

# SHINDENGEN

## VX-2 Series Power MOSFET

N-Channel Enhancement type

**2SK2563**  
**(F4F60VX2)**

**600V4A**

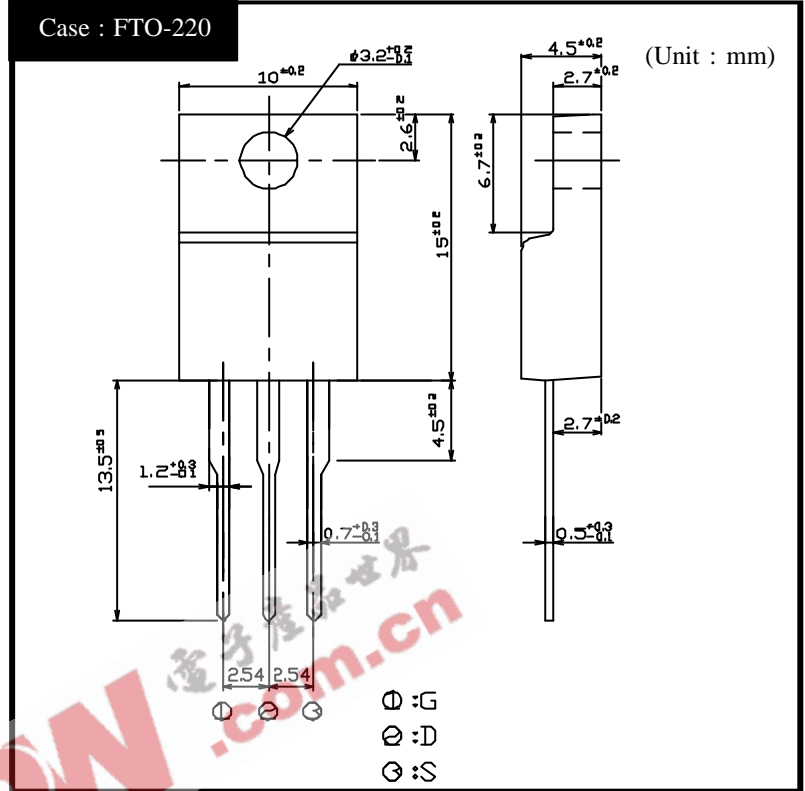
### FEATURES

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 100-200V input  
Inverter  
Power Factor Control Circuit

### OUTLINE DIMENSIONS



### RATINGS

Absolute Maximum Ratings (Tc = 25 )

Item	Symbol	Conditions	Ratings	Unit
Storage Temperature	T <sub>stg</sub>		-55 ~ 150	
Channel Temperature	T <sub>ch</sub>		150	
Drain-Source Voltage	V <sub>DSS</sub>		600	V
Gate-Source Voltage	V <sub>GSS</sub>		± 30	
Continuous Drain Current (DC )	I <sub>D</sub>		4	A
Continuous Drain Current (Peak)	I <sub>DP</sub>		12	
Continuous Source Current (DC )	I <sub>S</sub>		4	
Total Power Dissipation	P <sub>T</sub>		30	W
Single Pulse Avalanche Current	I <sub>AS</sub>	T <sub>ch</sub> = 25	4	A
Dielectric Strength	V <sub>dis</sub>	Terminals to case, AC 1 minute	2	kV
Mounting Torque	TOR	(Recommended torque : 0.3N·m )	0.5	N·m

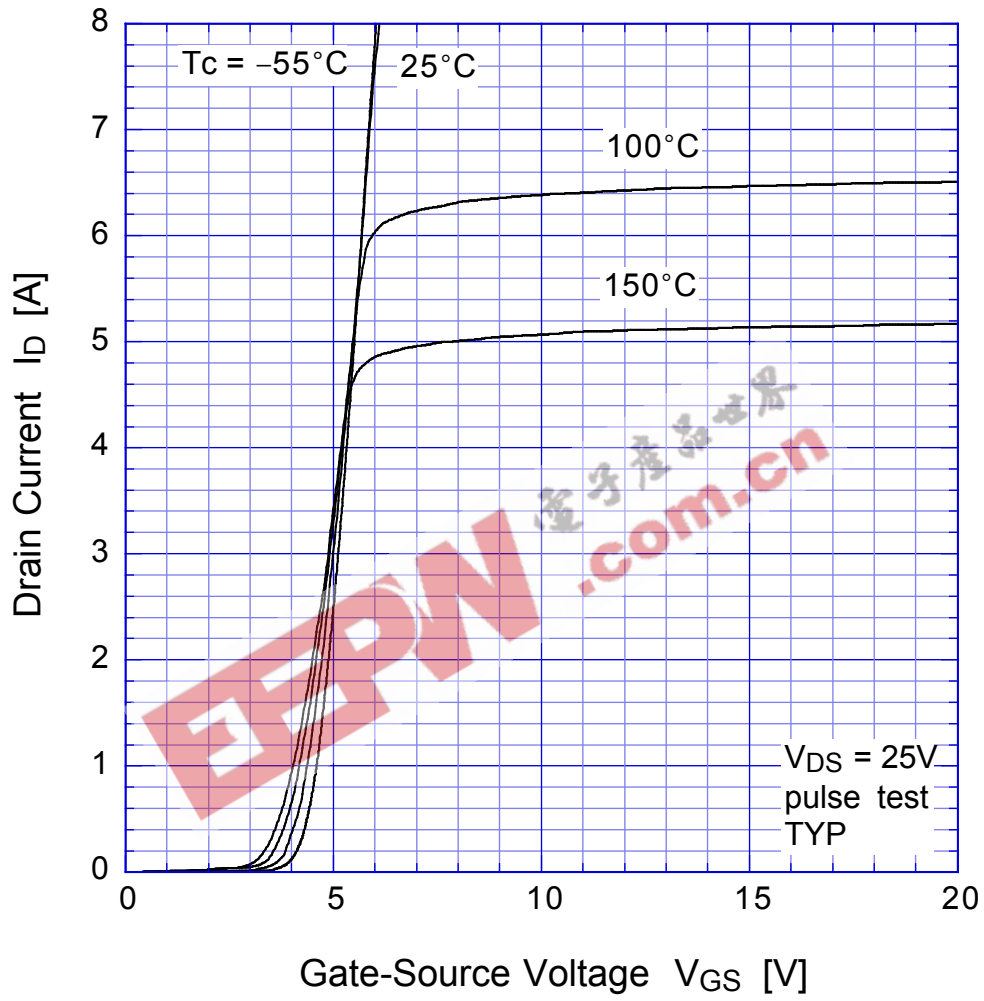
●Electrical Characteristics  $T_c = 25^\circ\text{C}$

Item	Symbol	Conditions	Min.	Typ.	Max.	Unit
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D = 1\text{mA}, V_{GS} = 0\text{V}$	600			V
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS} = 600\text{V}, V_{GS} = 0\text{V}$			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	$g_{fs}$	$I_D = 2\text{A}, V_{DS} = 10\text{V}$	1.5	3.8		S
Static Drain-Source On-state Resistance	$R_{DS(ON)}$	$I_D = 2\text{A}, V_{GS} = 10\text{V}$		1.8	2.2	$\Omega$
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 Forwade Voltage	$V_{SD}$	$I_S = 2\text{A}, V_{GS} = 0\text{V}$			1.5	
Thermal Resistance	$\theta_{jc}$	junction to case			4.16	$^\circ\text{C}/\text{W}$
Total Gate Charge	$Q_g$	$V_{DD} = 400\text{V}, V_{GS} = 10\text{V}, I_D = 4\text{A}$		21		nC
Input Capacitance	$C_{iss}$	$V_{DS} = 10\text{V}, V_{GS} = 0\text{V}, f = 1\text{MHz}$		540		pF
Reverse Transfer Capacitance	$C_{rss}$			40		
Output Capacitance	$C_{oss}$			120		
Turn-On Time	$t_{on}$	$I_D = 2\text{A}, R_L = 75\Omega, V_{GS} = 10\text{V}$		28	40	ns
Turn-Off Time	$t_{off}$			110	160	

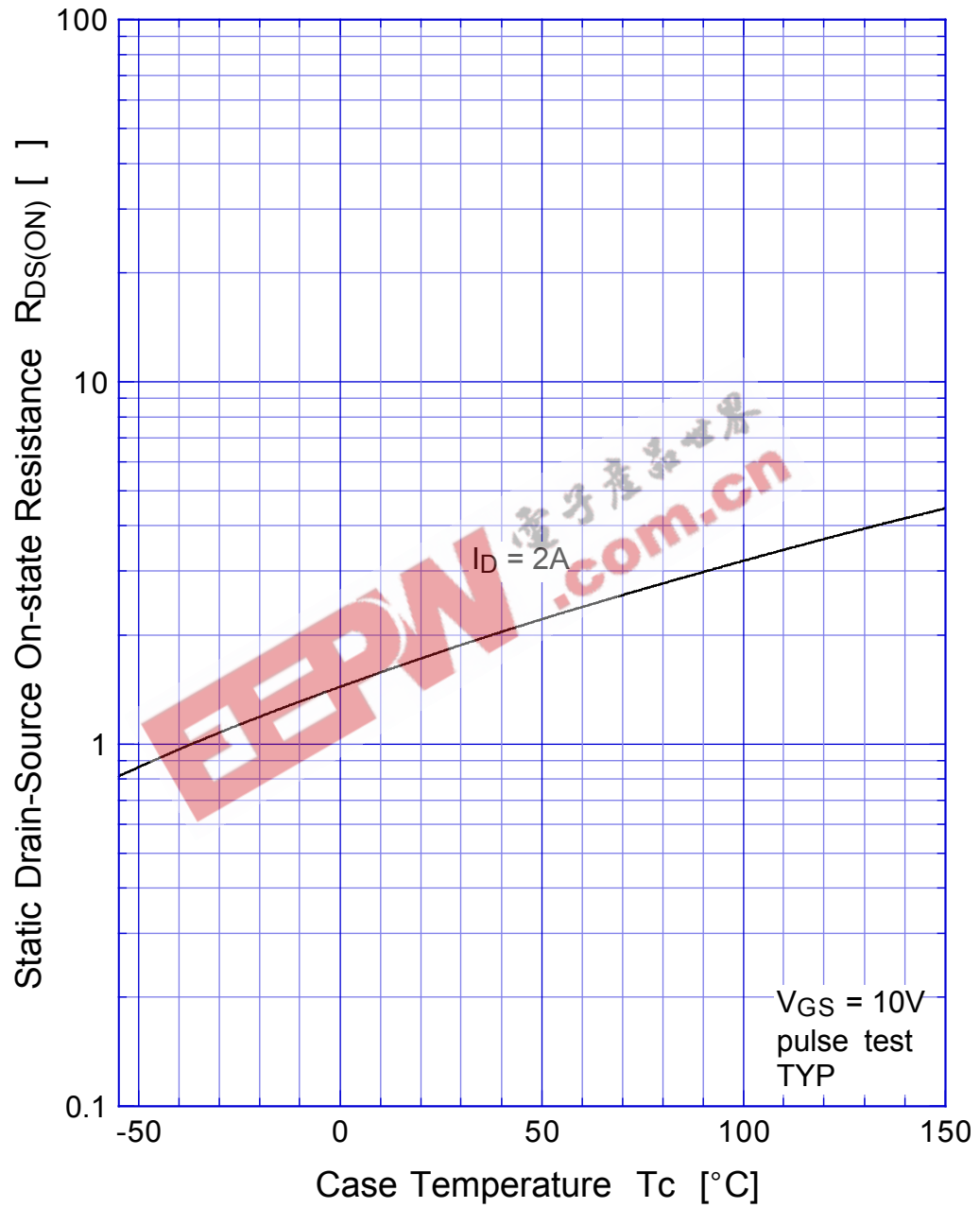
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# 2SK2563

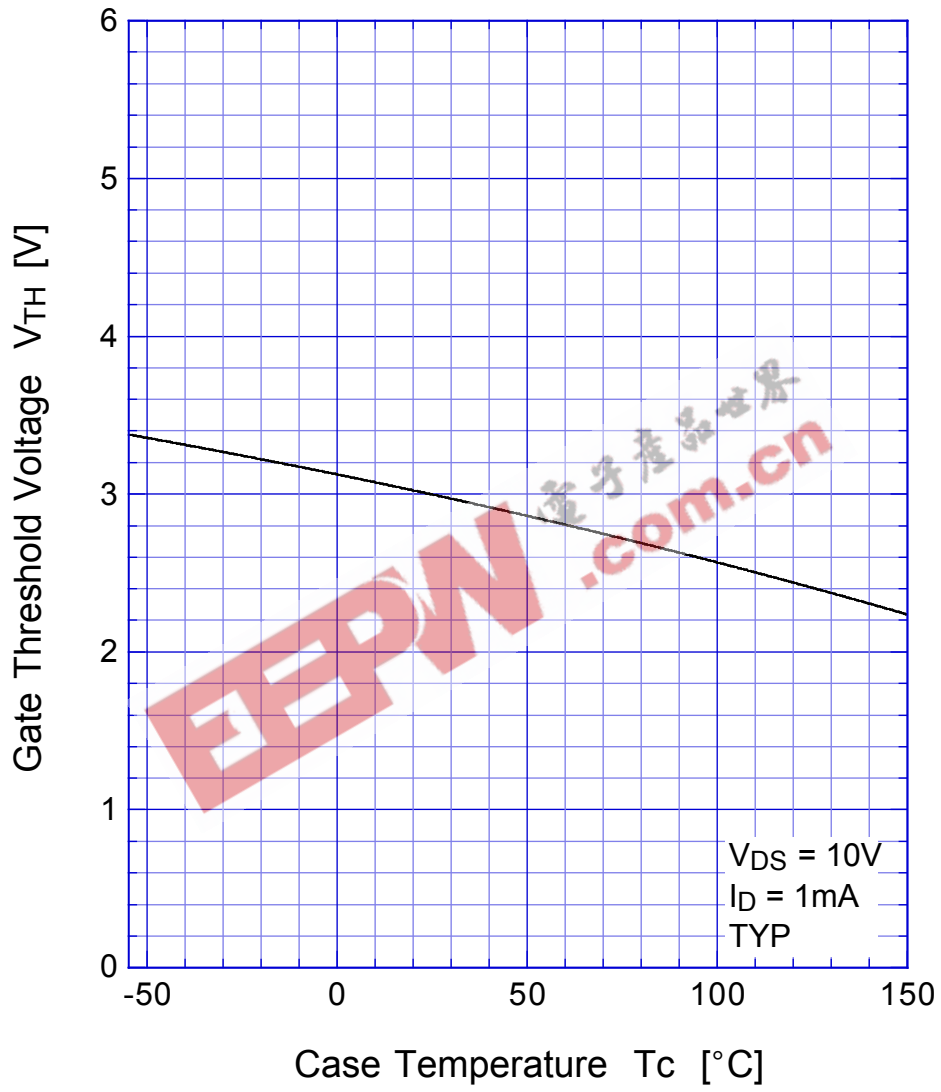
## Transfer Characteristics



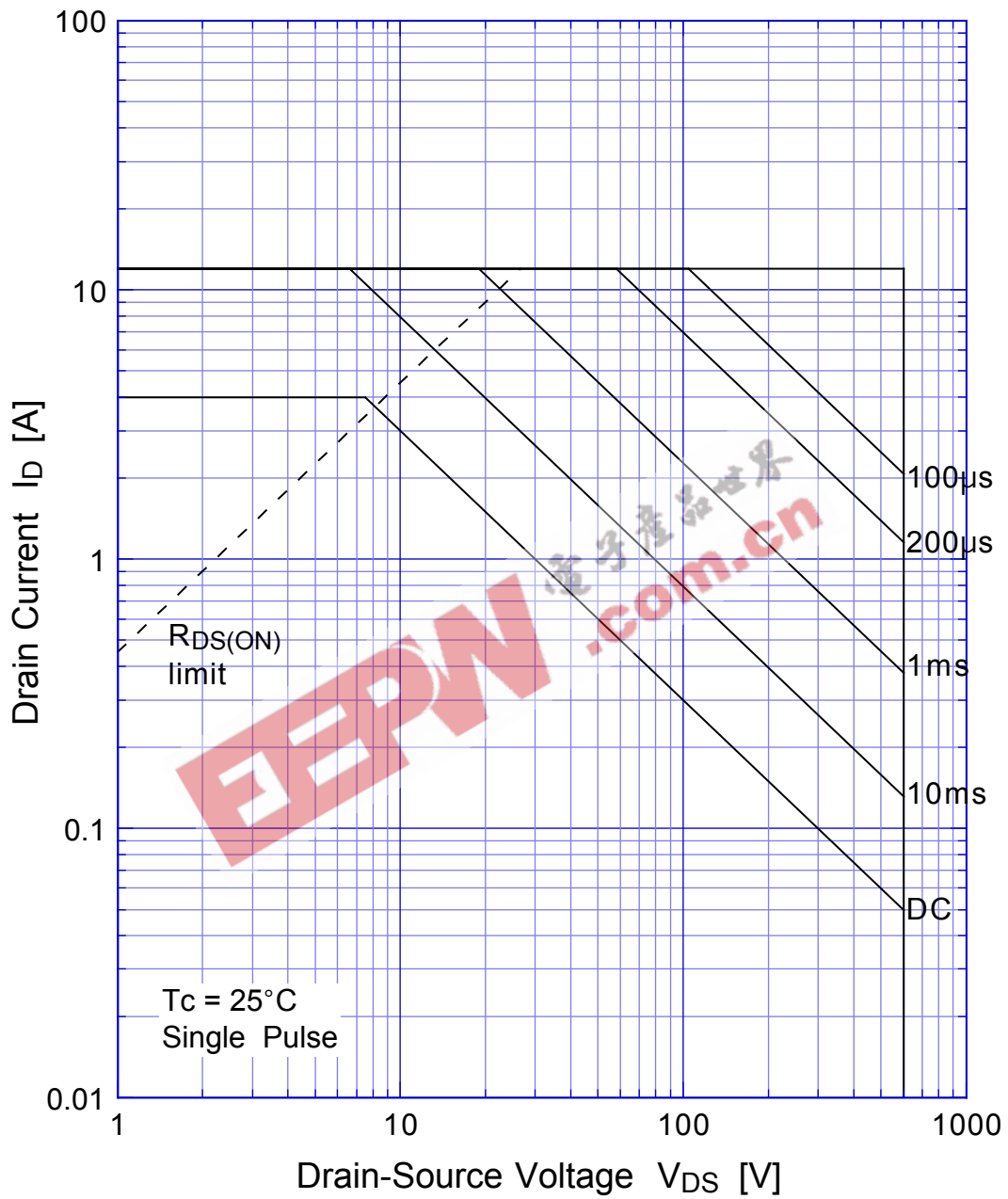
## 2SK2563 Static Drain-Source On-state Resistance



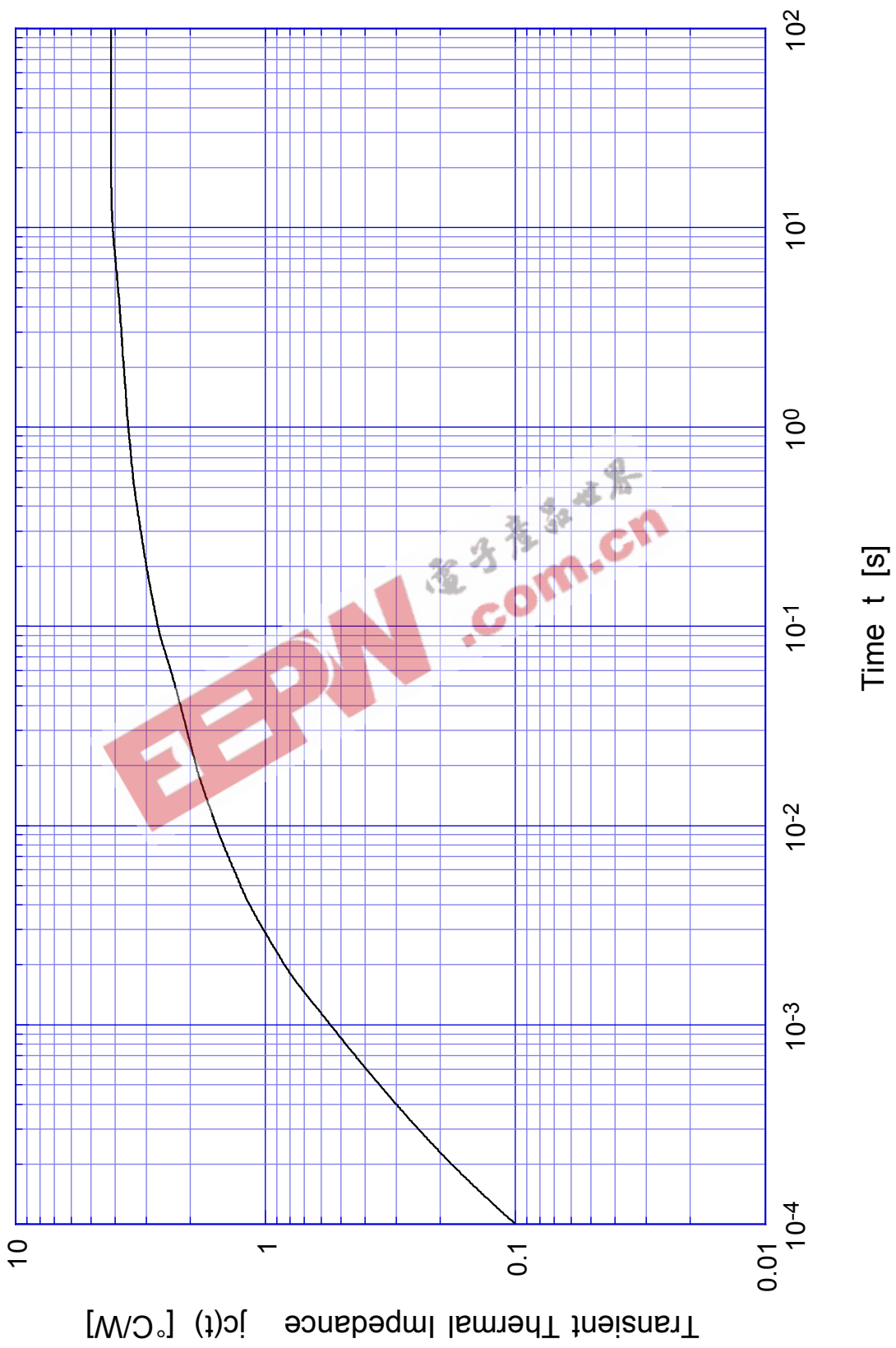
## 2SK2563 Gate Threshold Voltage



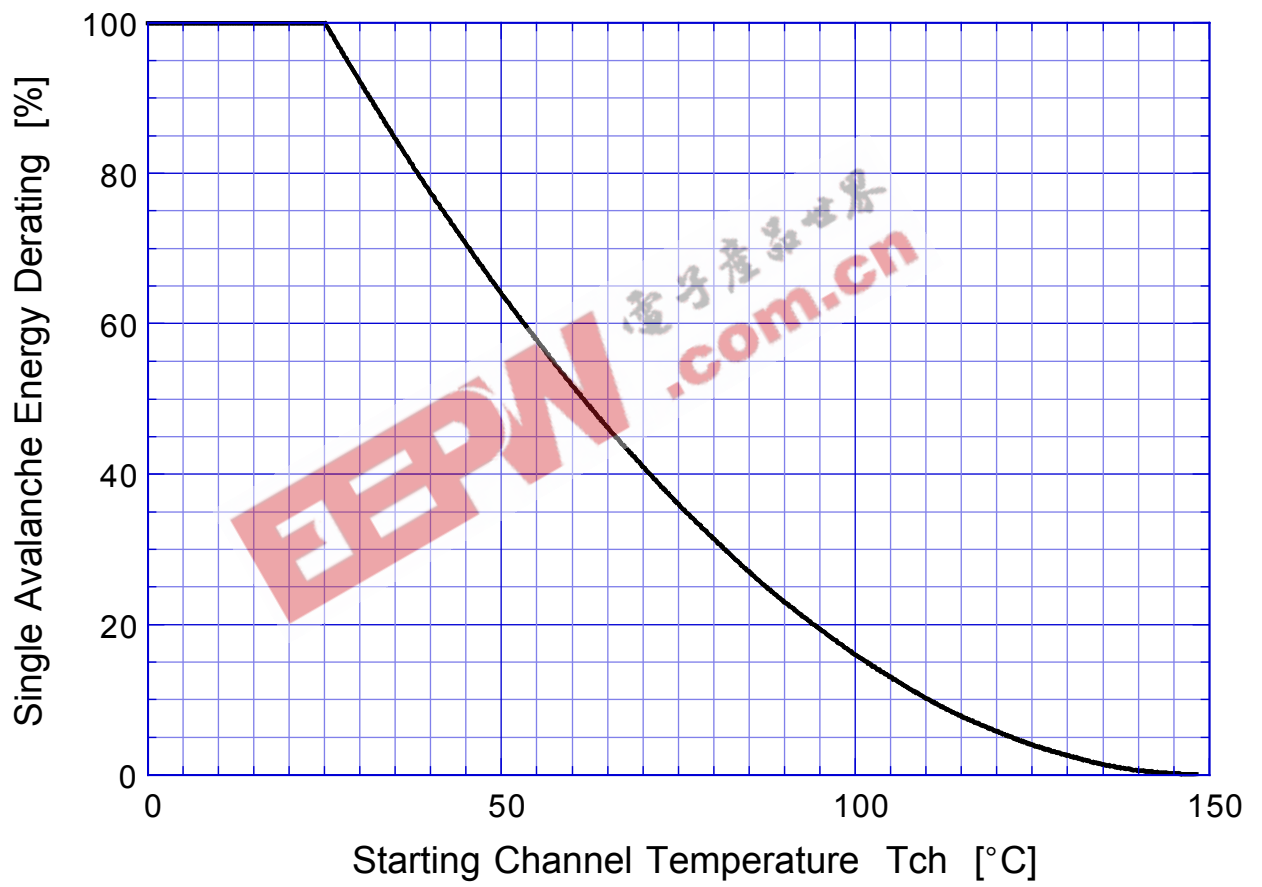
# 2SK2563 Safe Operating Area



# 2SK2563 Transient Thermal Impedance



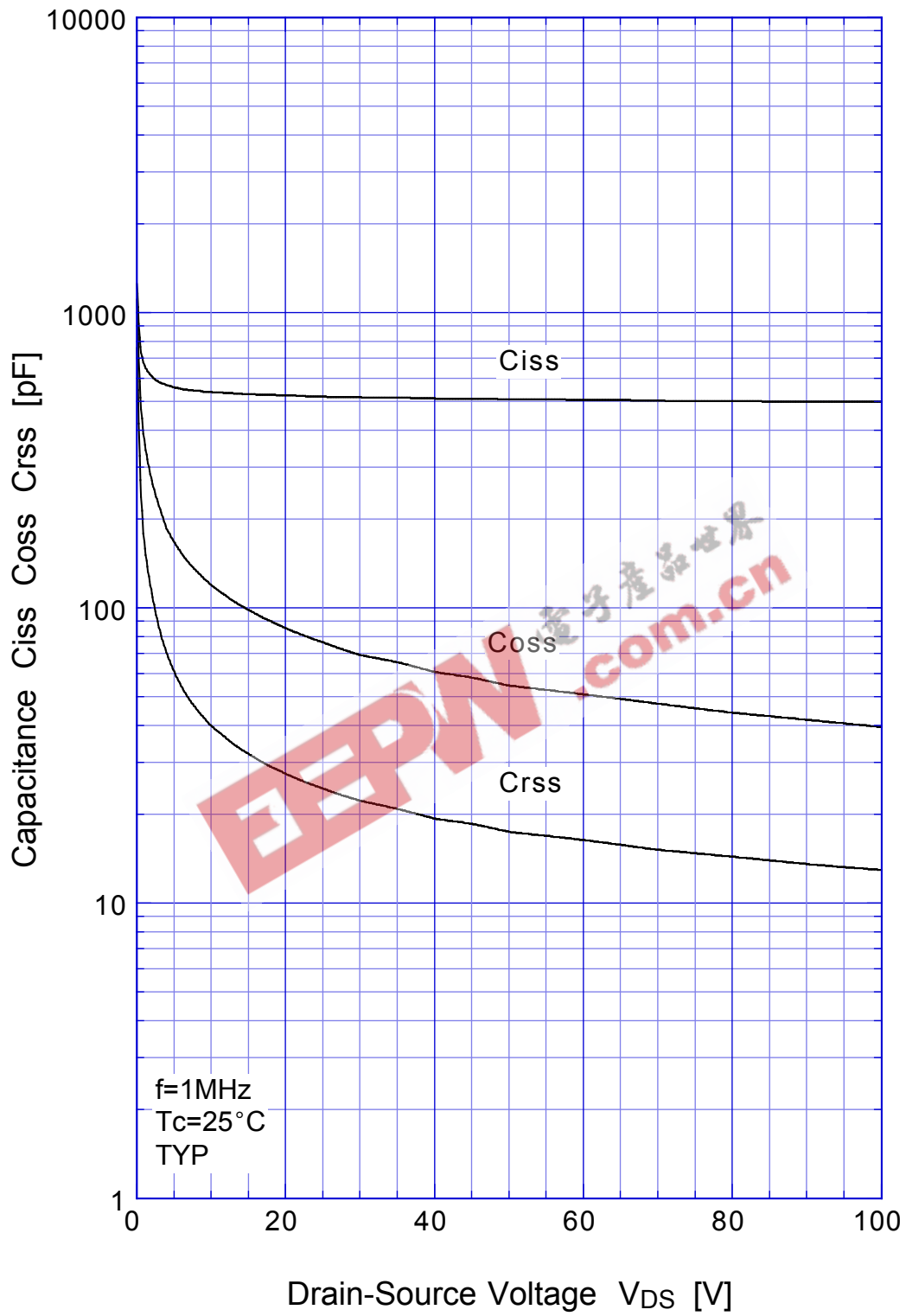
## 2SK2563 Single Avalanche Energy Derating



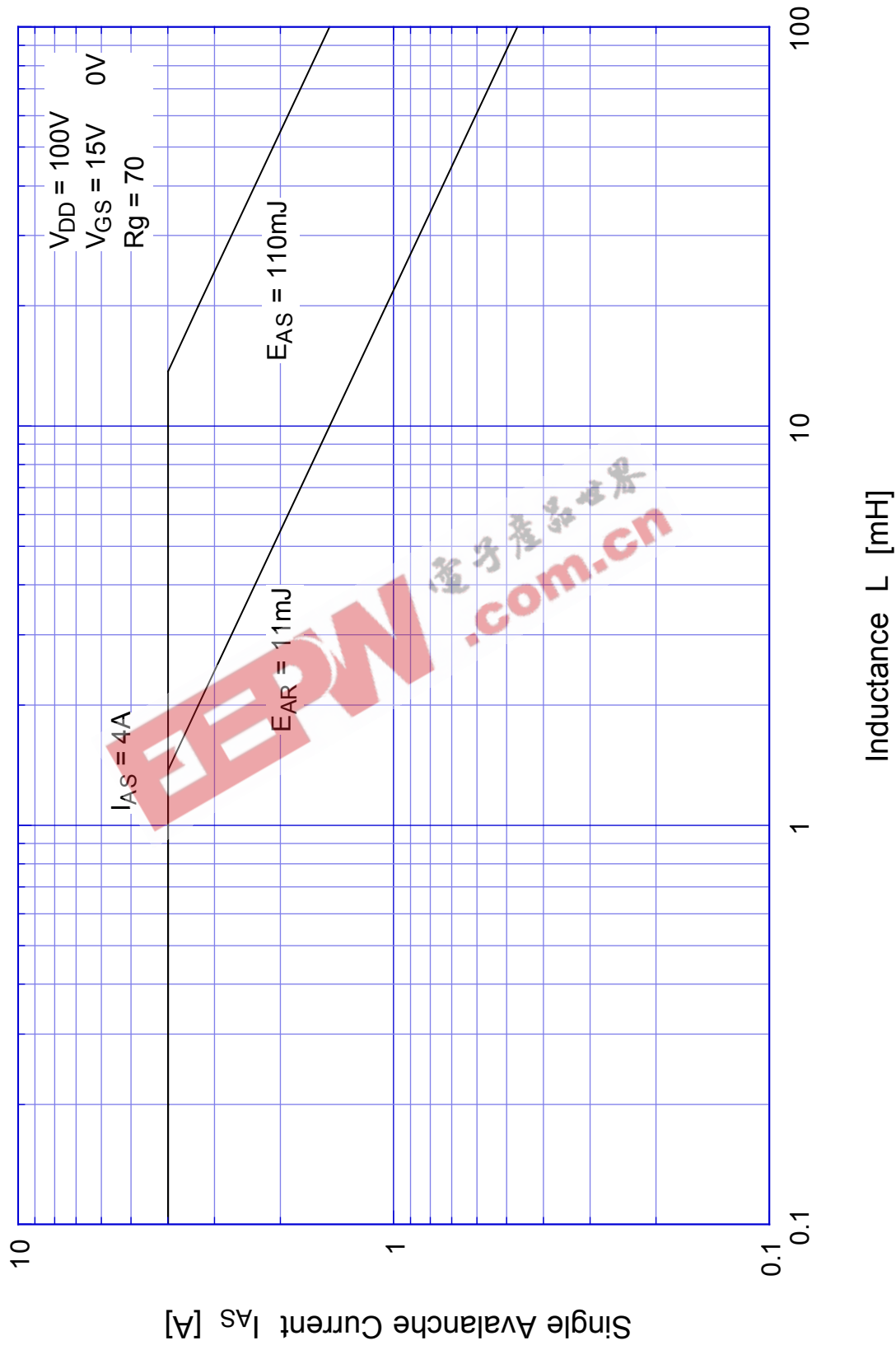


# 2SK2563

# Capacitance

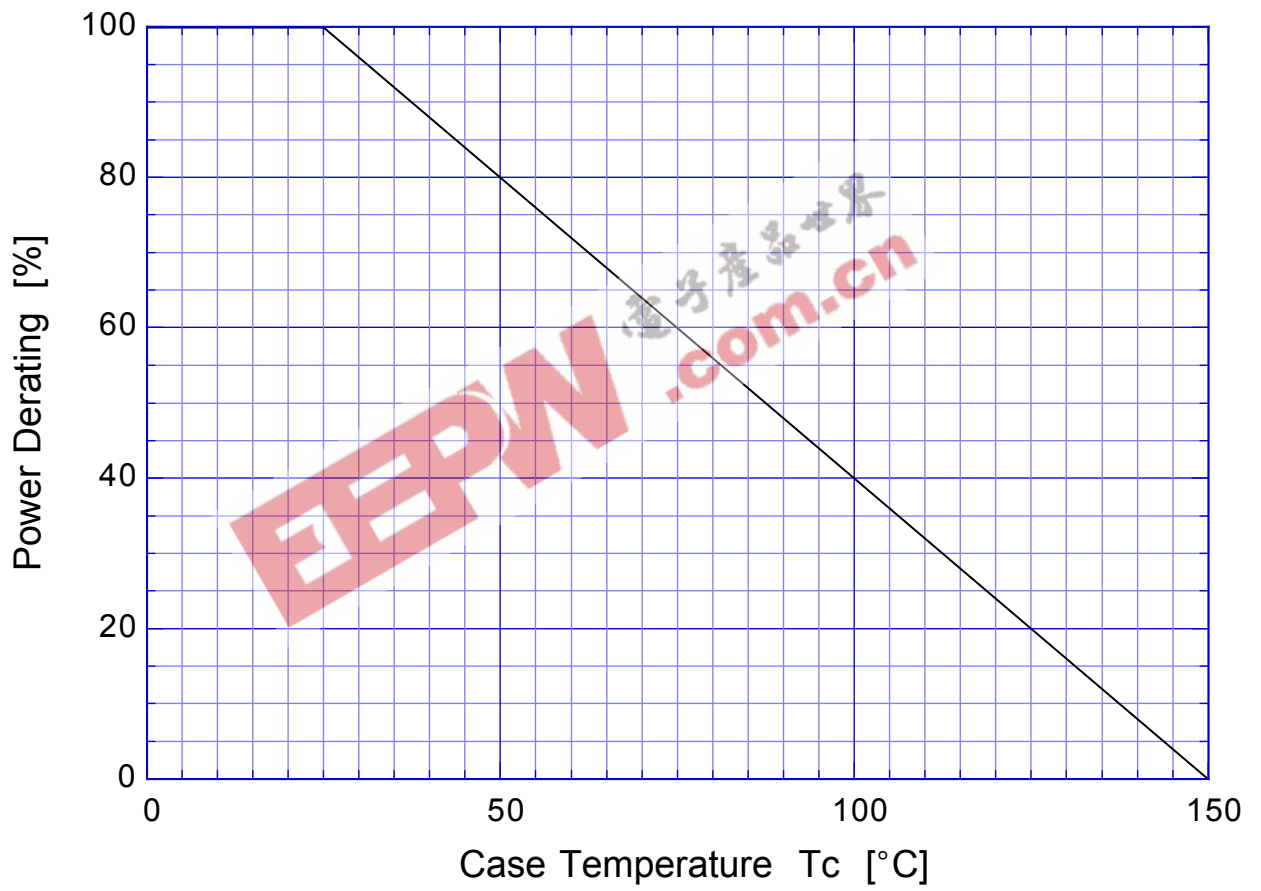


# 2SK2563 Single Avalanche Current - Inductive Load



2SK2563

Power Derating



## 2SK2563 Gate Charge Characteristics

