

# SHINDENGEN

## HVX-2 Series Power MOSFET

N-Channel Enhancement type

**2SK2669**  
**( F5V90HVX2 )**

**900V 5A**

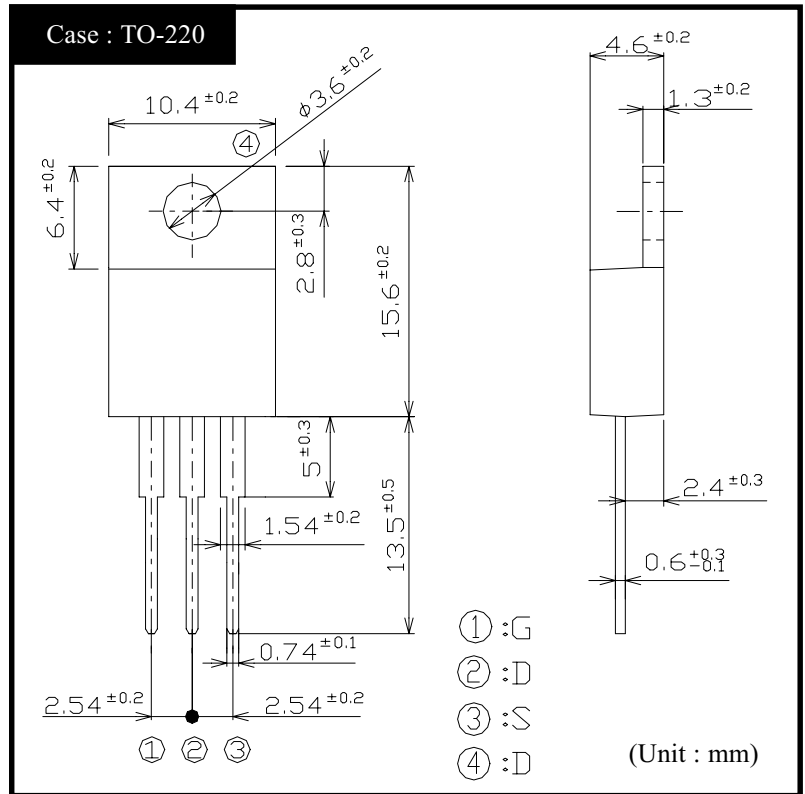
### FEATURES

- 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)

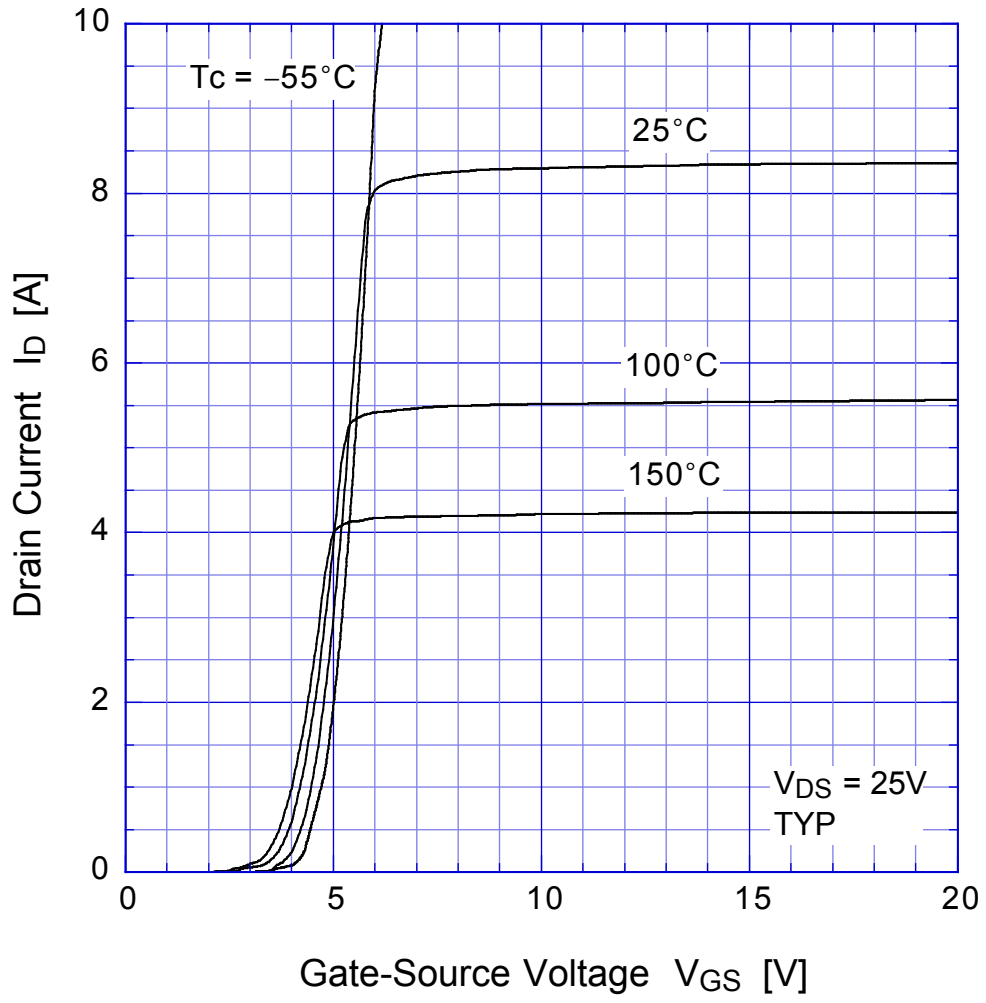
| Item                            | Symbol           | Conditions                              | Ratings | Unit |
|---------------------------------|------------------|---|---------|------|
| Storage Temperature             | T <sub>stg</sub> |   | -55~150 | °C   |
| Channel Temperature             | 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>   |   | 5       | A    |
| Continuous Drain Current (Peak) | I <sub>DP</sub>  | Pulse width ≤ 10 μs, Duty cycle ≤ 1/100 | 10      |      |
| Continuous Source Current (DC)  | I <sub>S</sub>   |   | 5       |      |
| Total Power Dissipation         | P <sub>T</sub>   |   | 60      | W    |
| Repetitive Avalanche Current    | I <sub>AR</sub>  | T <sub>ch</sub> = 150°C                 | 5       | A    |
| Single Avalanche Energy         | E <sub>AS</sub>  | T <sub>ch</sub> = 25°C                  | 100     | mJ   |
| Repetitive Avalanche Energy     | E <sub>AR</sub>  | T <sub>ch</sub> = 25°C                  | 10      |      |
| Mounting Torque                 | TOR              | ( Recommended torque : 0.3 N·m )        | 0.5     | N·m  |

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

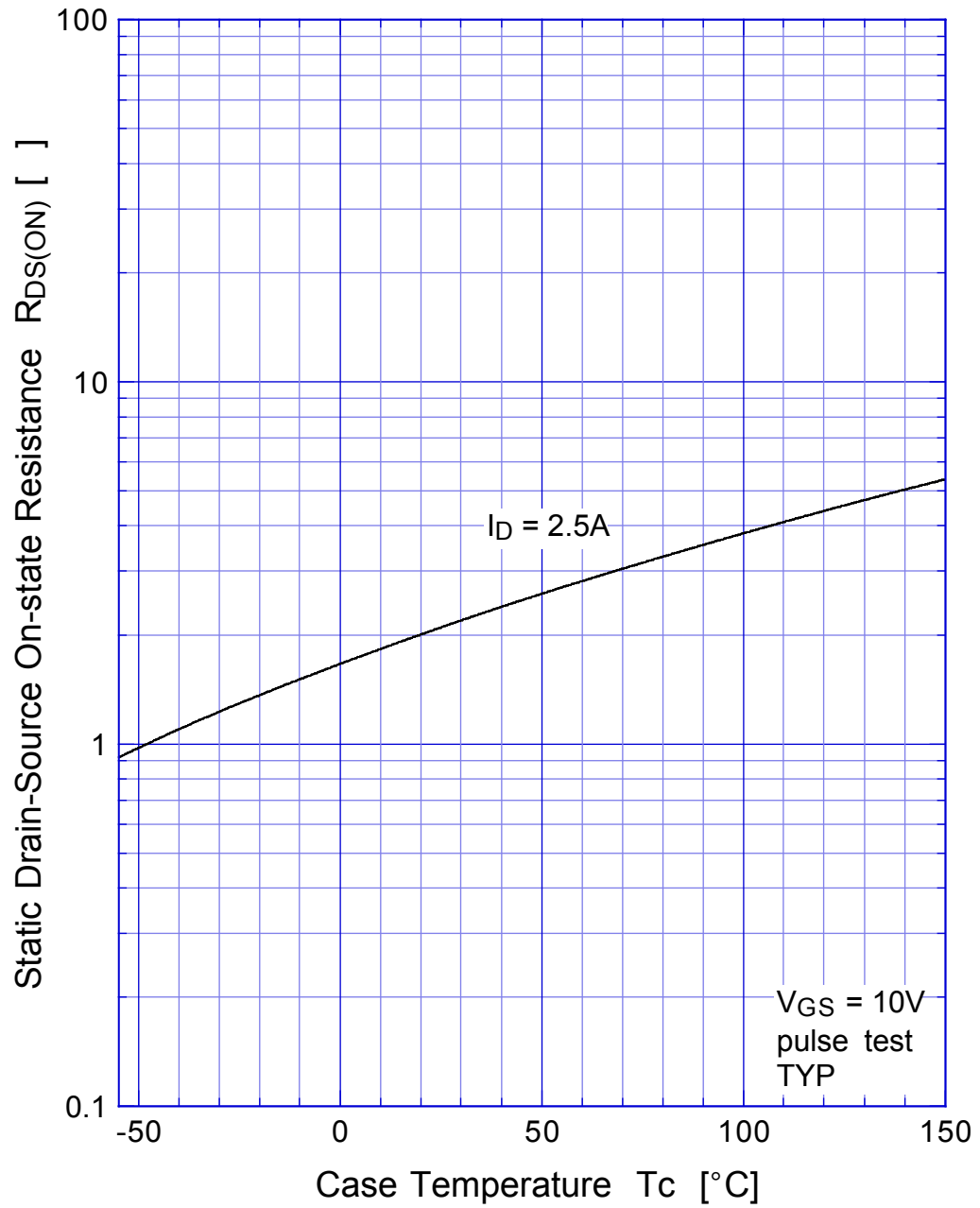
| Item                                    | Symbol        | Conditions   | Min. | Typ. | Max.      | Unit                      |
|---|---------------|--|------|------|-----------|---------------------------|
| Drain-Source Breakdown Voltage          | $V_{(BR)DSS}$ | $I_D = 1\text{mA}, V_{GS} = 0\text{V}$                       | 900  |      |           | V                         |
| Zero Gate Voltage Drain Current         | $I_{DSS}$     | $V_{DS} = 900\text{V}, V_{GS} = 0\text{V}$                   |      |      | 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                | $g_{fs}$      | $I_D = 2.5\text{A}, V_{DS} = 10\text{V}$                     | 2.4  | 4.0  |           | S                         |
| Static Drain-Source On-state Resistance | $R_{DS(ON)}$  | $I_D = 2.5\text{A}, V_{GS} = 10\text{V}$                     |      | 2.1  | 2.8       | $\Omega$                  |
| 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 Forward Voltage      | $V_{SD}$      | $I_S = 2.5\text{A}, V_{GS} = 0\text{V}$                      |      |      | 1.5       |                           |
| Thermal Resistance                      | $\theta_{jc}$ | junction to case   |      |      | 2.08      | $^\circ\text{C}/\text{W}$ |
| Total Gate Charge                       | $Q_g$         | $V_{GS} = 10\text{V}, I_D = 5\text{A}, V_{DD} = 400\text{V}$ |      | 45   |           | nC                        |
| Input Capacitance                       | $C_{iss}$     | $V_{DS} = 25\text{V}, V_{GS} = 0\text{V}, f = 1\text{MHz}$   |      | 1140 |           | pF                        |
| Reverse Transfer Capacitance            | $C_{rss}$     |  |      | 23   |           |                           |
| Output Capacitance                      | $C_{oss}$     |  |      | 105  |           |                           |
| Turn-On Time                            | $t_{on}$      | $I_D = 2.5\text{A}, V_{GS} = 10\text{V}, R_L = 60\Omega$     |      | 55   | 100       | ns                        |
| Turn-Off Time                           | $t_{off}$     |  |      | 210  | 350       |                           |

# 2SK2669

## Transfer Characteristics



## 2SK2669 Static Drain-Source On-state Resistance

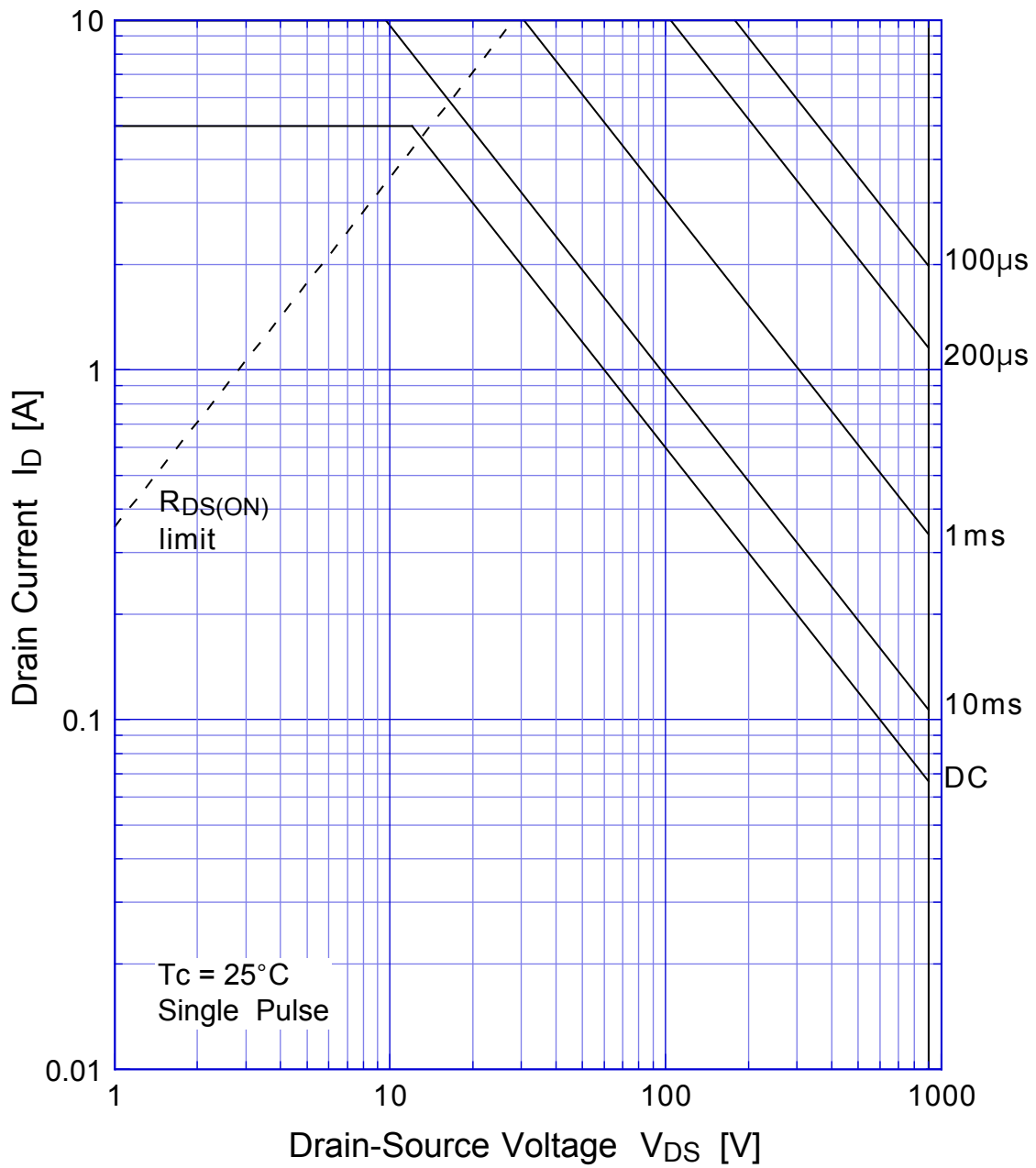


2SK2669 Gate Threshold Voltage

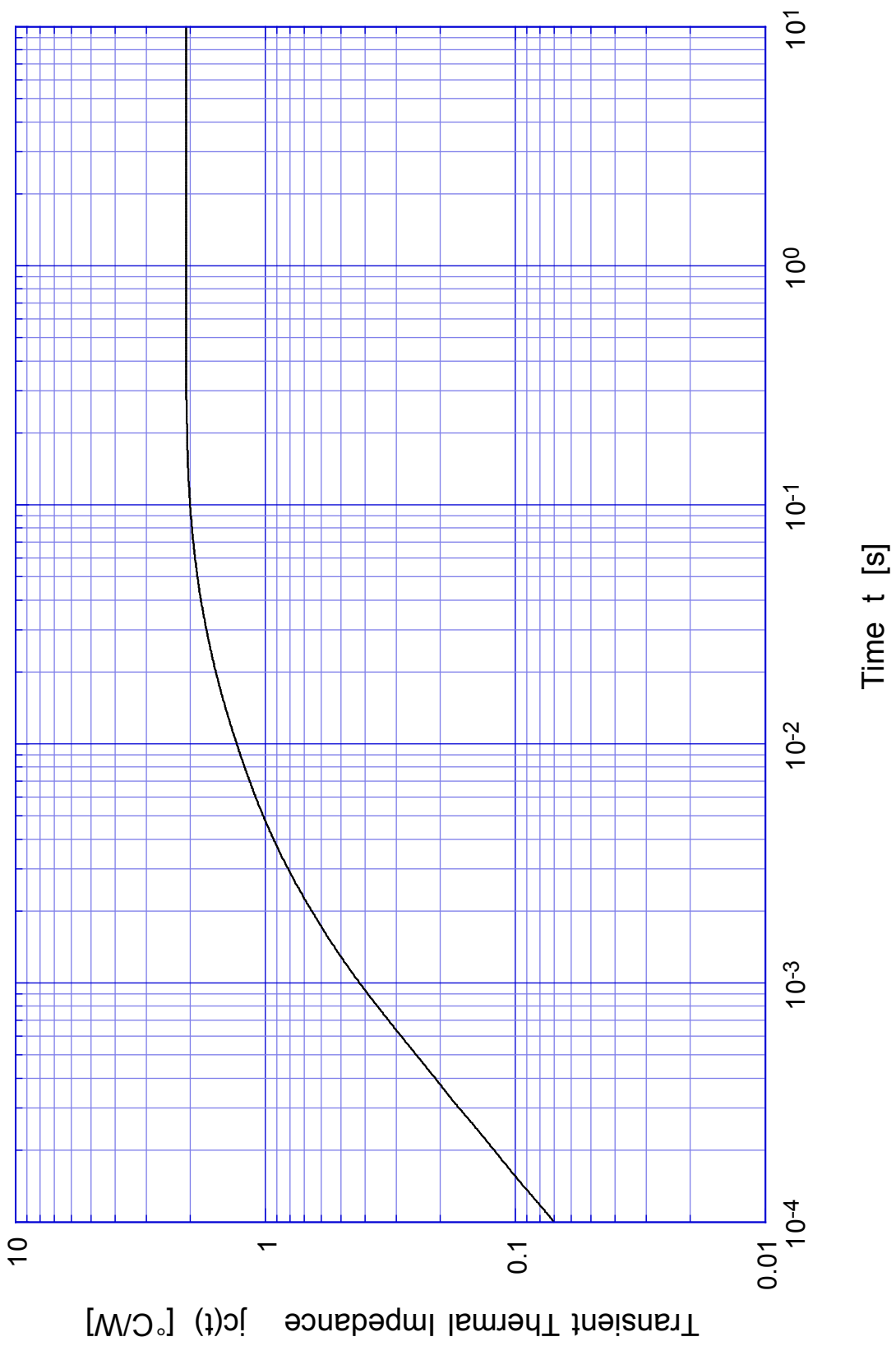


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## Safe Operating Area



# 2SK2669 Transient Thermal Impedance



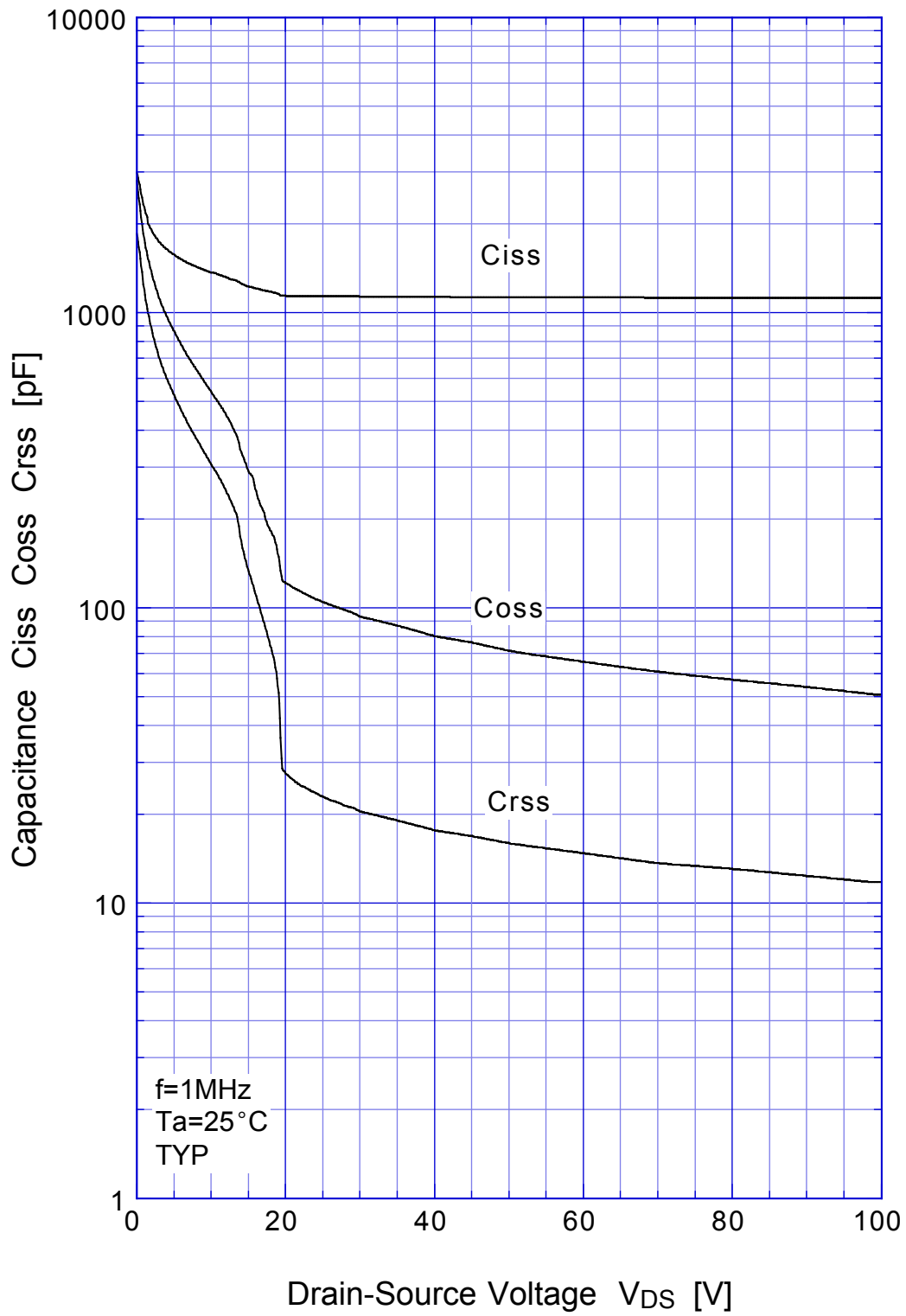
## 2SK2669 Single Avalanche Energy Derating



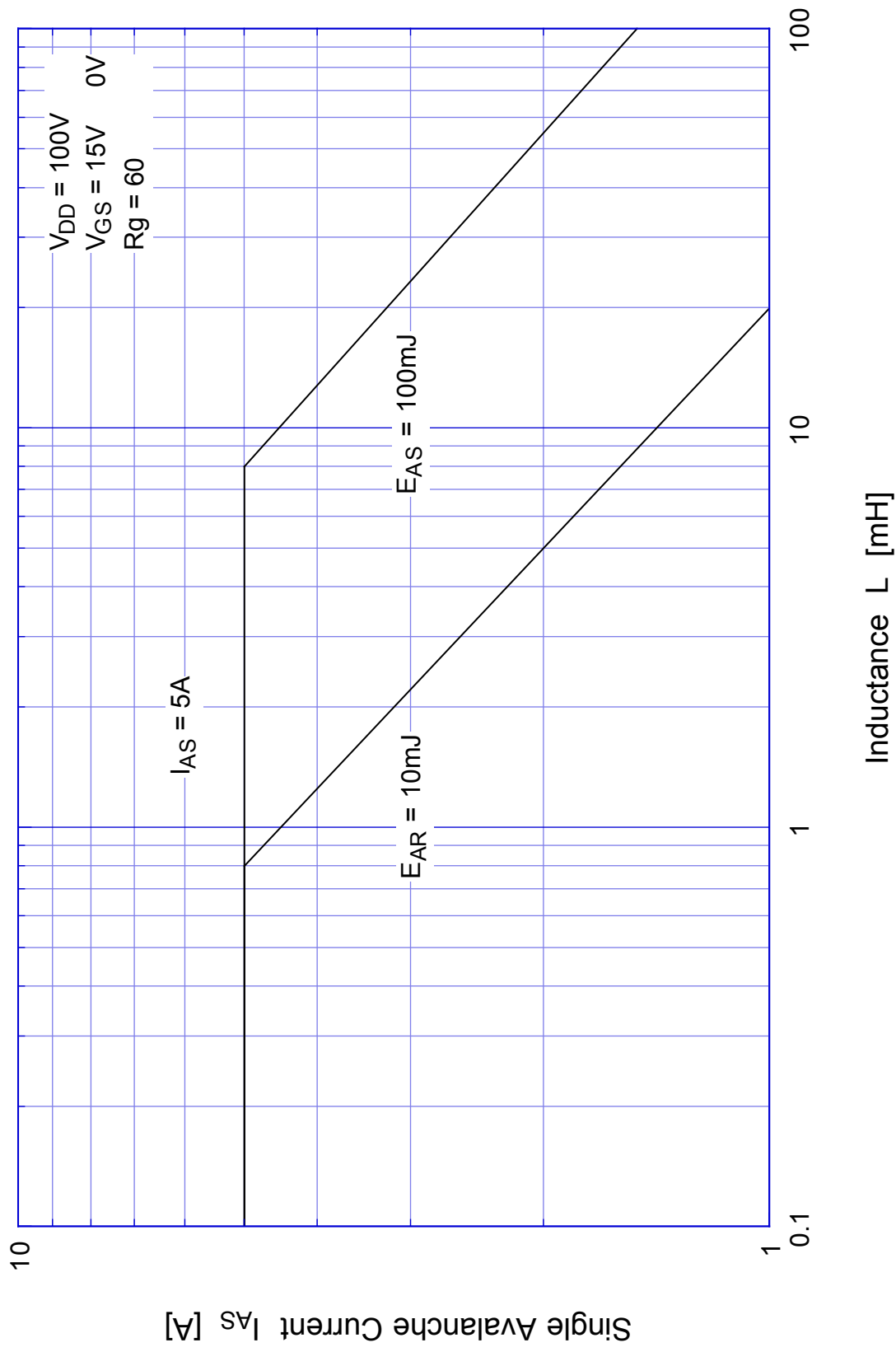


# 2SK2669

# Capacitance



# 2SK2669 Single Avalanche Current - Inductive Load



2SK2669

Power Derating



# 2SK2669

## Gate Charge Characteristics

