

SHINDENGEN

VR Series Power MOSFET

N-Channel Enhancement type

2SK1194
(F05E23)

230V 0.5A

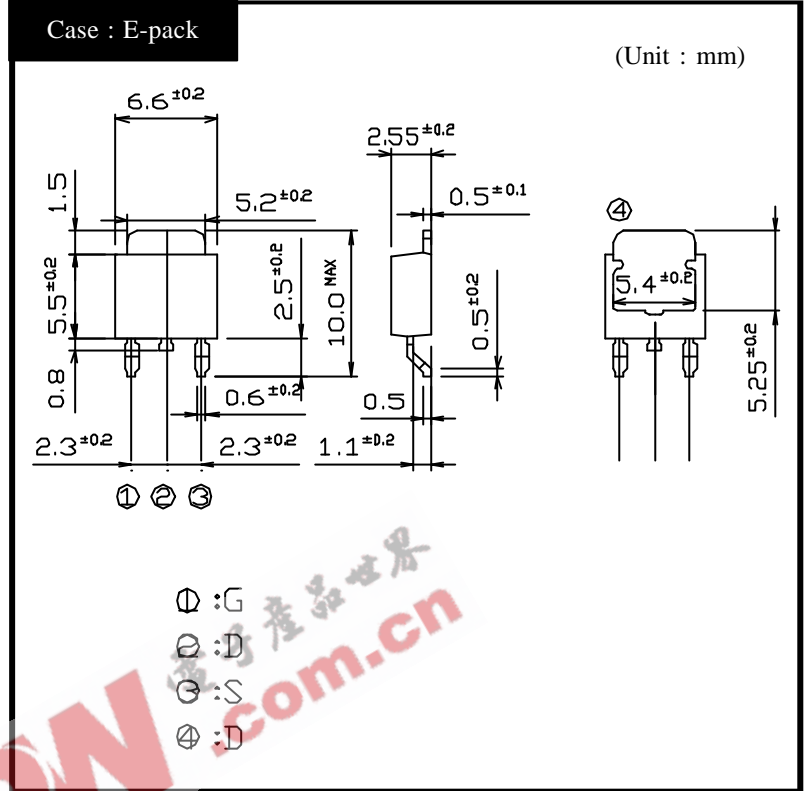
FEATURES

- Applicable to 4V drive.
- The static $R_{ds(on)}$ 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

OUTLINE DIMENSIONS



RATINGS

Absolute Maximum Ratings (Tc = 25 °C)

Item	Symbol	Conditions	Ratings	Unit
Storage Temperature	T _{stg}		-55 ~ 150	
Channel Temperature	T _{ch}		150	
Drain-Source Voltage	V _{DSS}		230	V
Gate-Source Voltage	V _{GSS}		± 20	
Continuous Drain Current (DC)	I _D		0.5	A
Continuous Drain Current (Peak)	I _{DP}		1	
Continuous Source Current (DC)	I _S		0.5	
Total Power Dissipation	P _T		6	W

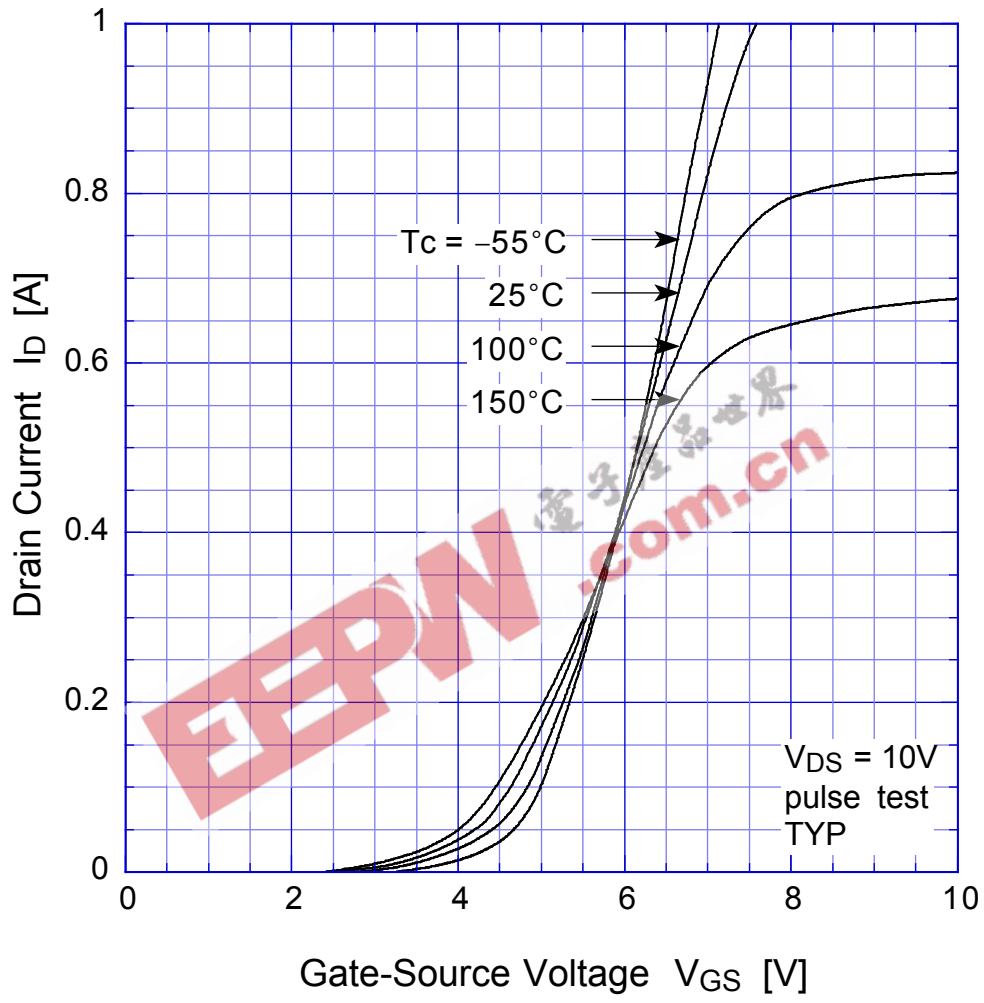
●Electrical Characteristics $T_c = 25^\circ\text{C}$

Item	Symbole	Conditions	Min.	Typ.	Max.	Unit
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D = 250 \mu\text{A}$, $V_{GS} = 0\text{V}$	230			V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 230\text{V}$, $V_{GS} = 0\text{V}$			250	μA
Gate-Source Leakage Current	I_{GSS}	$V_{GS} = \pm 20\text{V}$, $V_{DS} = 0\text{V}$			± 0.1	
Forward Transconductance	g_{fs}	$I_D = 0.5\text{A}$, $V_{DS} = 10\text{V}$	0.2	0.4		S
Static Drain-Source On-state Resistance	$R_{DS(ON)}$	$I_D = 0.5\text{A}$, $V_{GS} = 10\text{V}$		5.5	8	Ω
Gate Threshold Voltage	V_{TH}	$I_D = 0.2\text{mA}$, $V_{DS} = 10\text{V}$	2	3	4	V
Source-Drain Diode Forward Voltage	V_{SD}	$I_S = 0.5\text{A}$, $V_{GS} = 0\text{V}$			1.5	
Thermal Resistance	θ_{jc}	junction to case			20.8	$^\circ\text{C}/\text{W}$
Total Gate Charge	Q_g	$V_{GS} = 10\text{V}$, $I_D = 0.5\text{A}$, $V_{DD} = 200\text{V}$		2.7		nC
Input Capacitance	C_{iss}			45		
Reverse Transfer Capacitance	C_{rss}	$V_{DS} = 10\text{V}$, $V_{GS} = 0\text{V}$, $f = 1\text{MHz}$		4.5		pF
Output Capacitance	C_{oss}			30		
Turn-On Time	t_{on}	$I_D = 0.5\text{A}$, $V_{GS} = 10\text{V}$, $R_L = 200\Omega$		30	60	ns
Turn-Off Time	t_{off}			50	100	

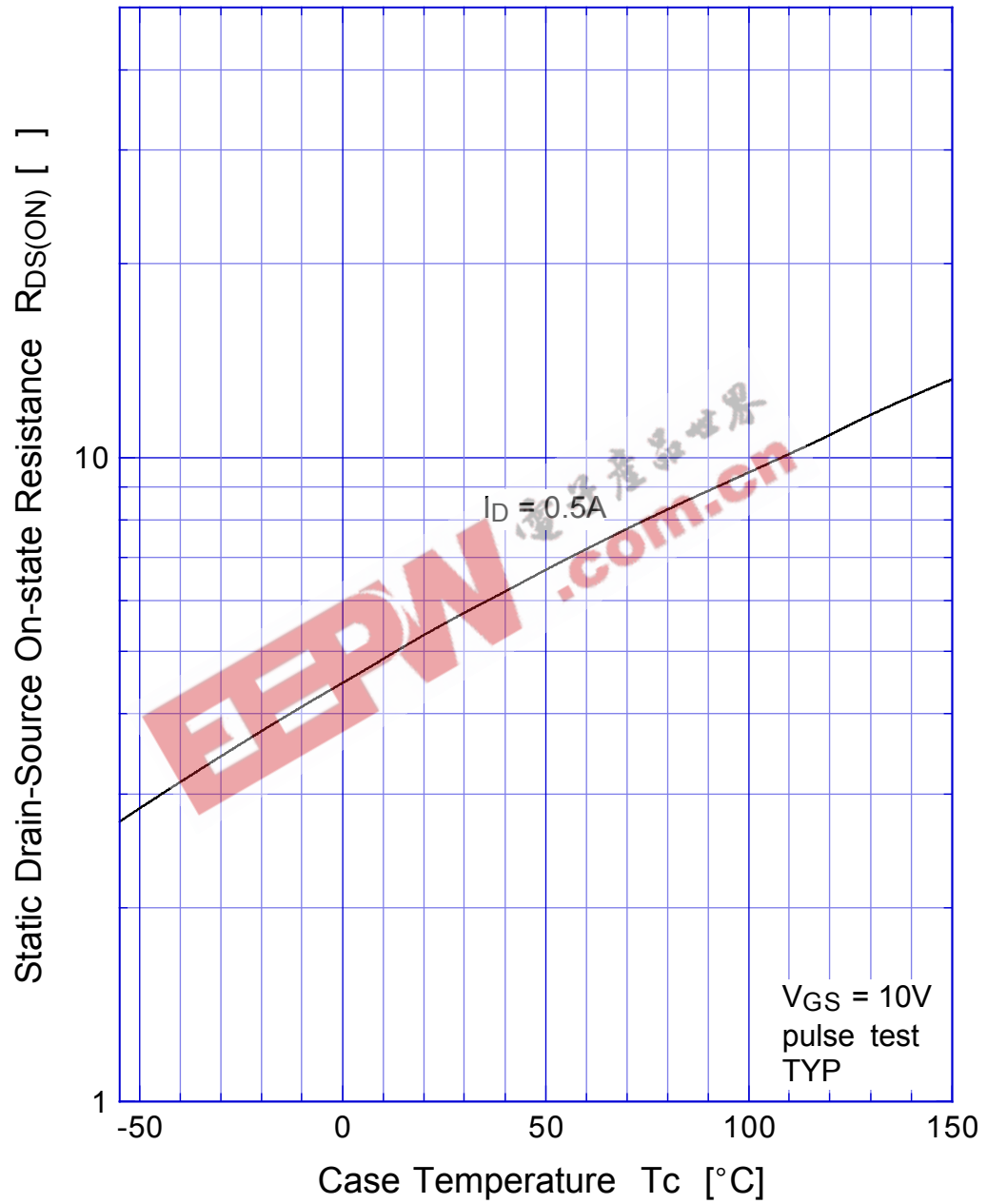
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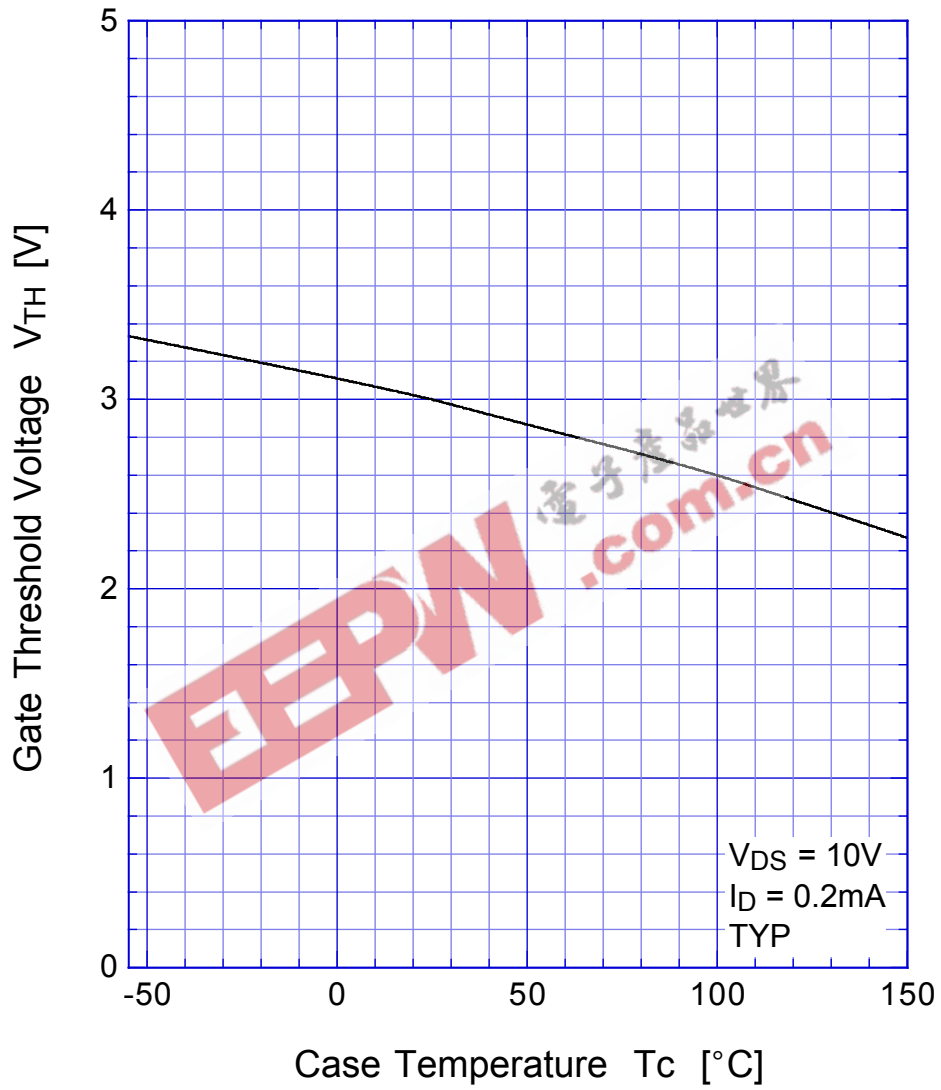
Transfer Characteristics



2SK1194 Static Drain-Source On-state Resistance

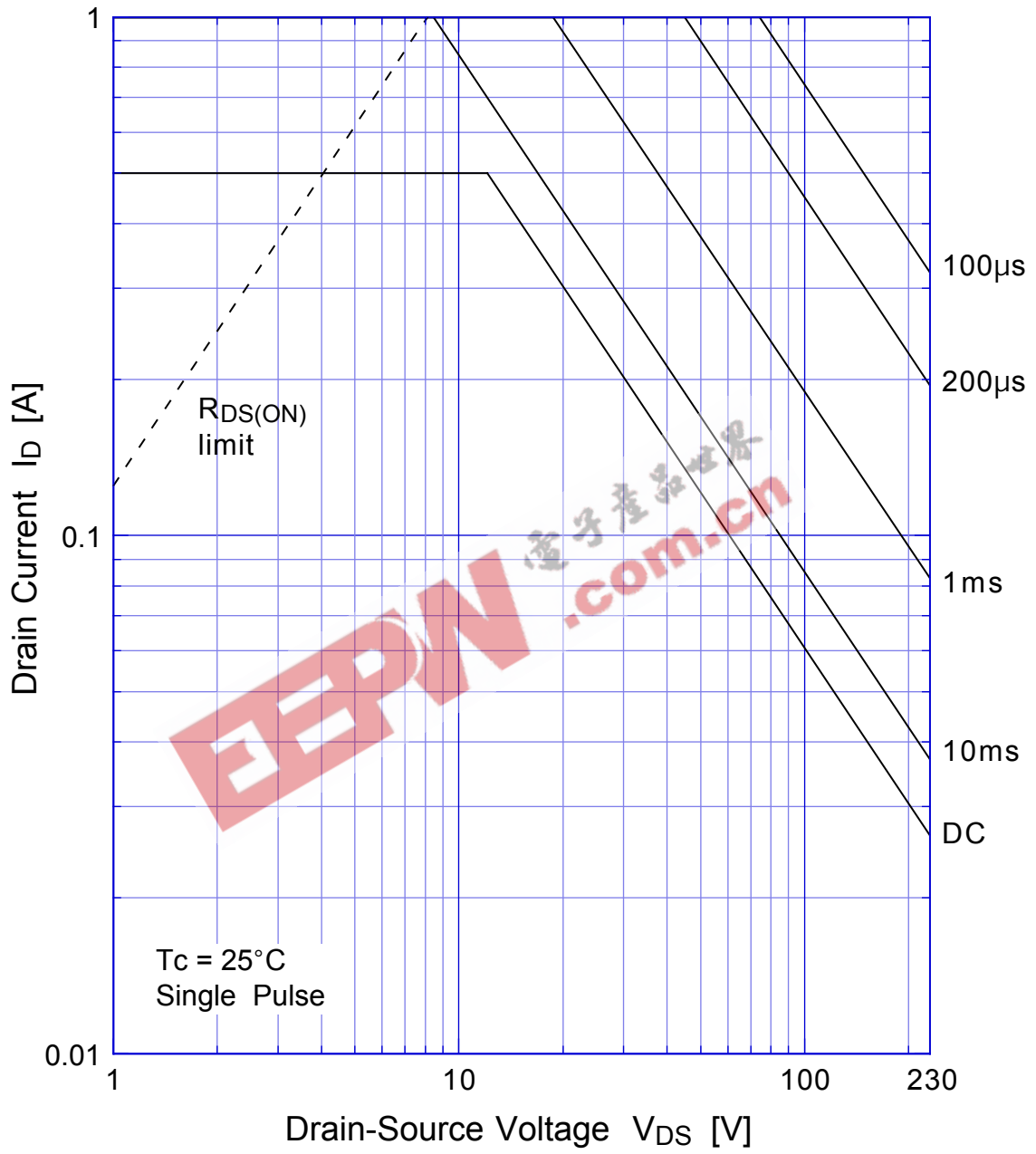


2SK1194 Gate Threshold Voltage

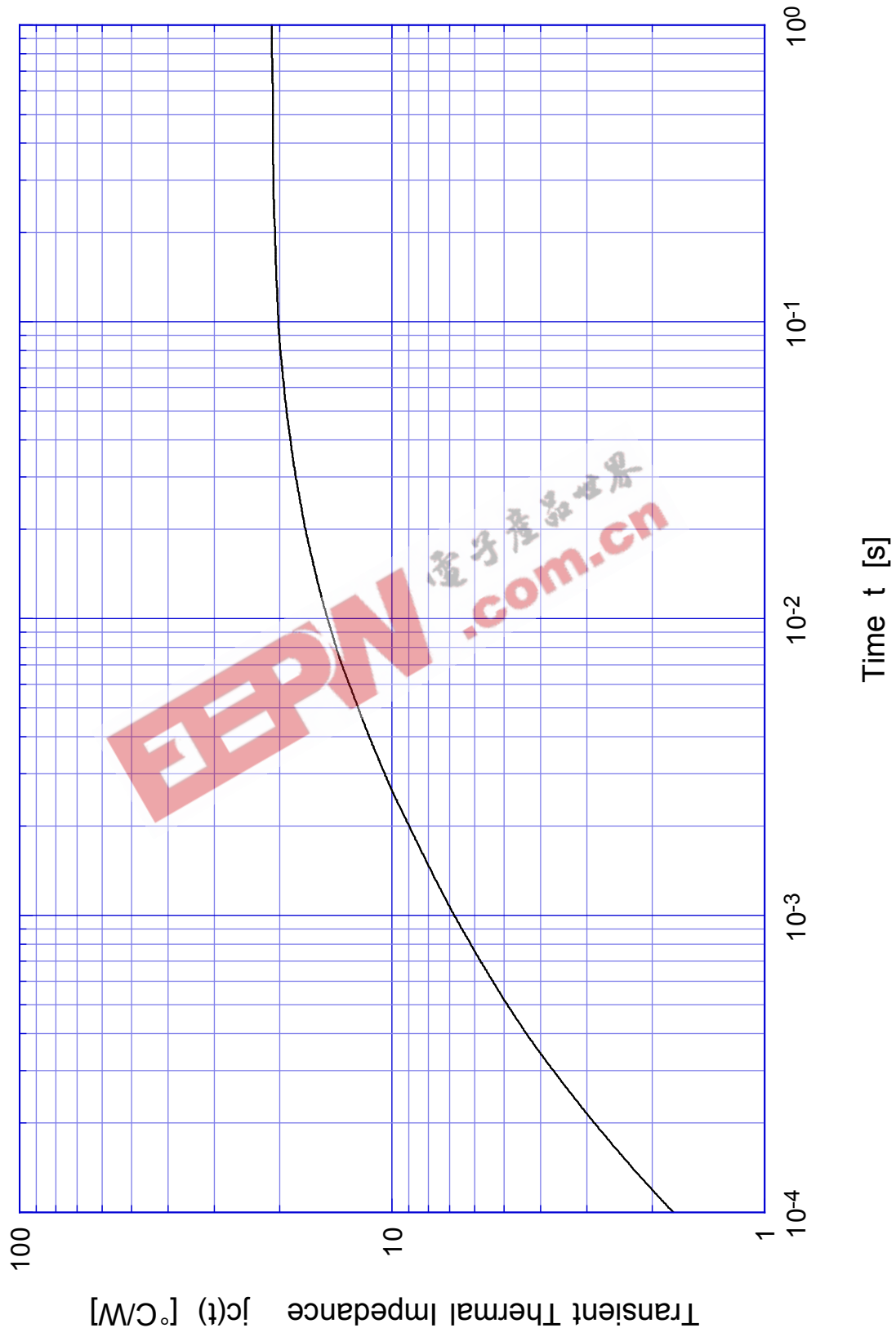


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Safe Operating Area

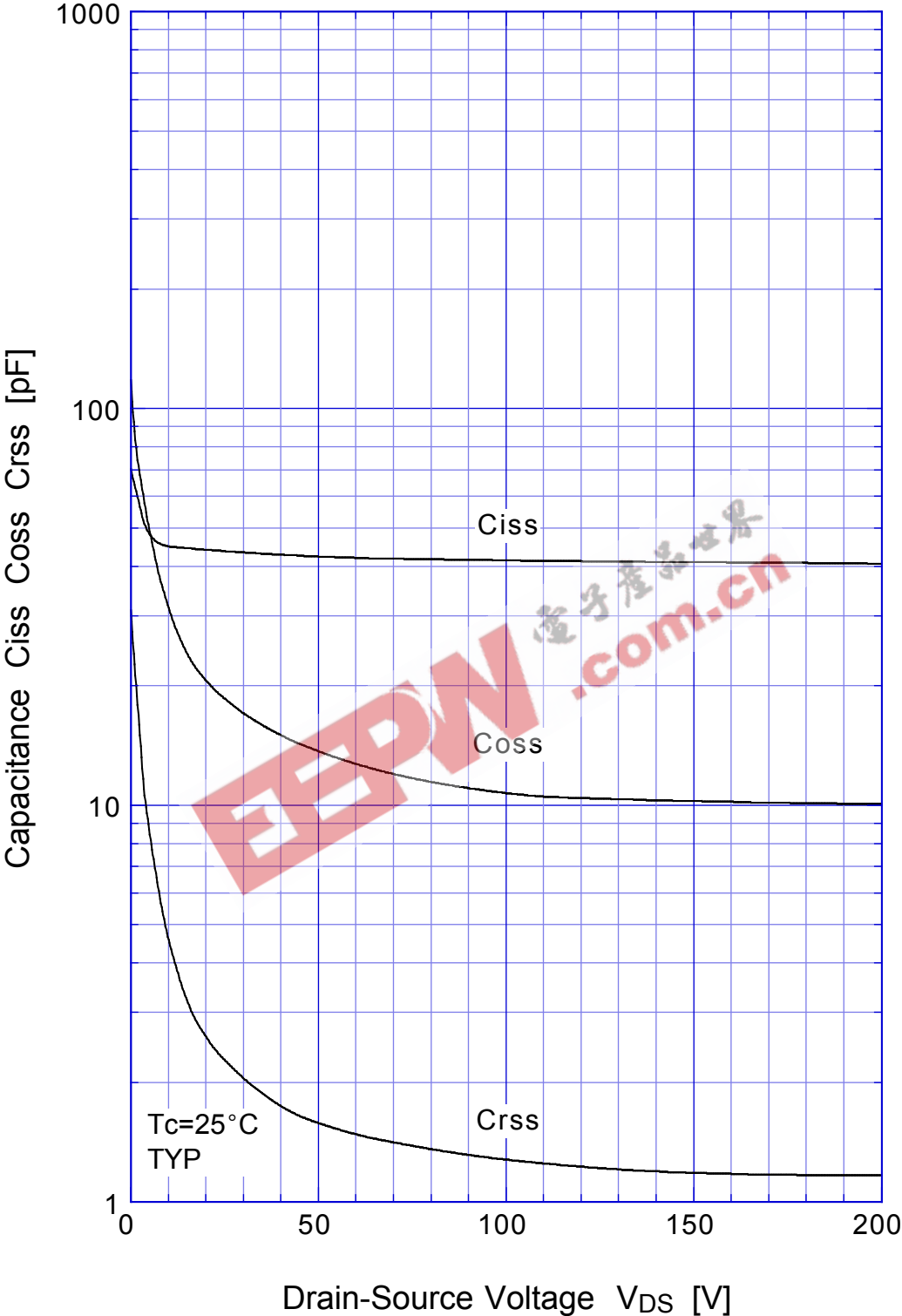


2SK1194 Transient Thermal Impedance



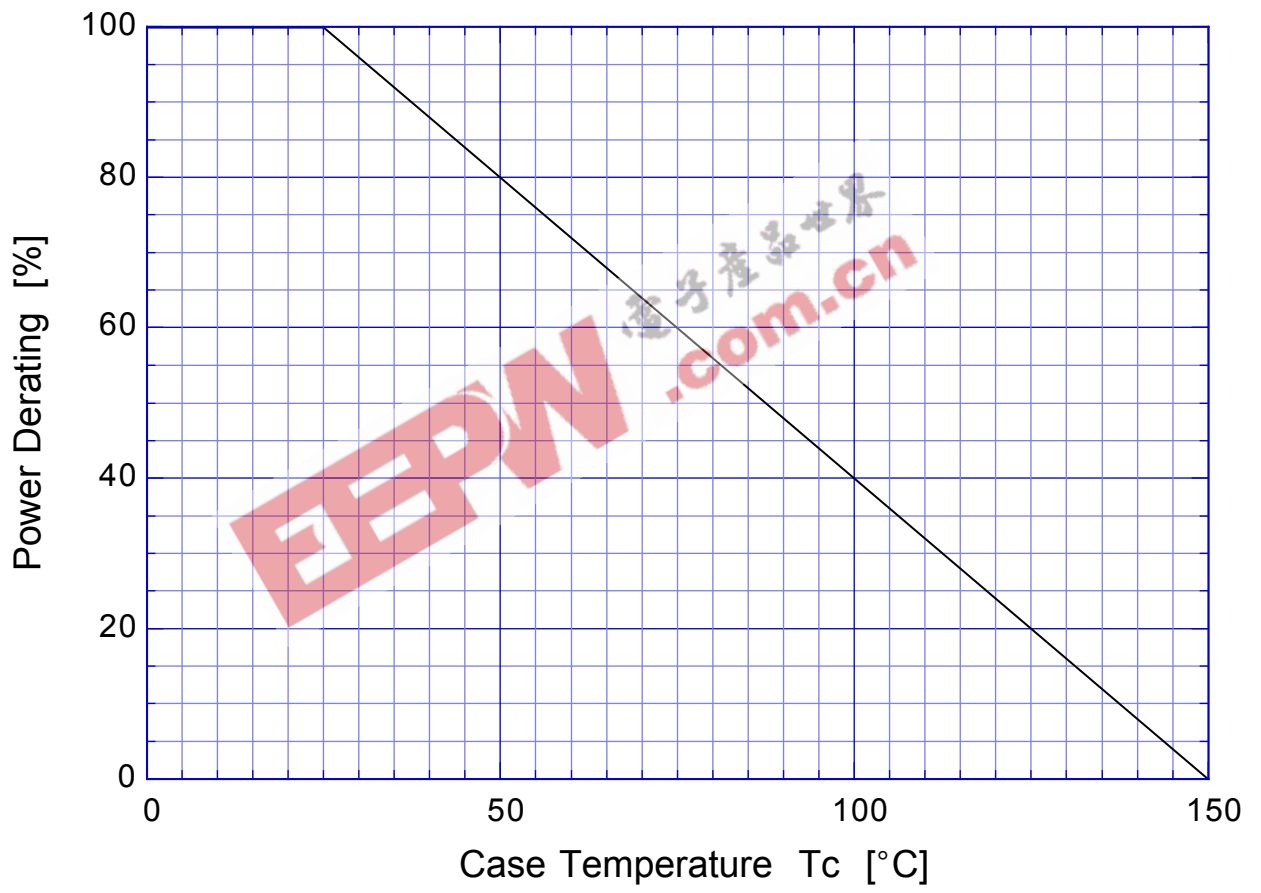
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Capacitance



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Power Derating



2SK1194 Gate Charge Characteristics

