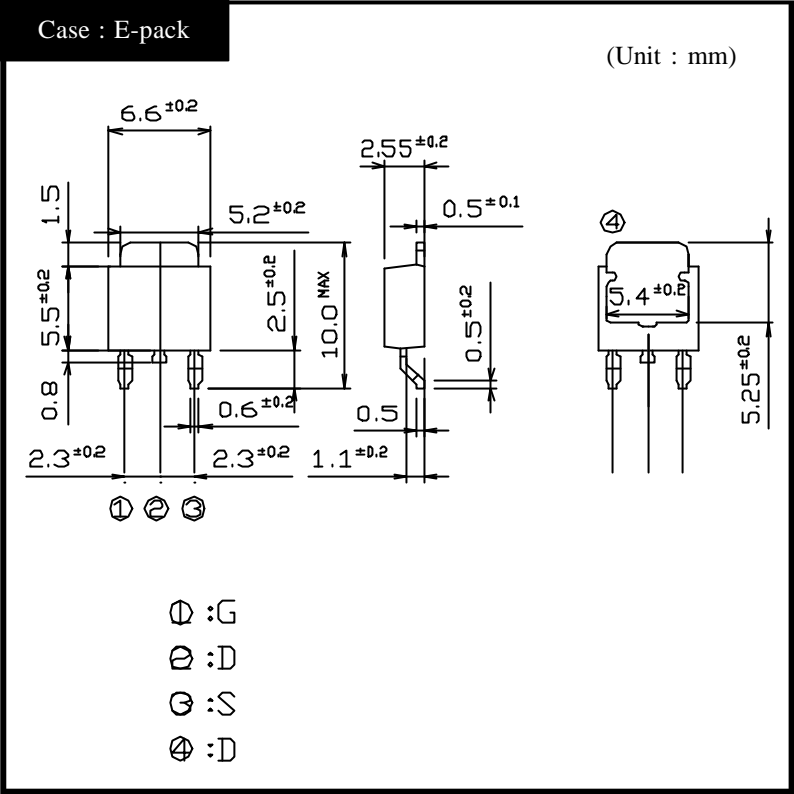
DC/DC converters  
Power supplies of DC 12-24V input  
Product related to  
Integrated Service Digital Network

RATINGS

Absolute Maximum Ratings (Tc = 25 )

Item	Symbol	Conditions	Ratings	Unit
Storage Temperature	Tstg		-55 ~ 150	
Channel Temperature	Tch		150	
Drain-Source Voltage	V <sub>DSS</sub>		200	V
Gate-Source Voltage	V <sub>GSS</sub>		± 30	
Continuous Drain Current (DC )	I <sub>D</sub>		5	A
Continuous Drain Current (Peak)	I <sub>DP</sub>		10	
Continuous Source Current (DC )	I <sub>S</sub>		5	
Total Power Dissipation	P <sub>T</sub>		20	W

OUTLINE DIMENSIONS

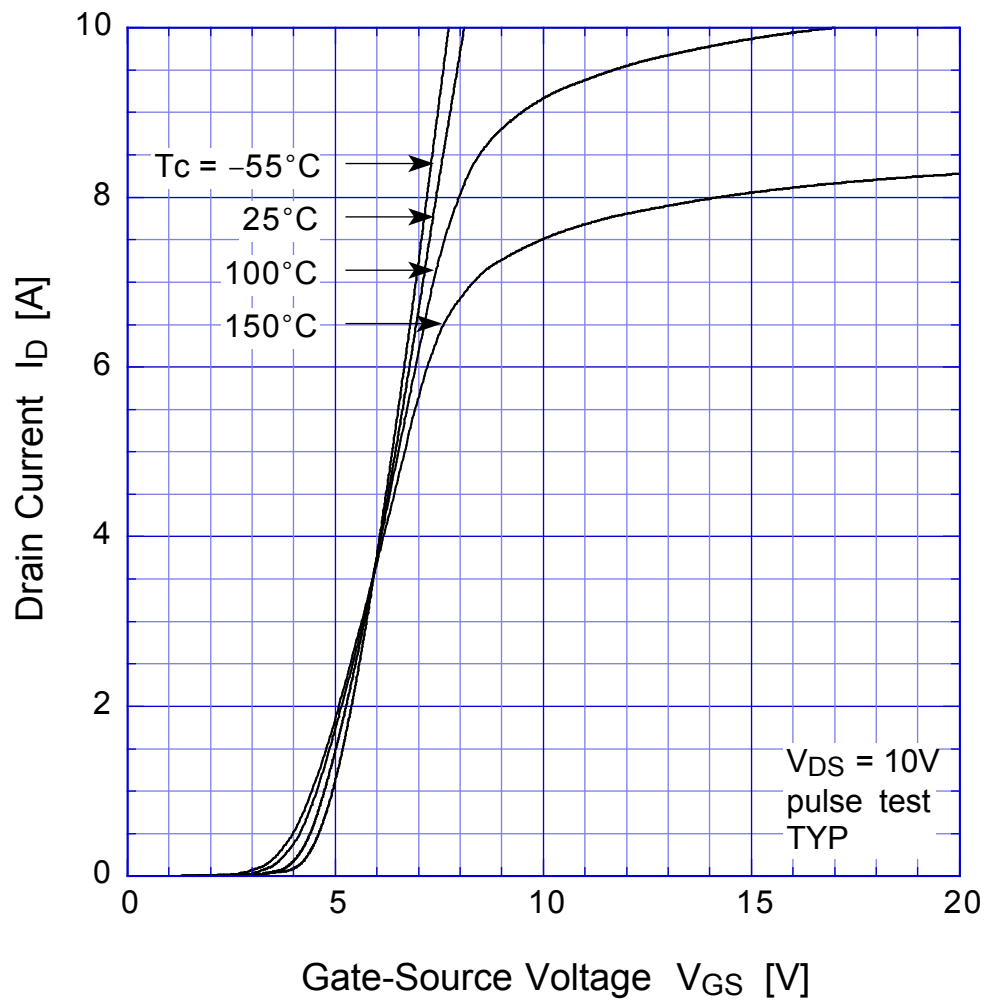


●Electrical Characteristics  $T_c = 25^\circ\text{C}$ 

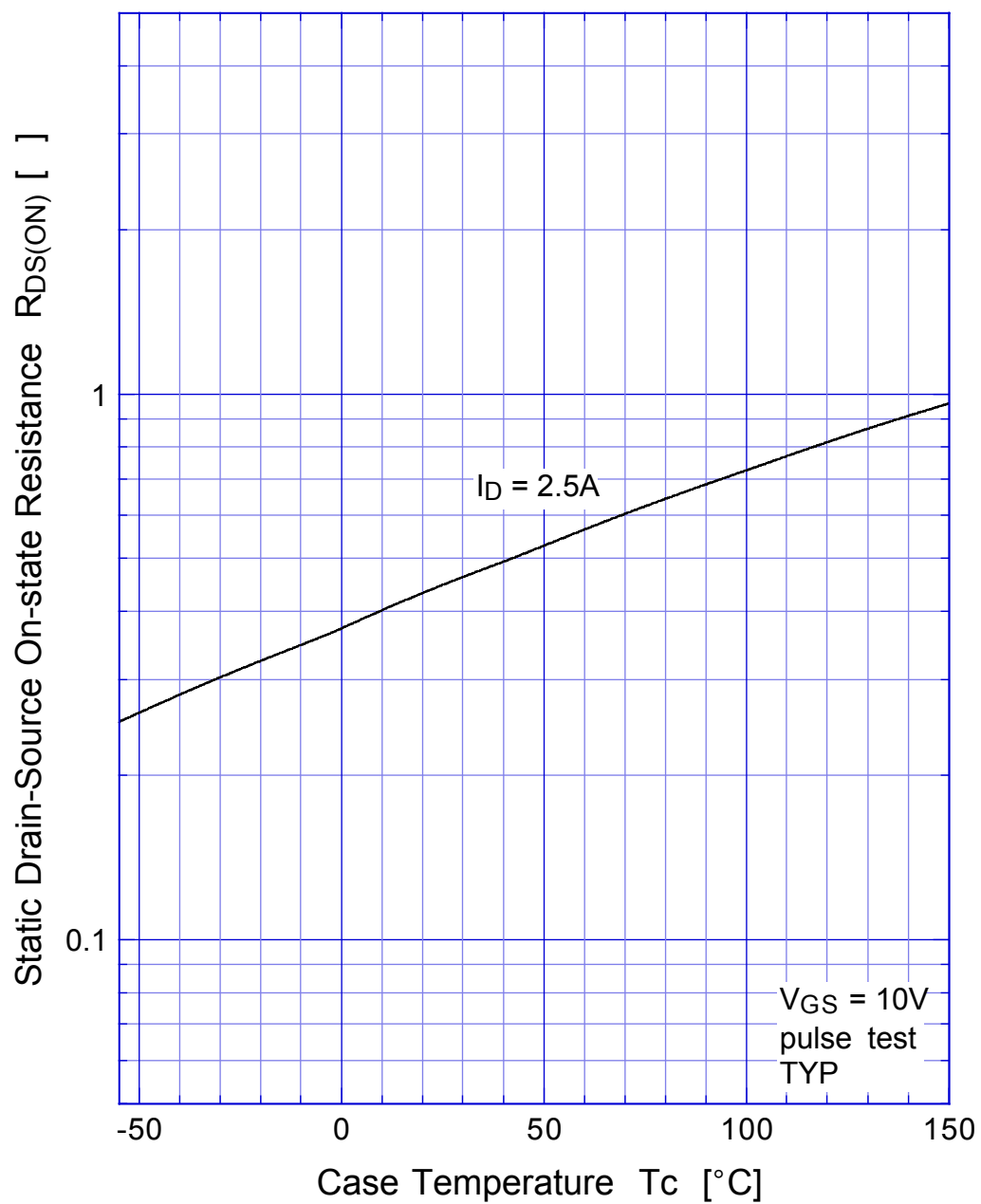
Item	Symbol	Conditions	Min.	Typ.	Max.	Unit
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D = 1\text{mA}$ , $V_{GS} = 0\text{V}$	200			V
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS} = 200\text{V}$ , $V_{GS} = 0\text{V}$			250	$\mu\text{A}$
Gate-Source Leakage Current	$I_{GSS}$	$V_{GS} = \pm 30\text{V}$ , $V_{DS} = 0\text{V}$			$\pm 0.1$	
Forward Transconductance	$g_{fs}$	$I_D = 2.5\text{A}$ , $V_{DS} = 10\text{V}$	0.9	1.8		S
Static Drain-Source On-state Resistance	$R_{DS(ON)}$	$I_D = 2.5\text{A}$ , $V_{GS} = 10\text{V}$		0.45	0.65	$\Omega$
Gate Threshold Voltage	$V_{TH}$	$I_D = 1\text{mA}$ , $V_{DS} = 10\text{V}$	2	3	4	V
Source-Drain Diode Forward Voltage	$V_{SD}$	$I_S = 2.5\text{A}$ , $V_{GS} = 0\text{V}$			1.5	
Thermal Resistance	$\theta_{jc}$	junction to case			6.25	$^\circ\text{C}/\text{W}$
Total Gate Charge	$Q_g$	$V_{GS} = 10\text{V}$ , $I_D = 5\text{A}$ , $V_{DD} = 150\text{V}$		11		nC
Input Capacitance	$C_{iss}$	$V_{DS} = 10\text{V}$ , $V_{GS} = 0\text{V}$ , $f = 1\text{MHz}$		360		pF
Reverse Transfer Capacitance	$C_{rss}$			45		
Output Capacitance	$C_{oss}$			190		
Turn-On Time	$t_{on}$	$I_D = 2.5\text{A}$ , $V_{GS} = 10\text{V}$ , $R_L = 40\Omega$		55	110	ns
Turn-Off Time	$t_{off}$			75	150	

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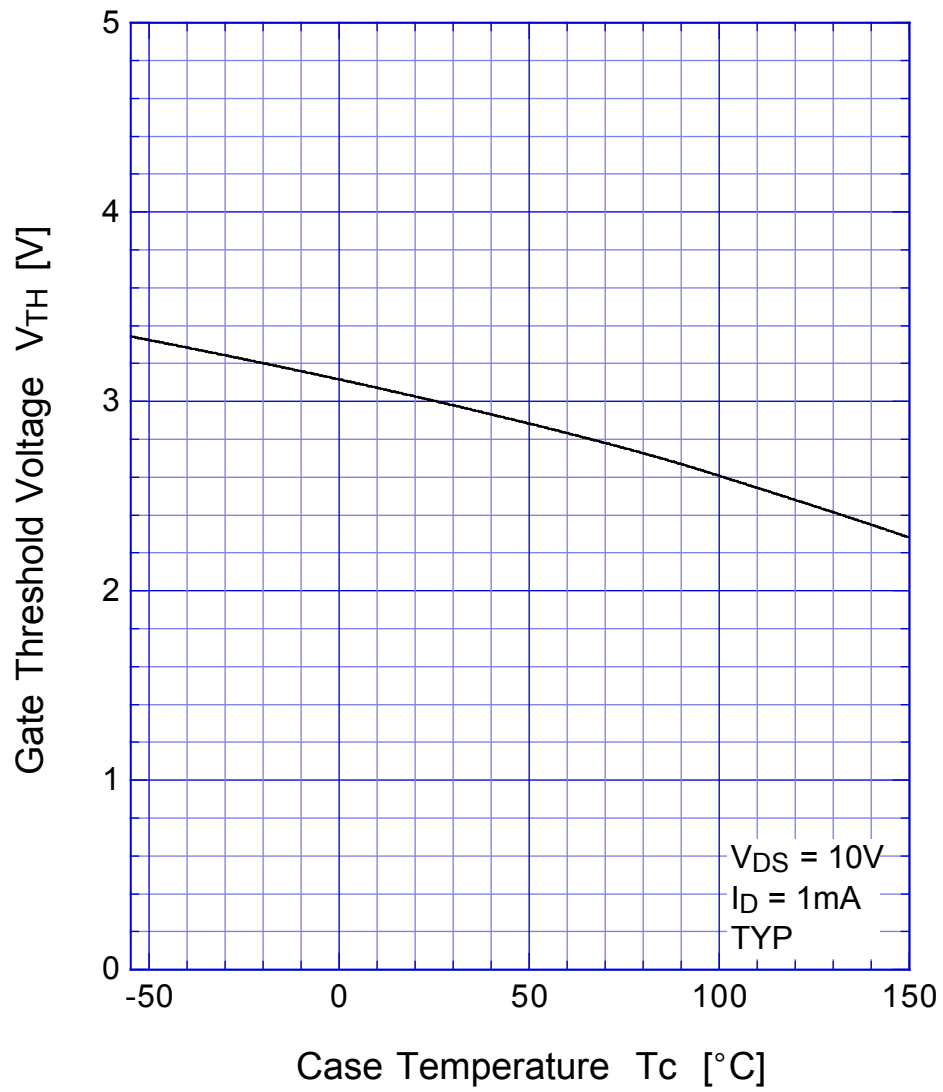
Transfer Characteristics



## 2SK1931 Static Drain-Source On-state Resistance

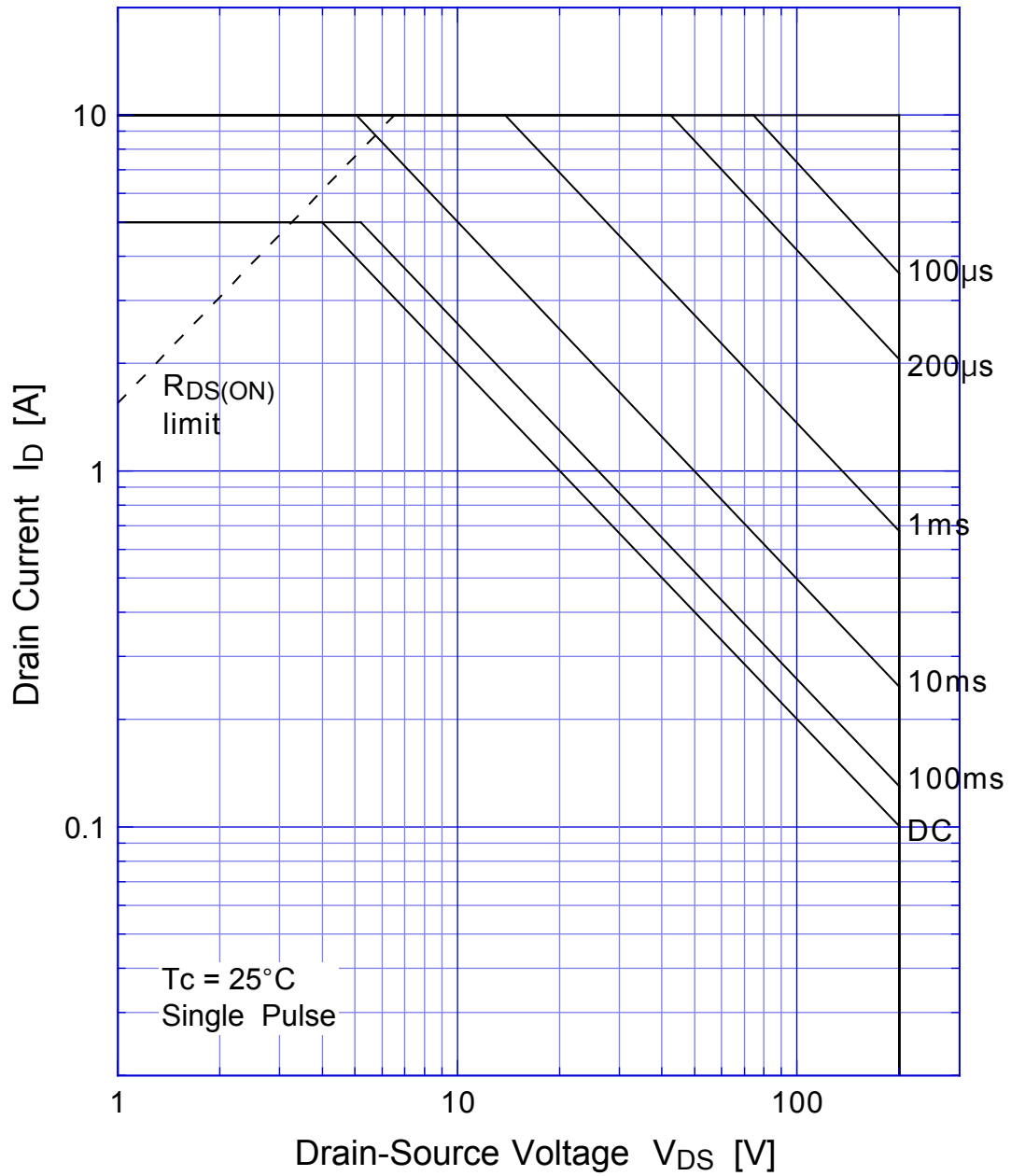


## 2SK1931 Gate Threshold Voltage

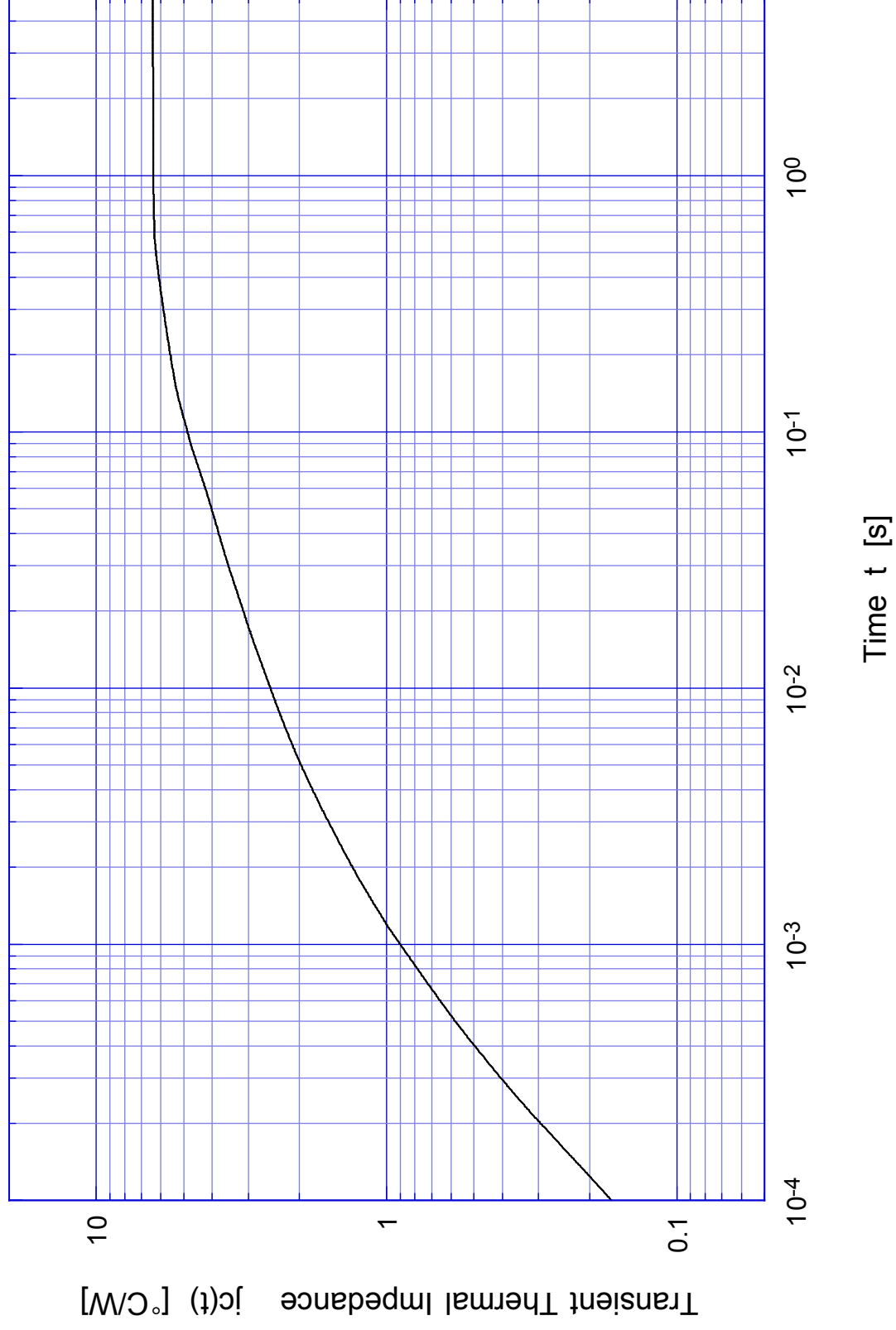


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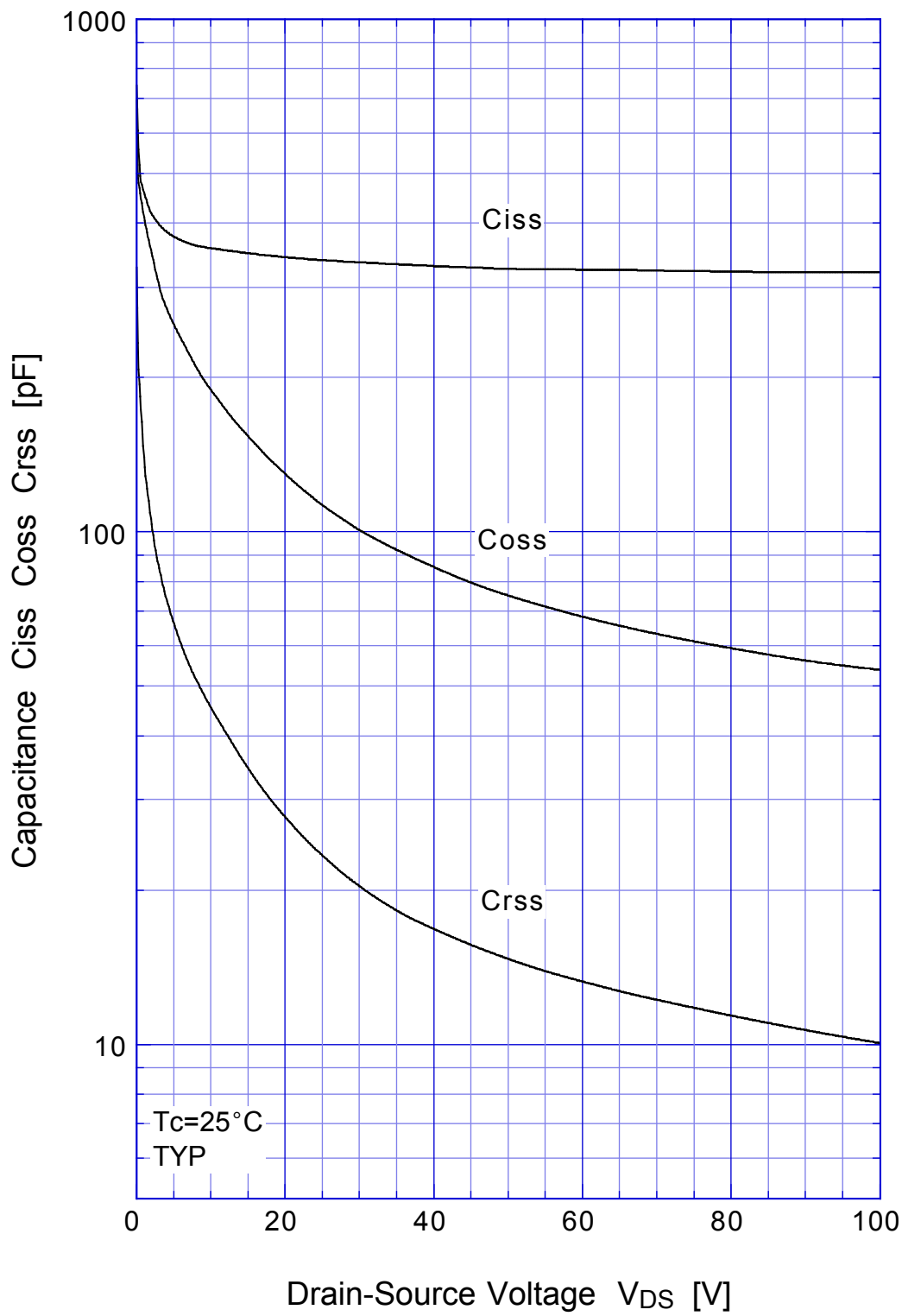
Safe Operating Area



# 2SK1931      Transient Thermal Impedance



2SK1931      Capacitance





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Power Derating

