

SHINDENGEN

VZ Series Power MOSFET

N-Channel Enhancement type

2SK2491
(F20S18VZ)

180V 20A

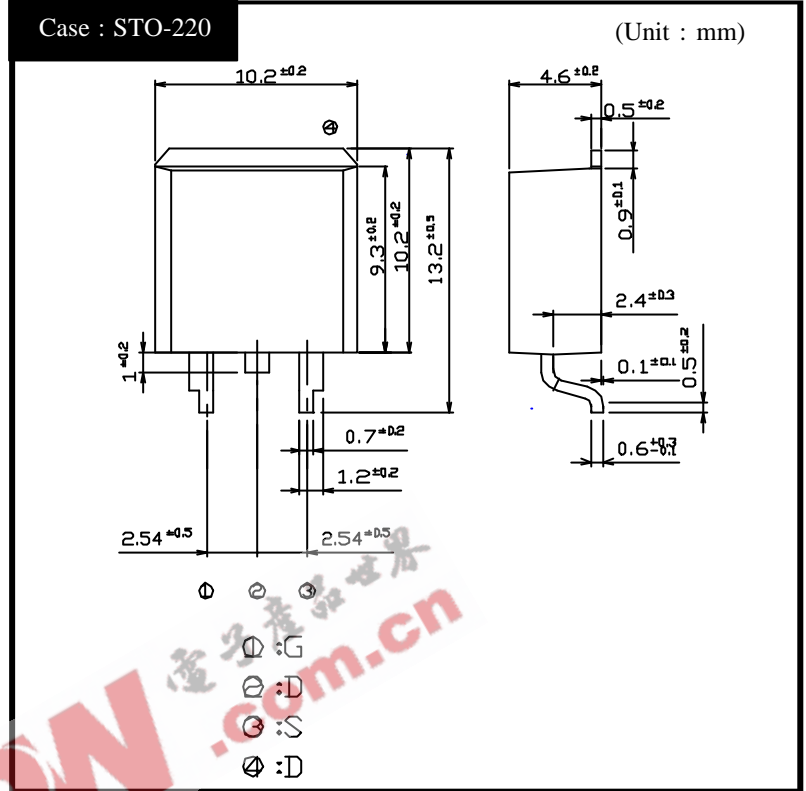
FEATURES

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

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)

Item	Symbol	Conditions	Ratings	Unit
Storage Temperature	T _{stg}		-55 ~ 150	
Channel Temperature	T _{ch}		150	
Drain-Source Voltage	V _{DSS}		180	V
Gate-Source Voltage	V _{GSS}		± 30	
Continuous Drain Current (DC)	I _D		20	A
Continuous Drain Current (Peak)	I _{DP}		40	
Continuous Source Current (DC)	I _S		20	
Total Power Dissipation	P _T		70	W
Single Pulse Avalanche Current	I _{AS}	T _{ch} = 25	20	A

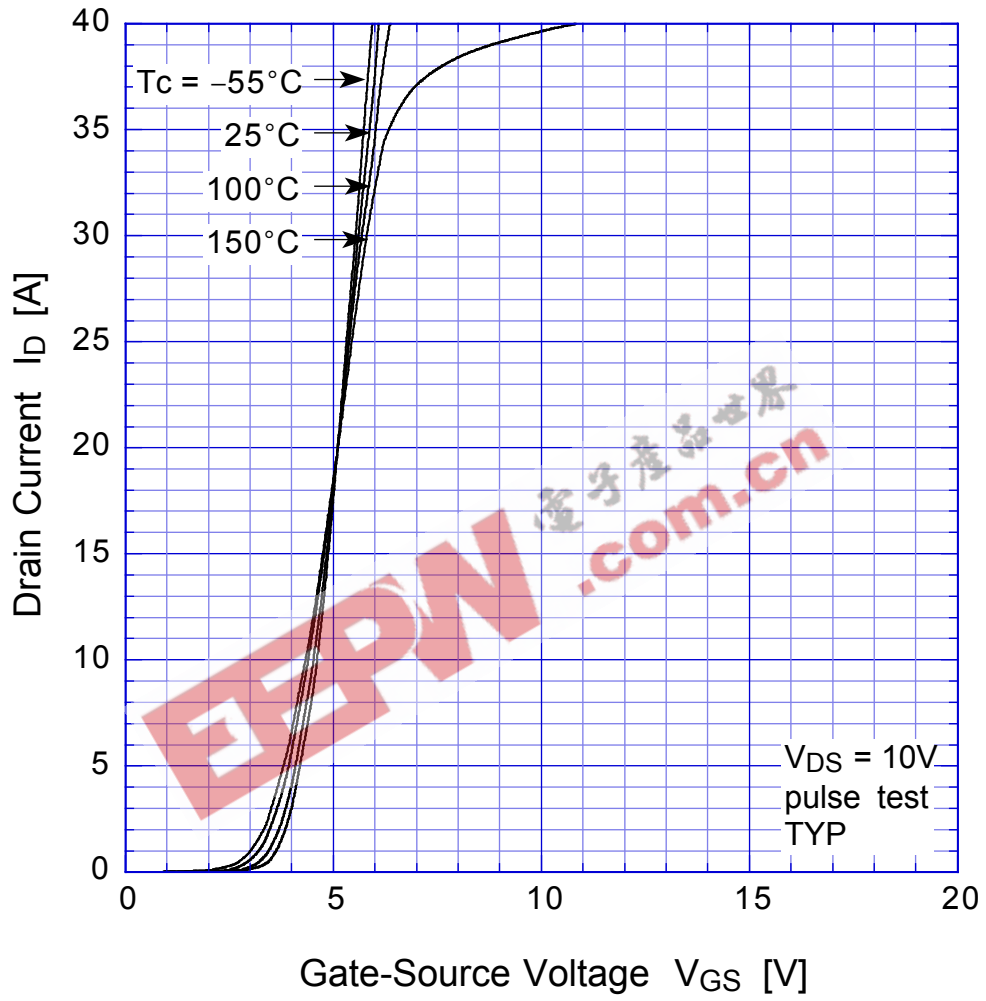
●Electrical Characteristics $T_c = 25^\circ\text{C}$

Item	Symbol	Conditions	Min.	Typ.	Max.	Unit
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D = 1\text{mA}, V_{GS} = 0\text{V}$	180			V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 180\text{V}, V_{GS} = 0\text{V}$			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}	$I_D = 10\text{A}, V_{DS} = 10\text{V}$	8.0	15.0		S
Static Drain-Source On-state Resistance	$R_{DS(ON)}$	$I_D = 10\text{A}, V_{GS} = 10\text{V}$		0.08	0.13	Ω
Gate Threshold Voltage	V_{TH}	$I_D = 1\text{mA}, V_{DS} = 10\text{V}$	2.0	3.0	4.0	V
Source-Drain Diode Forward Voltage	V_{SD}	$I_S = 10\text{A}, V_{GS} = 0\text{V}$			1.5	
Thermal Resistance	θ_{jc}	junction to case			1.78	$^\circ\text{C}/\text{W}$
Total Gate Charge	Q_g	$V_{DD} = 150\text{V}, V_{GS} = 10\text{V}, I_D = 20\text{A}$		55		nC
Input Capacitance	C_{iss}	$V_{DS} = 10\text{V}, V_{GS} = 0\text{V}, f = 1\text{MHz}$		1600		pF
Reverse Transfer Capacitance	C_{rss}			190		
Output Capacitance	C_{oss}			650		
Turn-On Time	t_{on}	$I_D = 10\text{A}, V_{GS} = 10\text{V}, R_L = 10\Omega$		95	190	ns
Turn-Off Time	t_{off}			300	600	

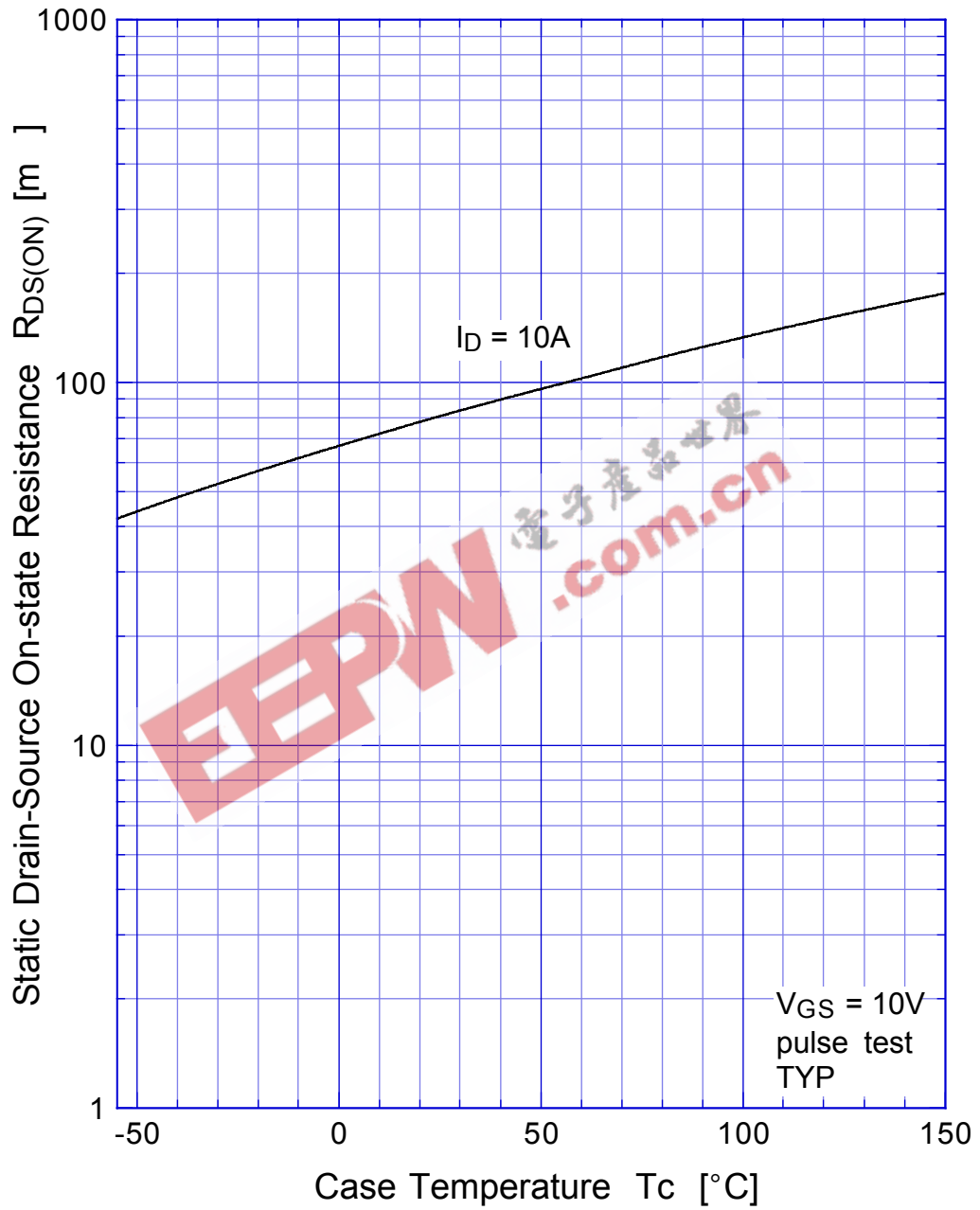
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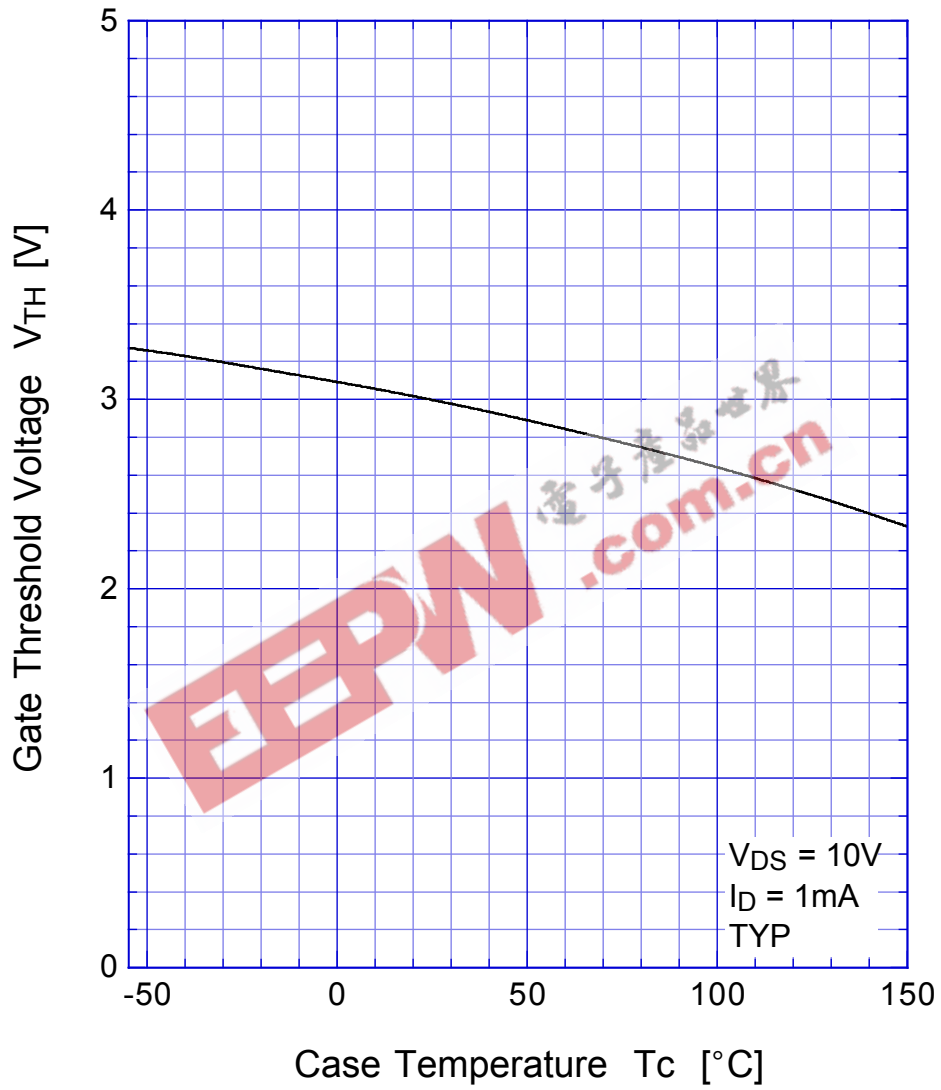
Transfer Characteristics



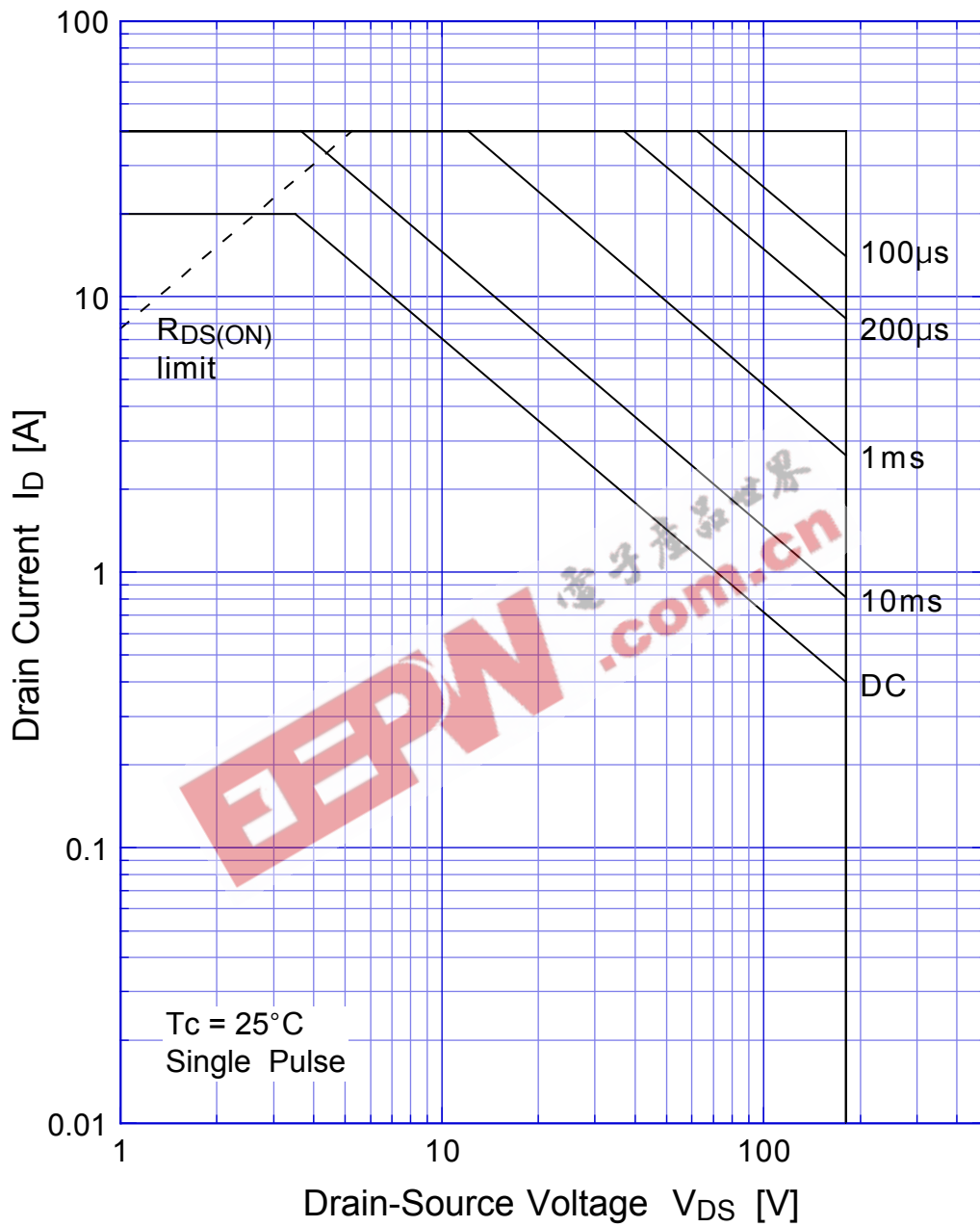
2SK2491 Static Drain-Source On-state Resistance



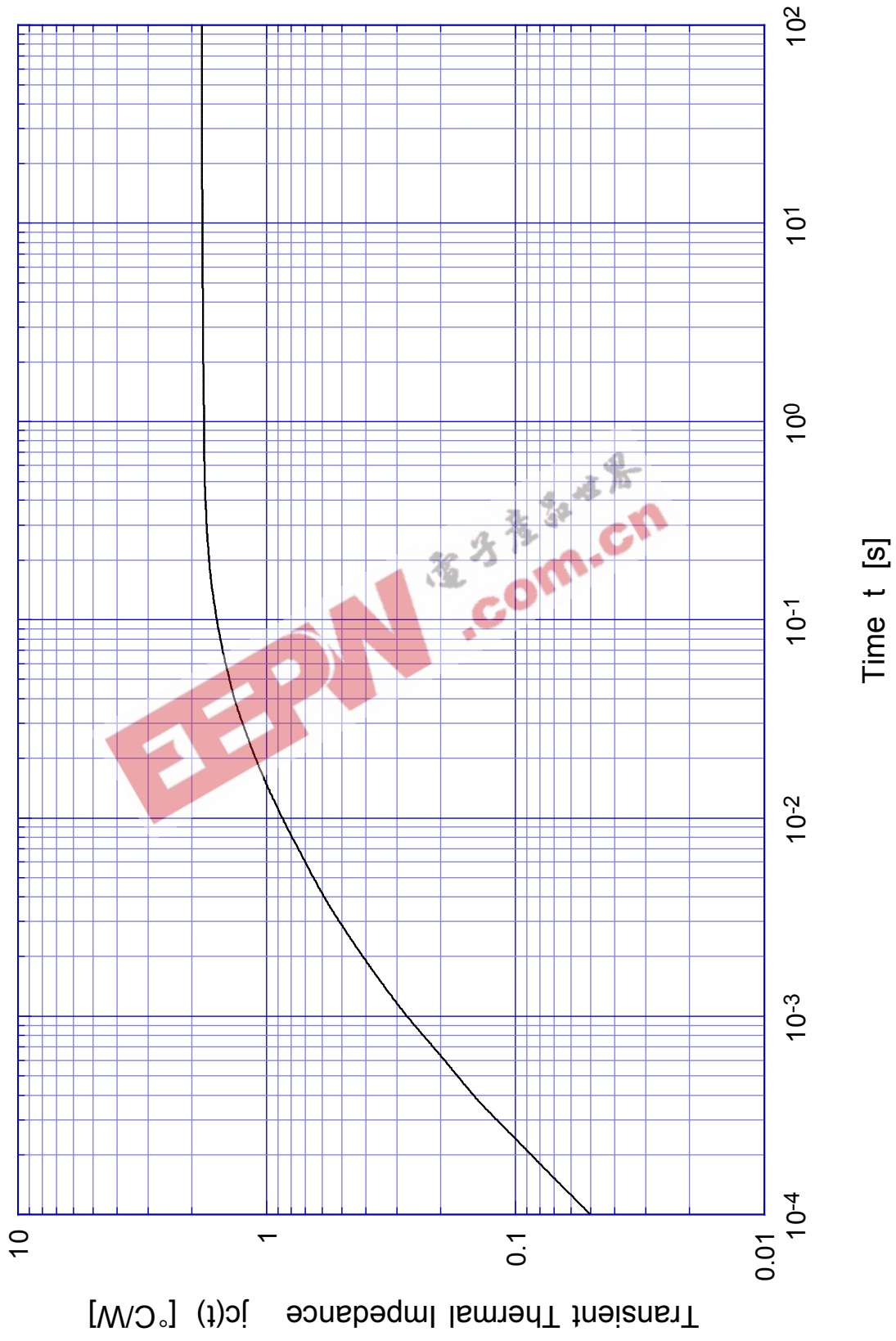
2SK2491 Gate Threshold Voltage



2SK2491 Safe Operating Area

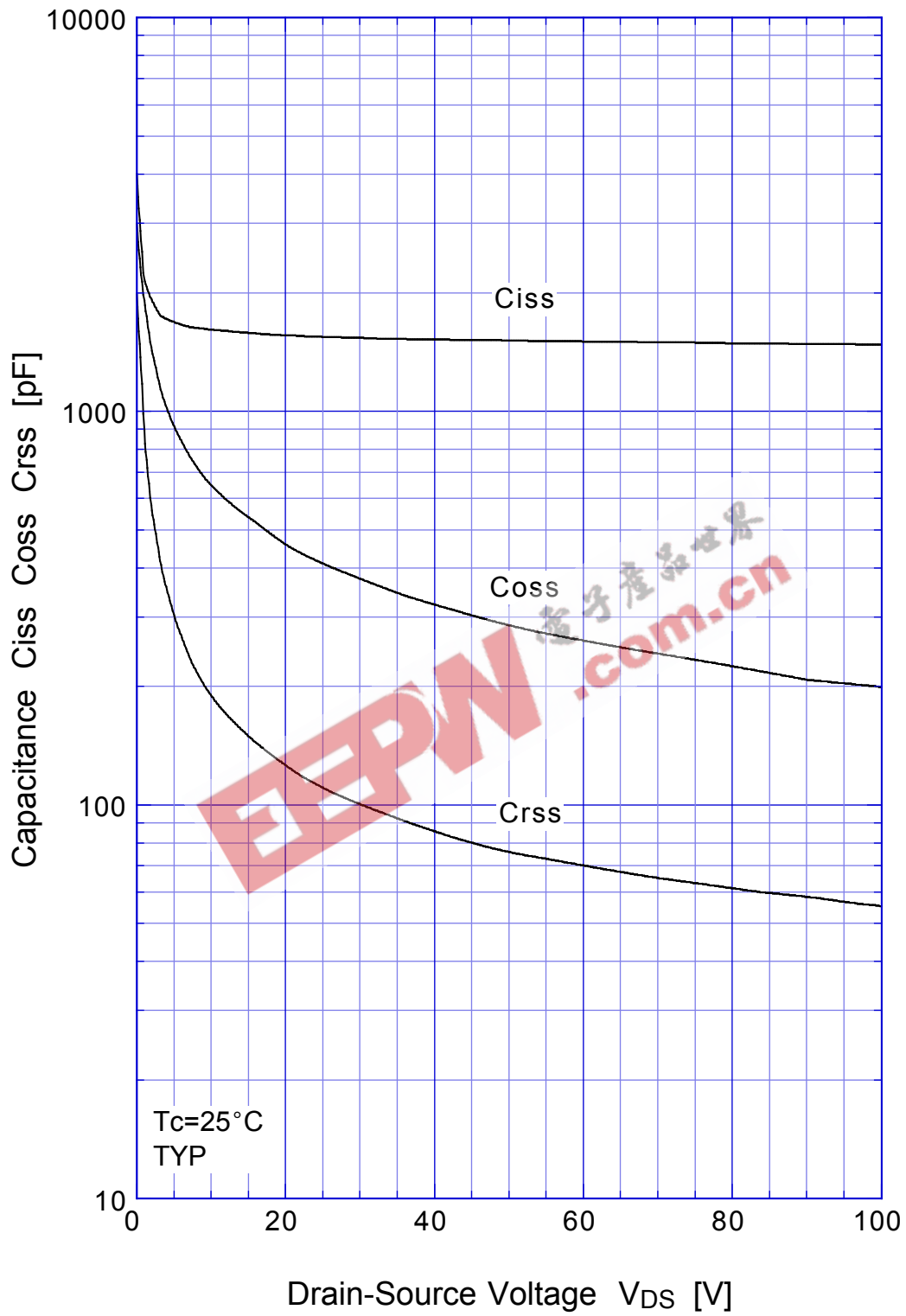


2SK2491 Transient Thermal Impedance



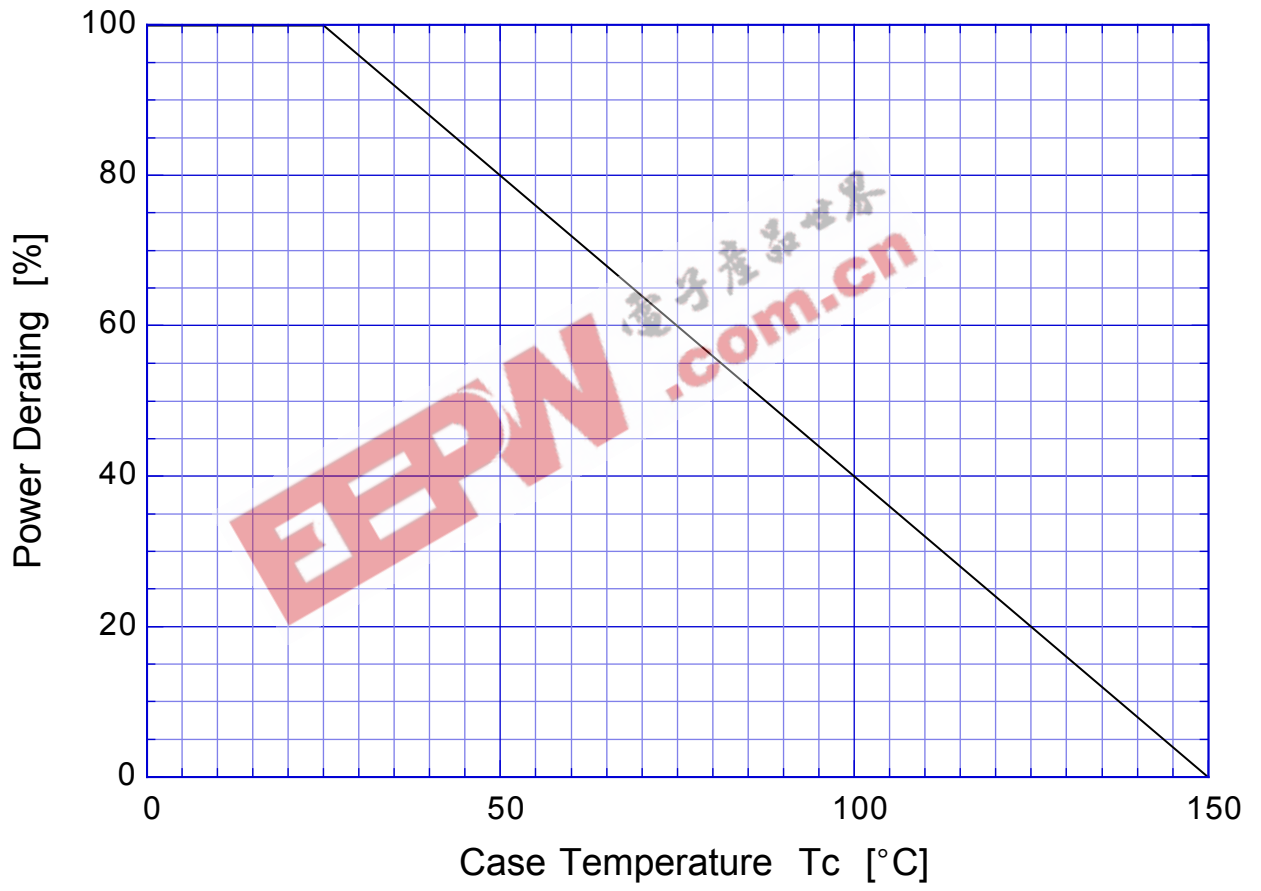
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Capacitance



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Power Derating



2SK2491 Gate Charge Characteristics

