

2SK2668  
(FP3W90HVX2)

900V 3A

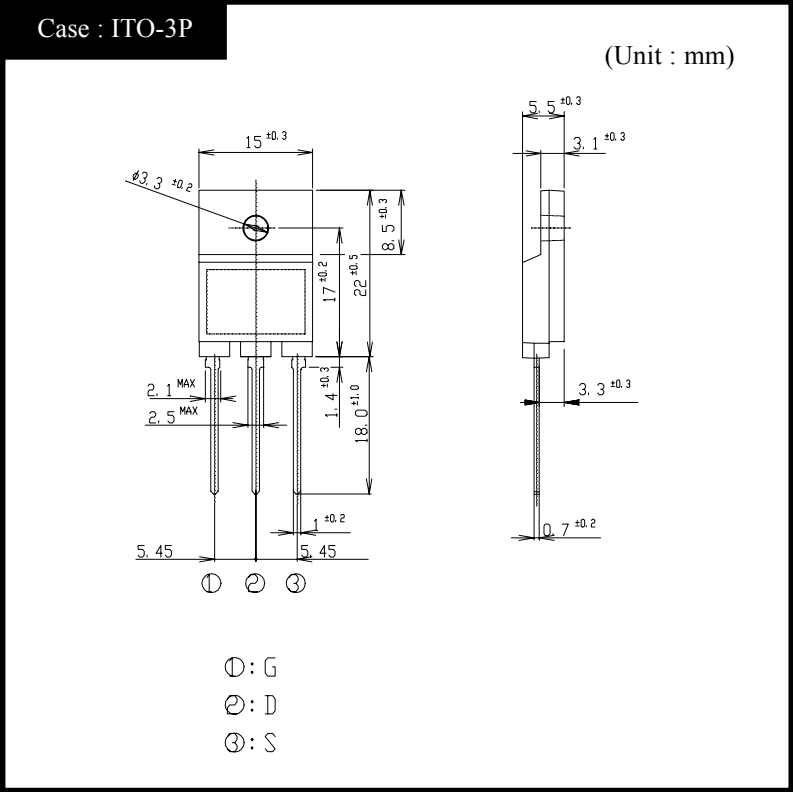
FEATURES

- 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 240V input
- High voltage power supply
- Inverter

OUTLINE DIMENSIONS



RATINGS

●Absolute Maximum Ratings (Tc = 25°C)

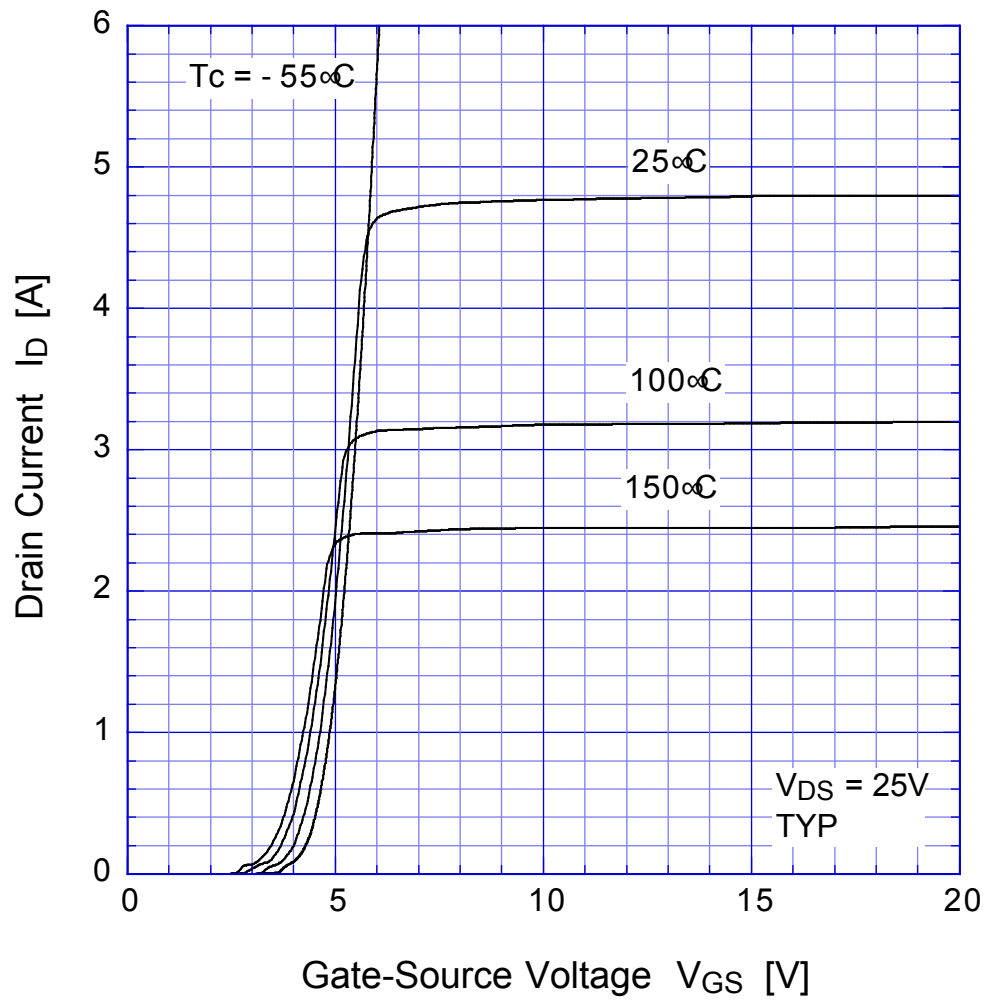
| Item                            | Symbol           | Conditions                              | Ratings | Unit |
|---------------------------------|------------------|-----------------------------------------|---------|------|
| Storage Temperature             | T <sub>stg</sub> |                                         | -55~150 | °C   |
| Channel Temperature             | T <sub>ch</sub>  |                                         | 150     |      |
| Drain-Source Voltage            | V <sub>DSS</sub> |                                         | 900     | V    |
| Gate-Source Voltage             | V <sub>GSS</sub> |                                         | ±30     |      |
| Continuous Drain Current (DC)   | I <sub>D</sub>   |                                         | 3       | A    |
| Continuous Drain Current (Peak) | I <sub>DP</sub>  | Pulse width ≤ 10 μs, Duty cycle ≤ 1/100 | 6       |      |
| Continuous Source Current (DC)  | I <sub>S</sub>   |                                         | 3       |      |
| Total Power Dissipation         | P <sub>T</sub>   |                                         | 40      | W    |
| Repetitive Avalanche Current    | I <sub>AR</sub>  | T <sub>ch</sub> = 150°C                 | 3       | A    |
| Single Avalanche Energy         | E <sub>AS</sub>  | T <sub>ch</sub> = 25°C                  | 48      | mJ   |
| Repetitive Avalanche Energy     | E <sub>AR</sub>  | T <sub>ch</sub> = 25°C                  | 4.8     |      |
| Dielectric Strength             | V <sub>dis</sub> | Terminals to case, AC 1 minute          | 2       | kV   |
| Mounting Torque                 | TOR              | ( Recommended torque : 0.5 N·m )        | 0.8     | N·m  |

## ●Electrical Characteristics T<sub>c</sub> = 25°C

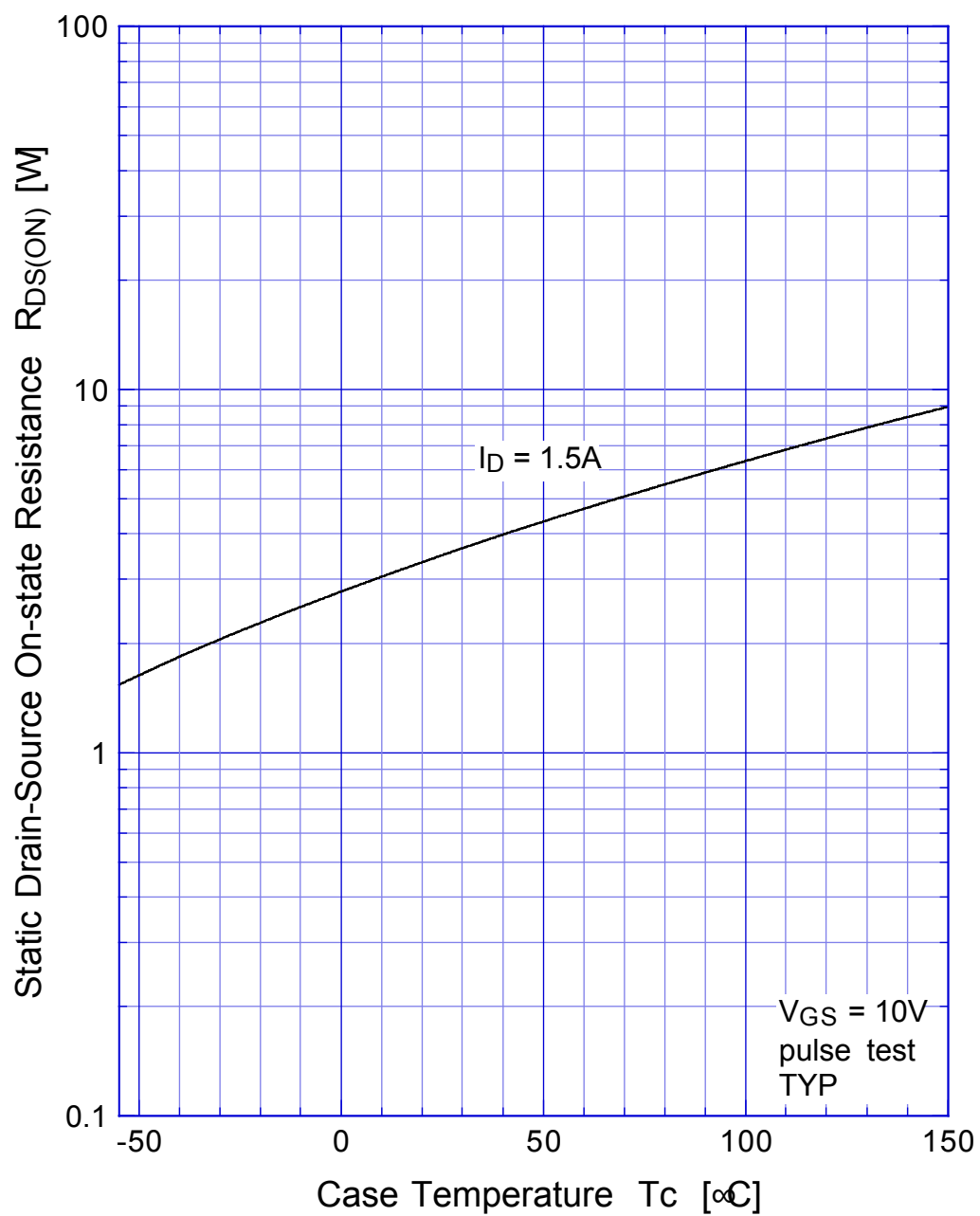
| Item                                    | Symbol               | Conditions                                                          | Min. | Typ. | Max. | Unit |
|-----------------------------------------|----------------------|---------------------------------------------------------------------|------|------|------|------|
| Drain-Source Breakdown Voltage          | V <sub>(BR)DSS</sub> | I <sub>D</sub> = 1mA, V <sub>GS</sub> = 0V                          | 900  |      |      | V    |
| Zero Gate Voltage Drain Current         | I <sub>DSS</sub>     | V <sub>DS</sub> = 900V, V <sub>GS</sub> = 0V                        |      |      | 250  | μA   |
| Gate-Source Leakage Current             | I <sub>GSS</sub>     | V <sub>GS</sub> = ±30V, V <sub>DS</sub> = 0V                        |      |      | ±0.1 |      |
| Forward Transconductance                | g <sub>fs</sub>      | I <sub>D</sub> = 1.5A, V <sub>DS</sub> = 10V                        | 1.5  | 2.5  |      | S    |
| Static Drain-Source On-state Resistance | R <sub>DS(ON)</sub>  | I <sub>D</sub> = 1.5A, V <sub>GS</sub> = 10V                        |      | 3.5  | 4.7  | Ω    |
| Gate Threshold Voltage                  | V <sub>TH</sub>      | I <sub>D</sub> = 1mA, V <sub>DS</sub> = 10V                         | 2.5  | 3.0  | 3.5  | V    |
| Source-Drain Diode Forward Voltage      | V <sub>SD</sub>      | I <sub>S</sub> = 1.5A, V <sub>GS</sub> = 0V                         |      |      | 1.5  |      |
| Thermal Resistance                      | θ <sub>jc</sub>      | junction to case                                                    |      |      | 3.12 | °C/W |
| Total Gate Charge                       | Q <sub>g</sub>       | V <sub>DD</sub> = 400V, V <sub>GS</sub> = 10V, I <sub>D</sub> = 3A  |      | 30   |      | nC   |
| Input Capacitance                       | C <sub>iss</sub>     | V <sub>DS</sub> = 25V, V <sub>GS</sub> = 0V, f = 1MHz               |      | 630  |      | pF   |
| Reverse Transfer Capacitance            | C <sub>rss</sub>     |                                                                     |      | 16   |      |      |
| Output Capacitance                      | C <sub>oss</sub>     |                                                                     |      | 67   |      |      |
| Turn-On Time                            | t <sub>on</sub>      | I <sub>D</sub> = 1.5A, R <sub>L</sub> = 100Ω, V <sub>GS</sub> = 10V |      | 40   | 70   | ns   |
| Turn-Off Time                           | t <sub>off</sub>     |                                                                     |      | 140  | 230  |      |

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Transfer Characteristics

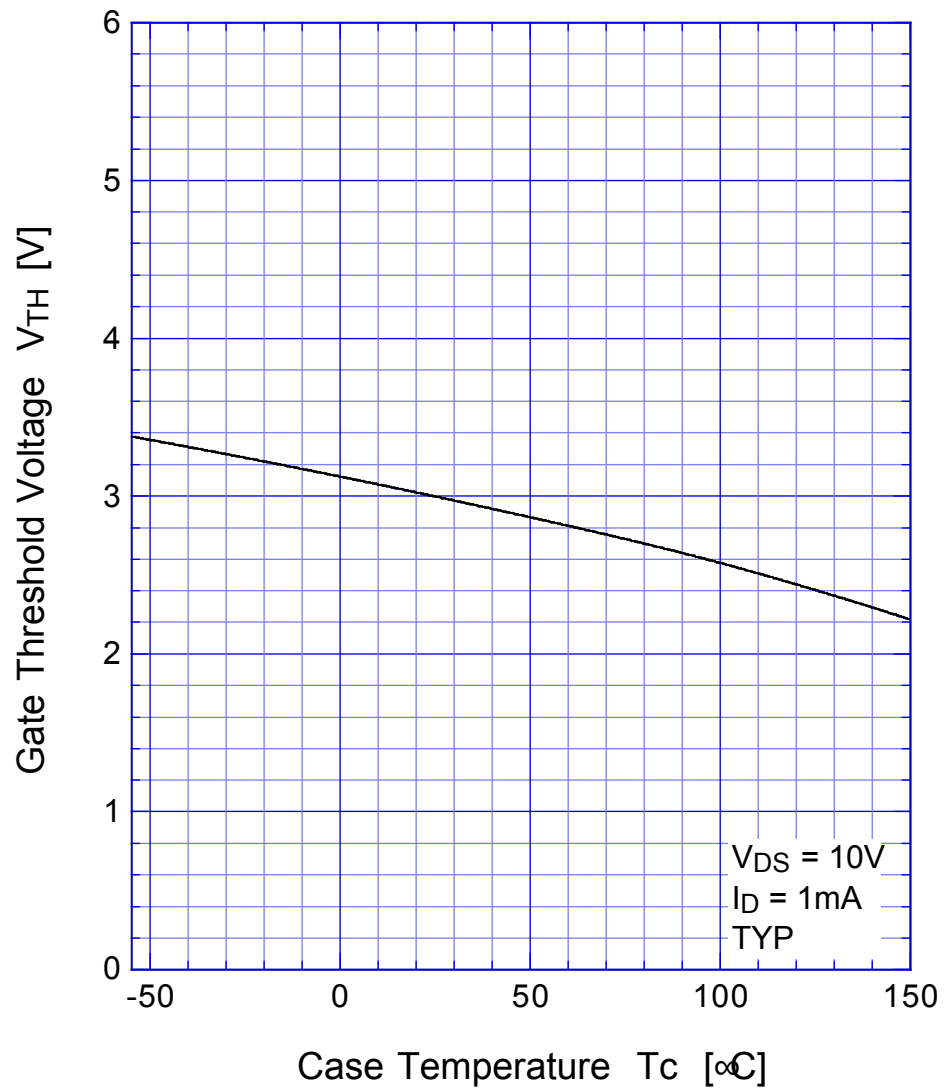


## 2SK2668 Static Drain-Source On-state Resistance



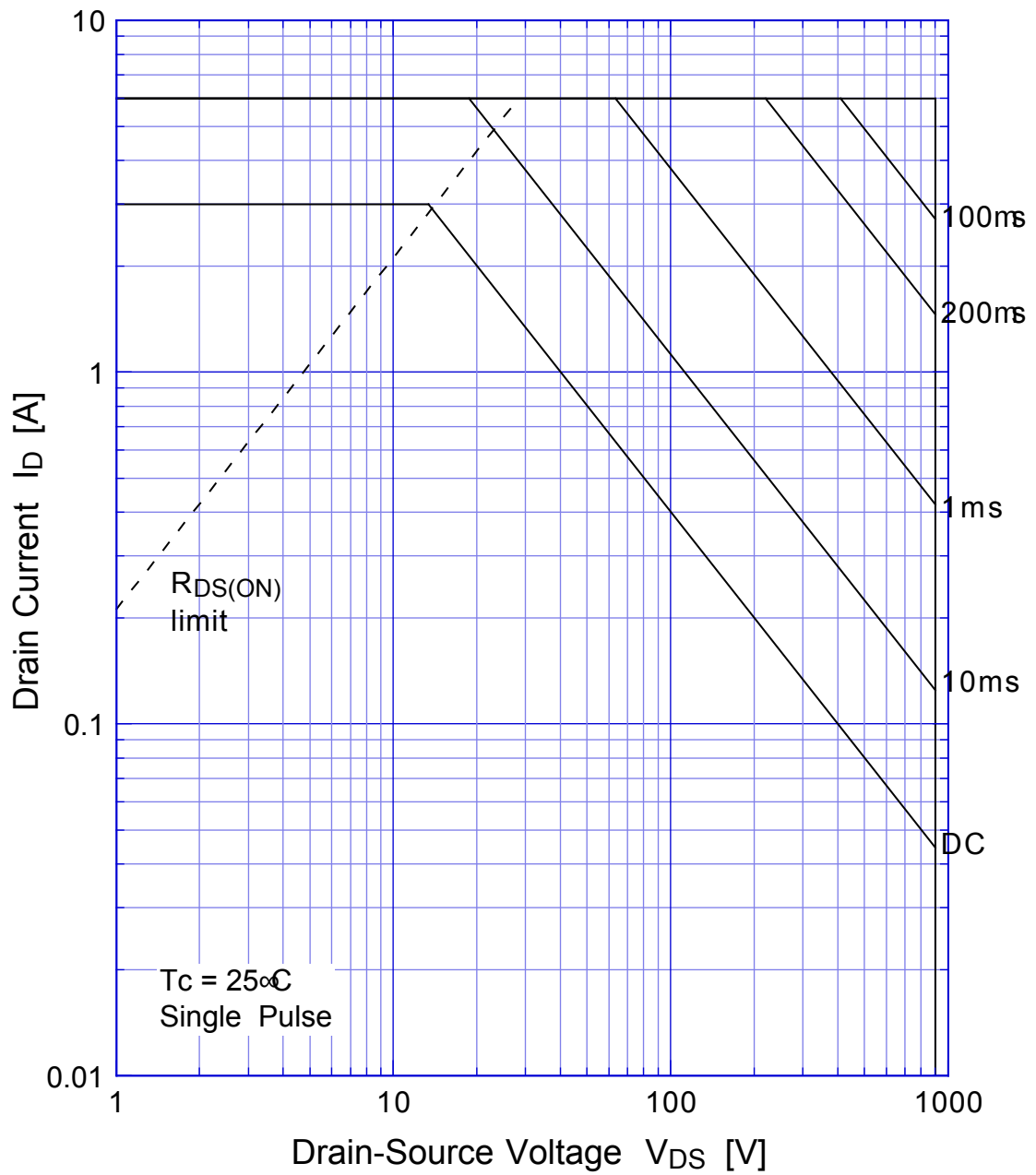
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Gate Threshold Voltage

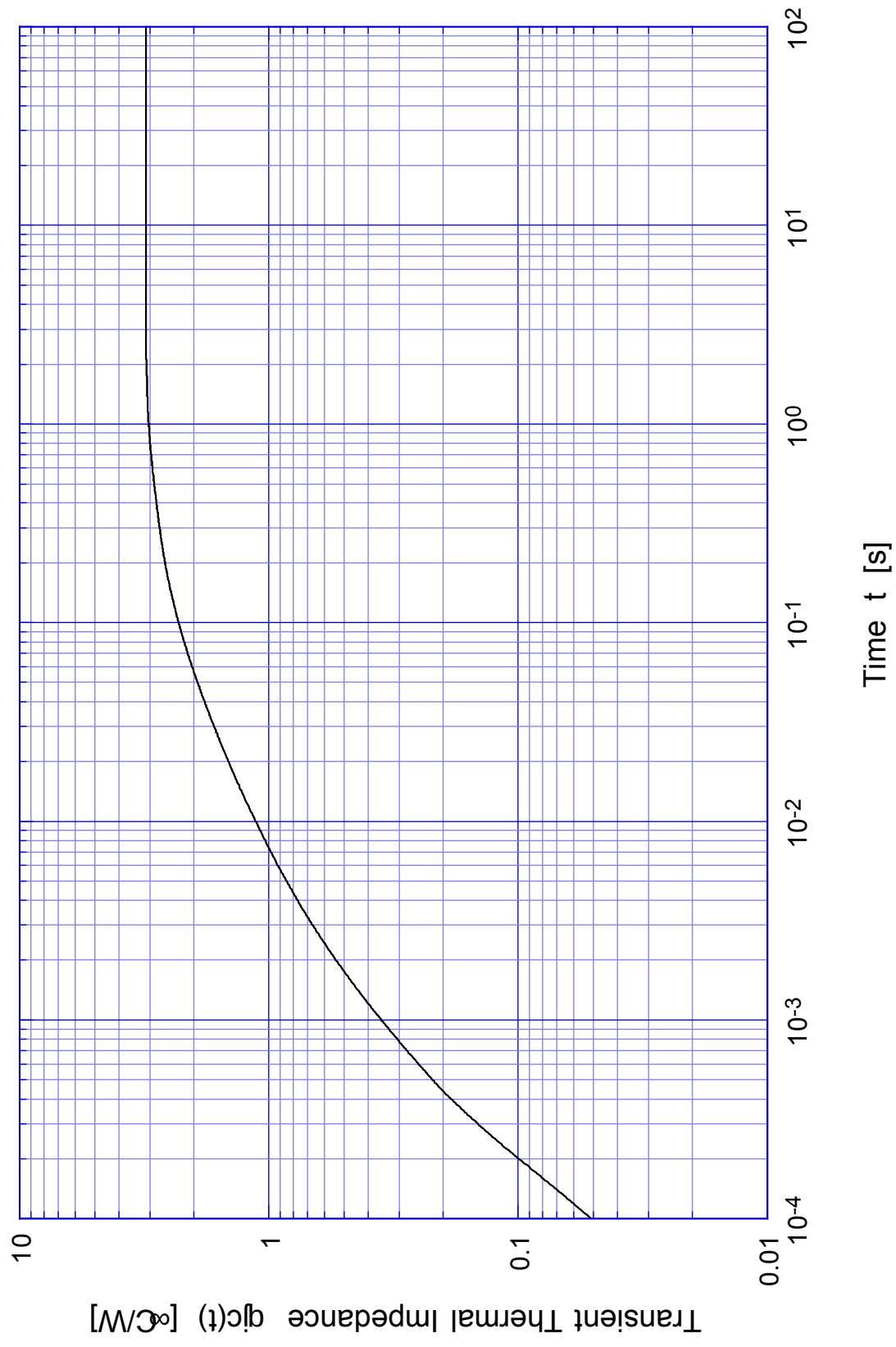


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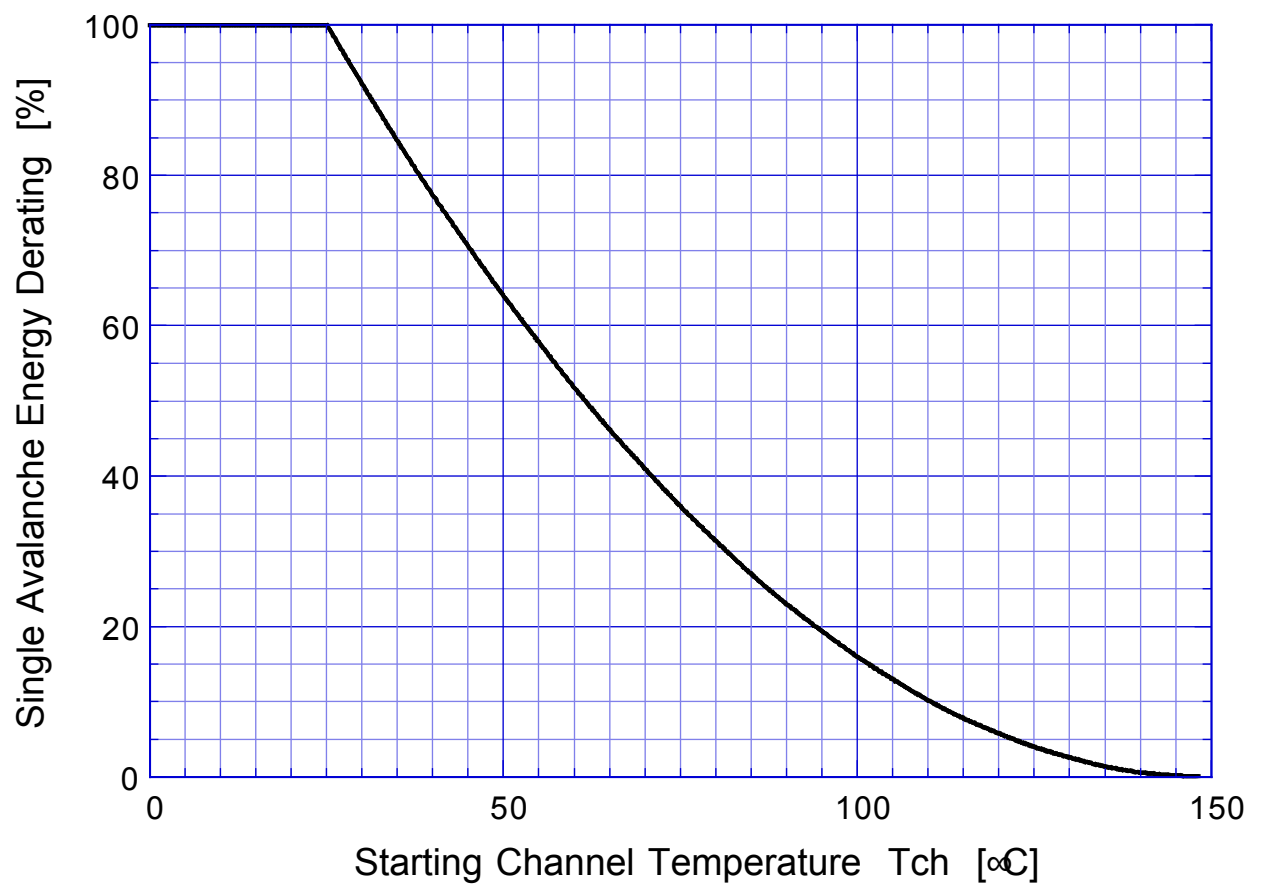
Safe Operating Area



# 2SK2668      Transient Thermal Impedance



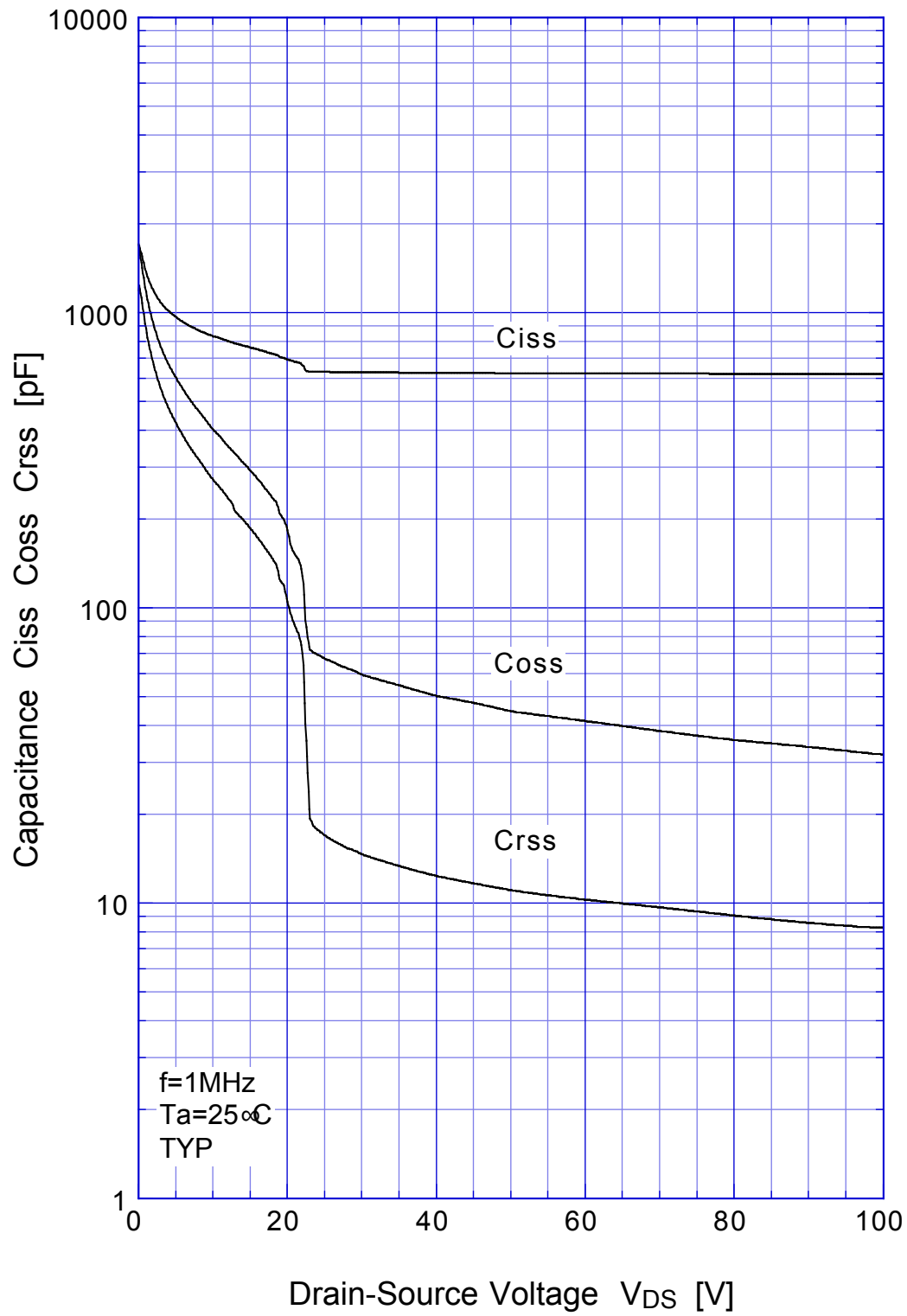
## 2SK2668 Single Avalanche Energy Derating



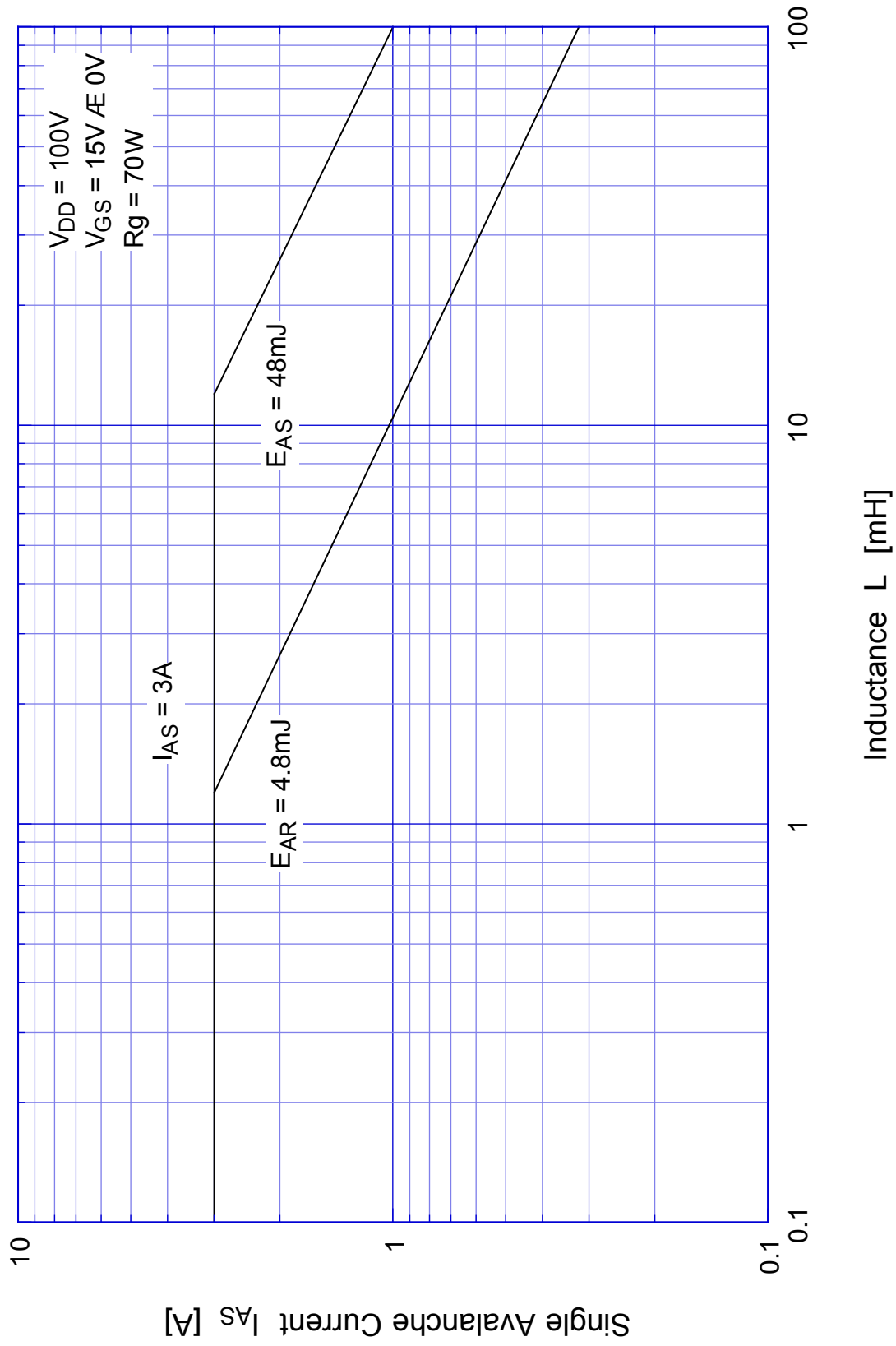


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Capacitance

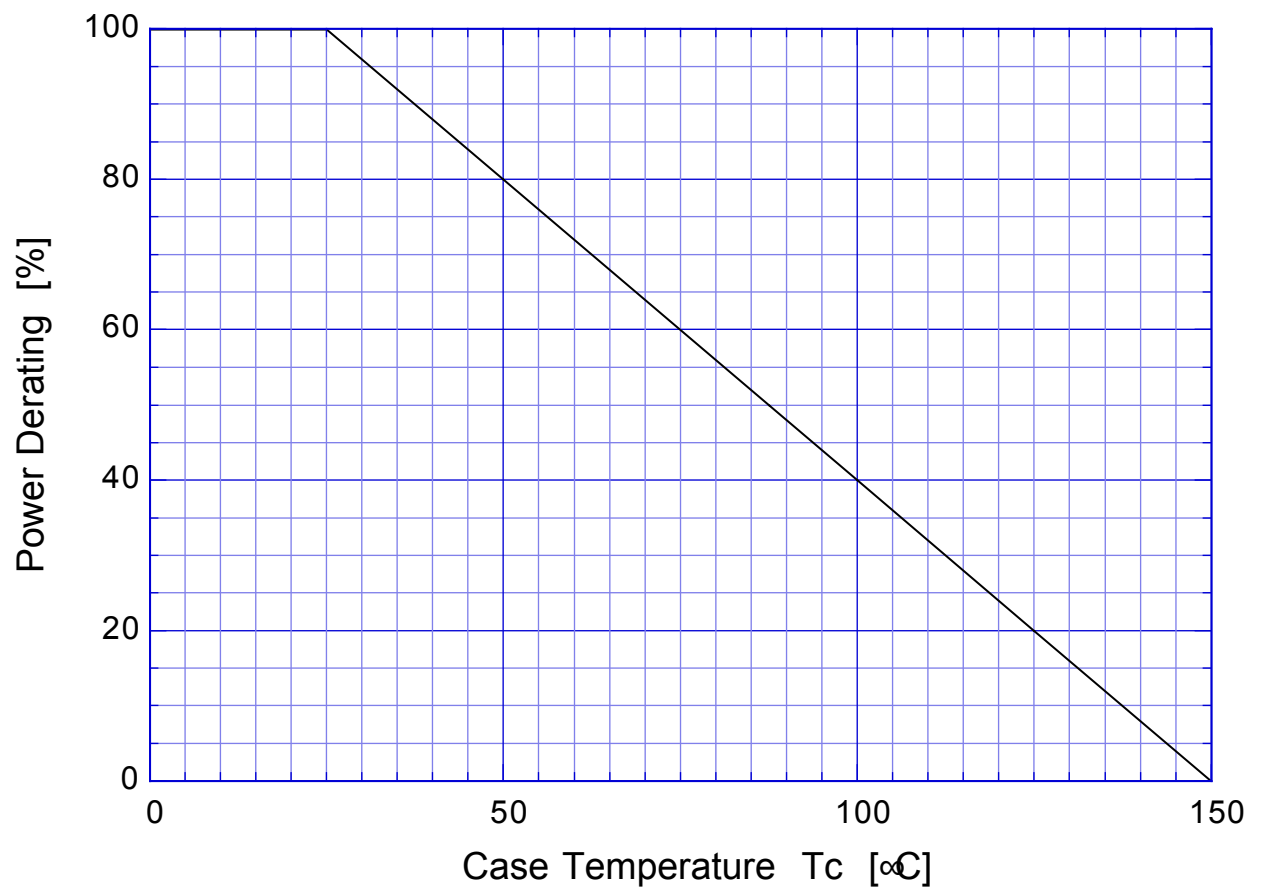


# 2SK2668      Single Avalanche Current - Inductive Load



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Power Derating



## 2SK2668

## Gate Charge Characteristics

