

# SHINDENGEN

## VX-2 Series Power MOSFET

N-Channel Enhancement type

**2SK2564**  
(F8F60VX2)

**600V 8A**

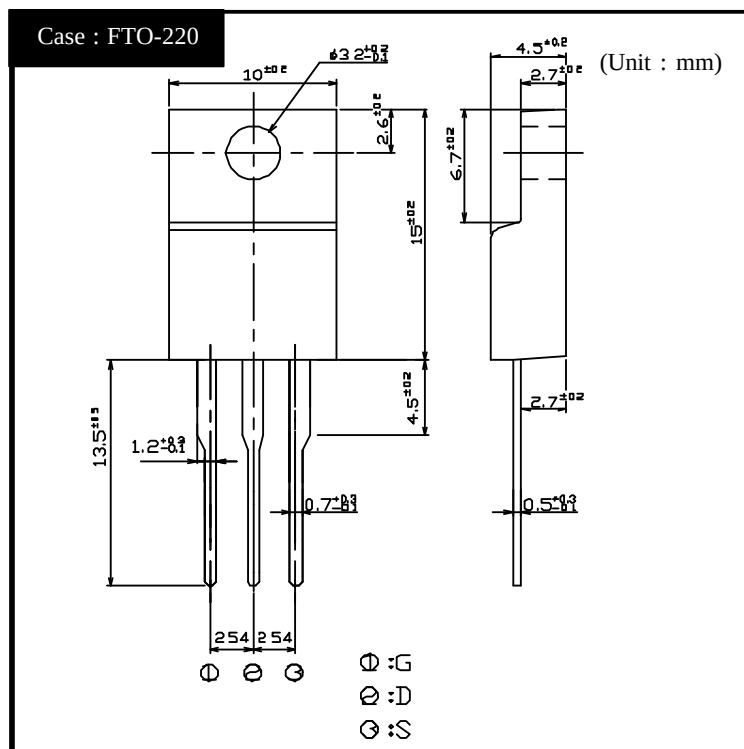
### FEATURES

- 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

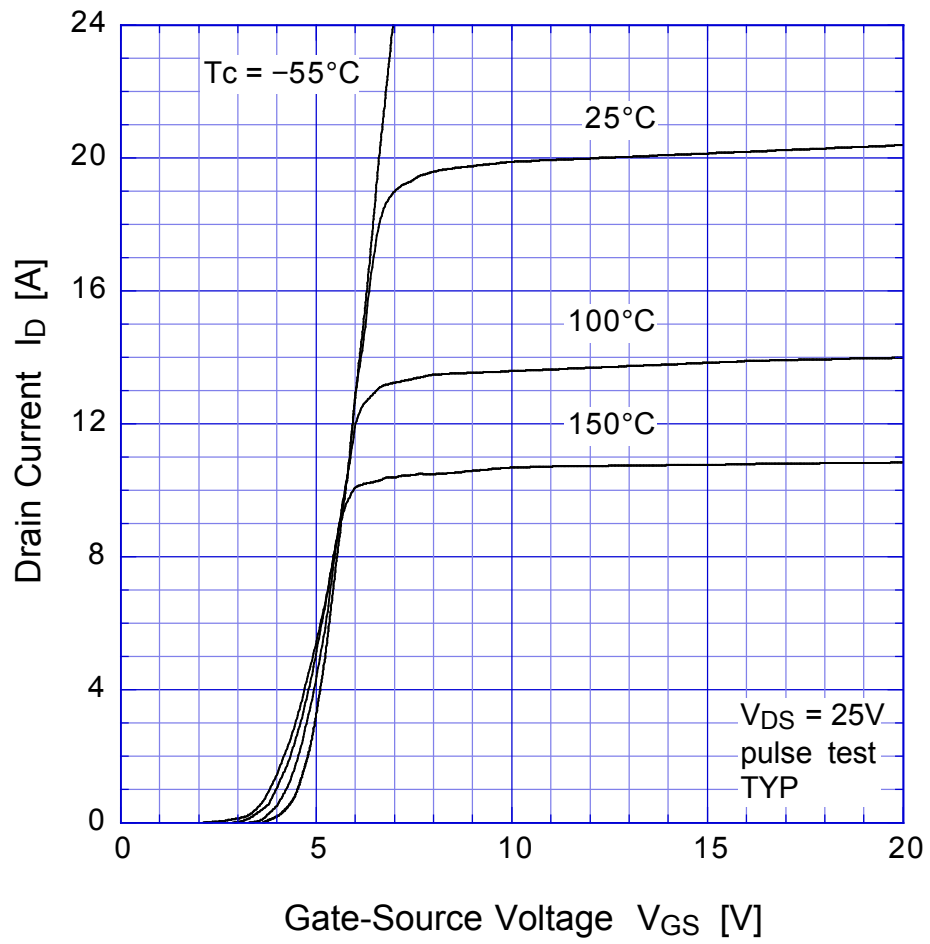
- Absolute Maximum Ratings (Tc = 25°C)

| 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> |                                | 600     | V    |
| Gate-Source Voltage             | V <sub>GSS</sub> |                                | ±30     |      |
| Continuous Drain Current (DC)   | I <sub>D</sub>   |                                | 8       | A    |
| Continuous Drain Current (Peak) | I <sub>DP</sub>  |                                | 24      |      |
| Continuous Source Current (DC)  | I <sub>S</sub>   |                                | 8       |      |
| Total Power Dissipation         | P <sub>T</sub>   |                                | 50      | W    |
| Single Pulse Avalanche Current  | I <sub>AS</sub>  | T <sub>ch</sub> = 25°C         | 8       | 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  |

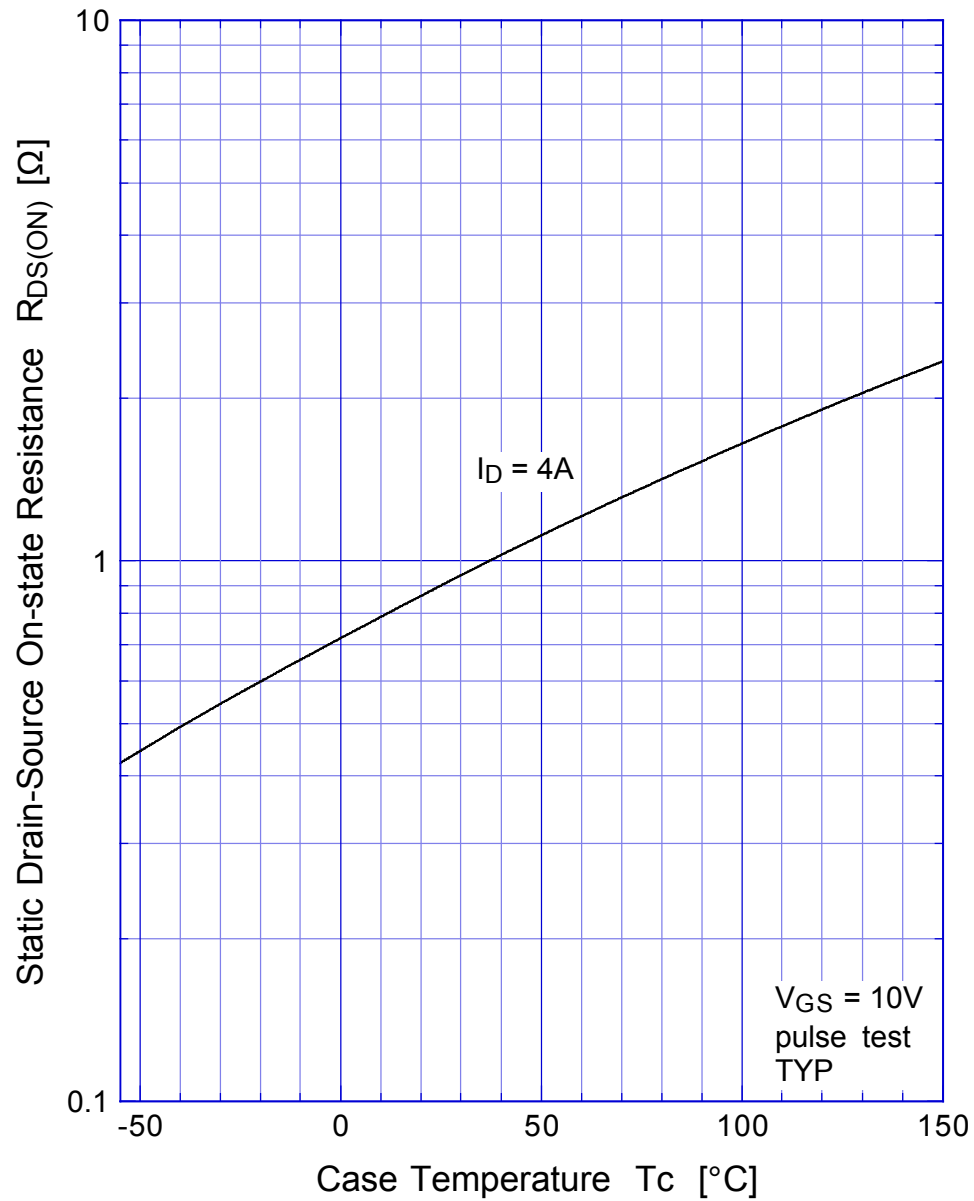
**VX-2 Series Power MOSFET****2SK2564 ( F8F60VX2 )**●Electrical Characteristics  $T_c = 25^\circ\text{C}$ 

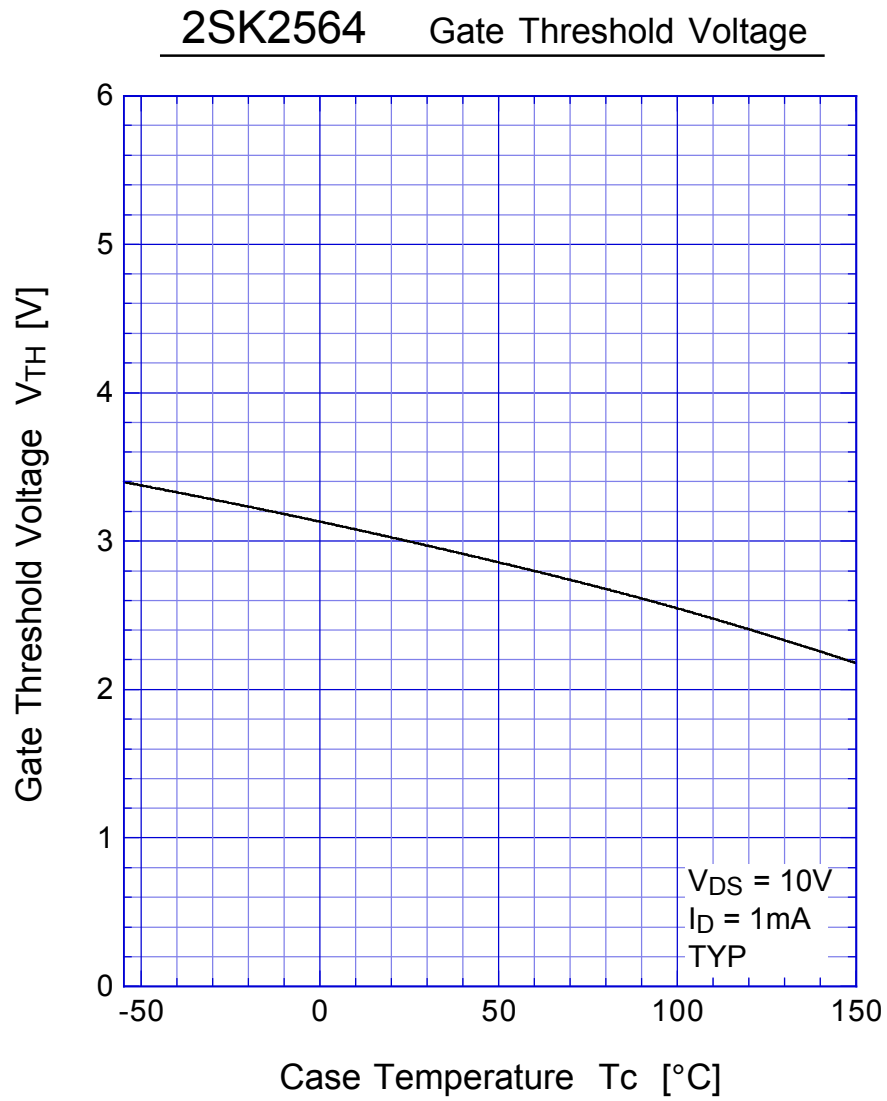
| Item                                    | Symbol        | Conditions                                                         | Min. | Typ. | Max.      | Unit                      |
|-----------------------------------------|---------------|--------------------------------------------------------------------|------|------|-----------|---------------------------|
| 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                | $g_{fs}$      | $I_D = 4\text{A}$ , $V_{DS} = 10\text{V}$                          | 2.4  | 5.5  |           | S                         |
| Static Drain-Source On-state Resistance | $R_{DS(ON)}$  | $I_D = 4\text{A}$ , $V_{GS} = 10\text{V}$                          |      | 0.9  | 1.2       | $\Omega$                  |
| 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 Forward Voltage      | $V_{SD}$      | $I_S = 4\text{A}$ , $V_{GS} = 0\text{V}$                           |      |      | 1.5       |                           |
| Thermal Resistance                      | $\theta_{jc}$ | junction to case                                                   |      |      | 2.5       | $^\circ\text{C}/\text{W}$ |
| Total Gate Charge                       | $Q_g$         | $V_{DD} = 400\text{V}$ , $V_{GS} = 10\text{V}$ , $I_D = 8\text{A}$ |      | 42   |           | nC                        |
| Input Capacitance                       | $C_{iss}$     | $V_{DS} = 10\text{V}$ , $V_{GS} = 0\text{V}$ , $f = 1\text{MHz}$   |      | 1130 |           | pF                        |
| Reverse Transfer Capacitance            | $C_{rss}$     |                                                                    |      | 85   |           |                           |
| Output Capacitance                      | $C_{oss}$     |                                                                    |      | 245  |           |                           |
| Turn-On Time                            | $t_{on}$      | $I_D = 4\text{A}$ , $R_L = 37.5\Omega$ , $V_{GS} = 10\text{V}$     |      | 55   | 80        | ns                        |
| Turn-Off Time                           | $t_{off}$     |                                                                    |      | 195  | 290       |                           |

## 2SK2564 Transfer Characteristics

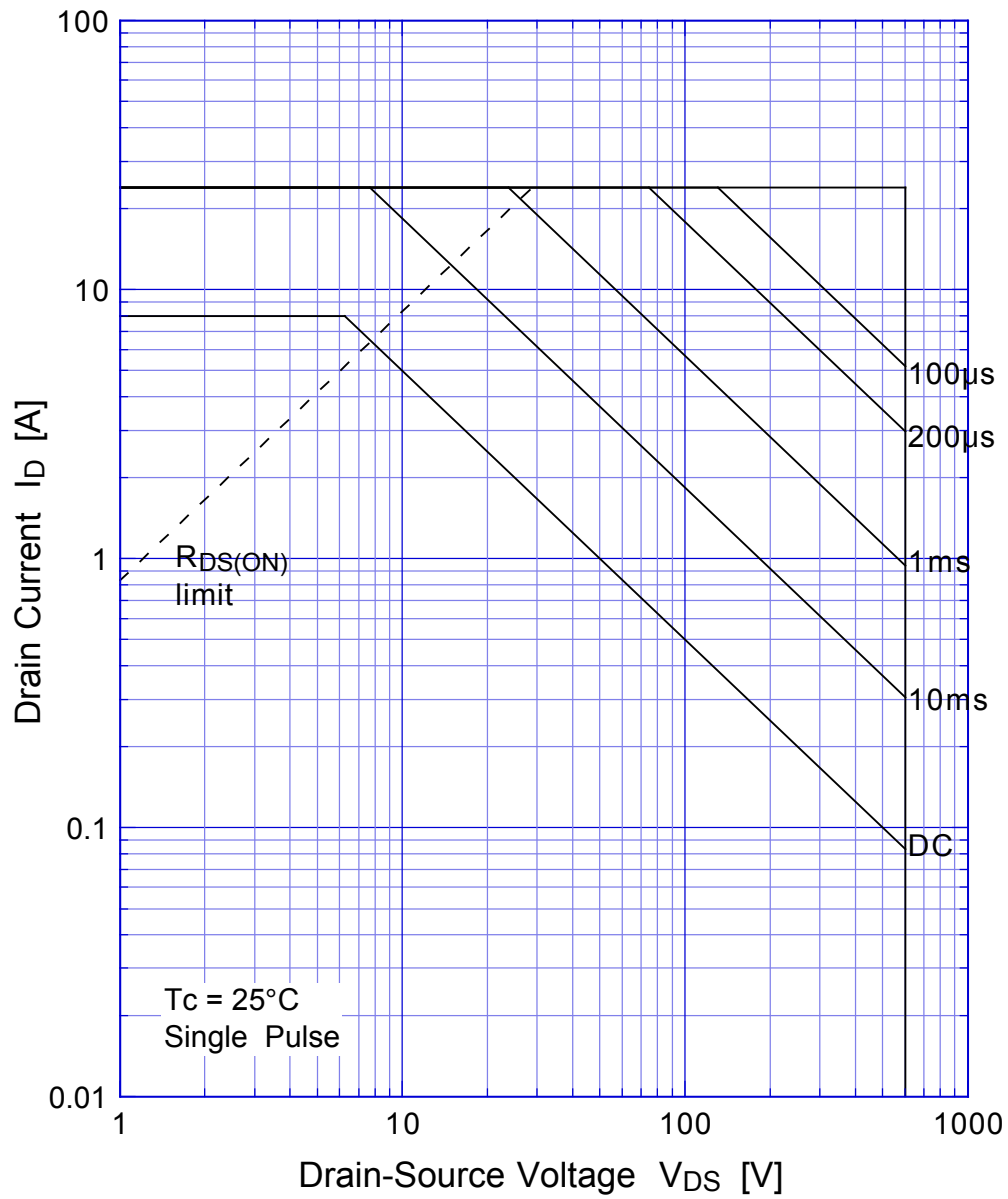


## 2SK2564 Static Drain-Source On-state Resistance

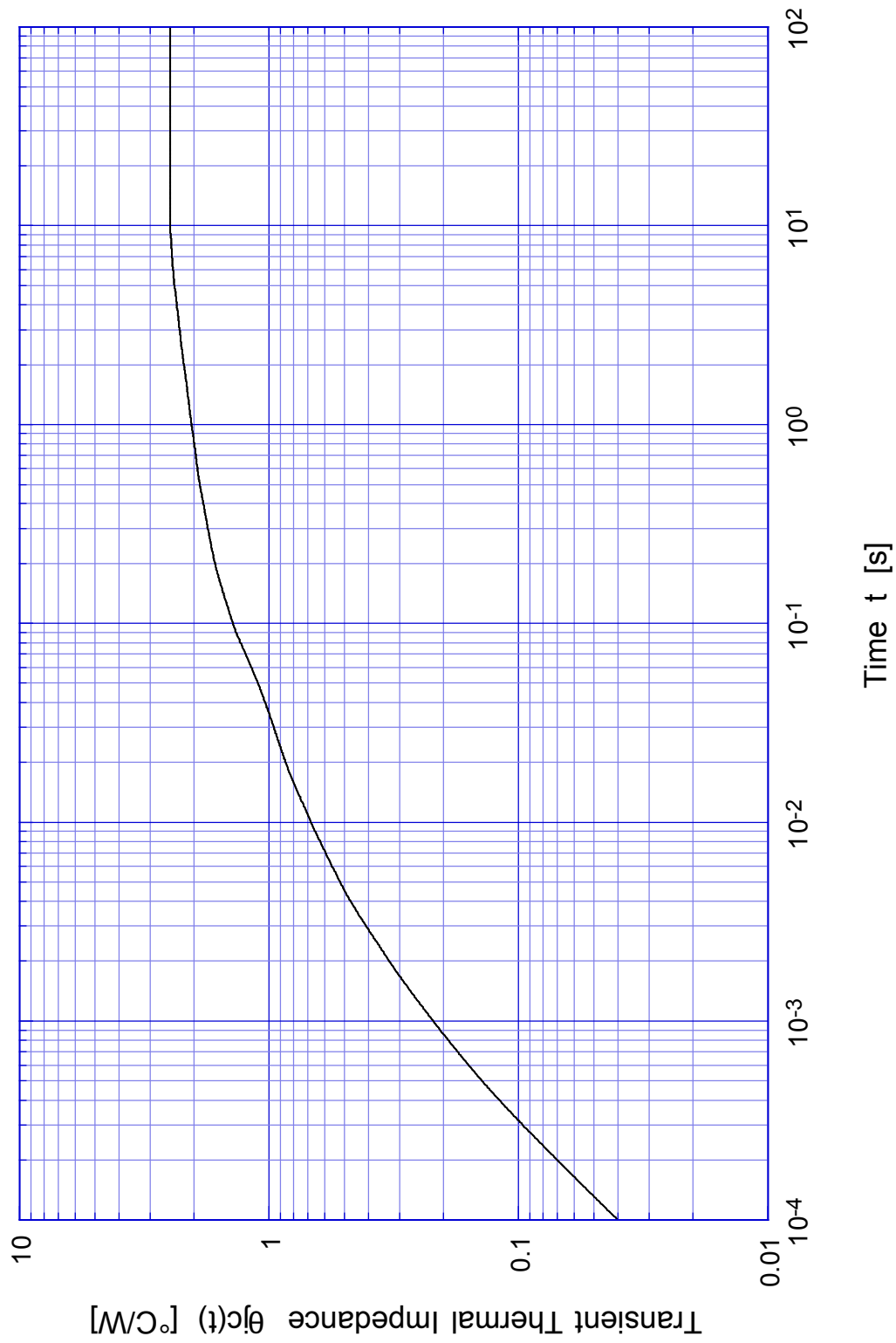




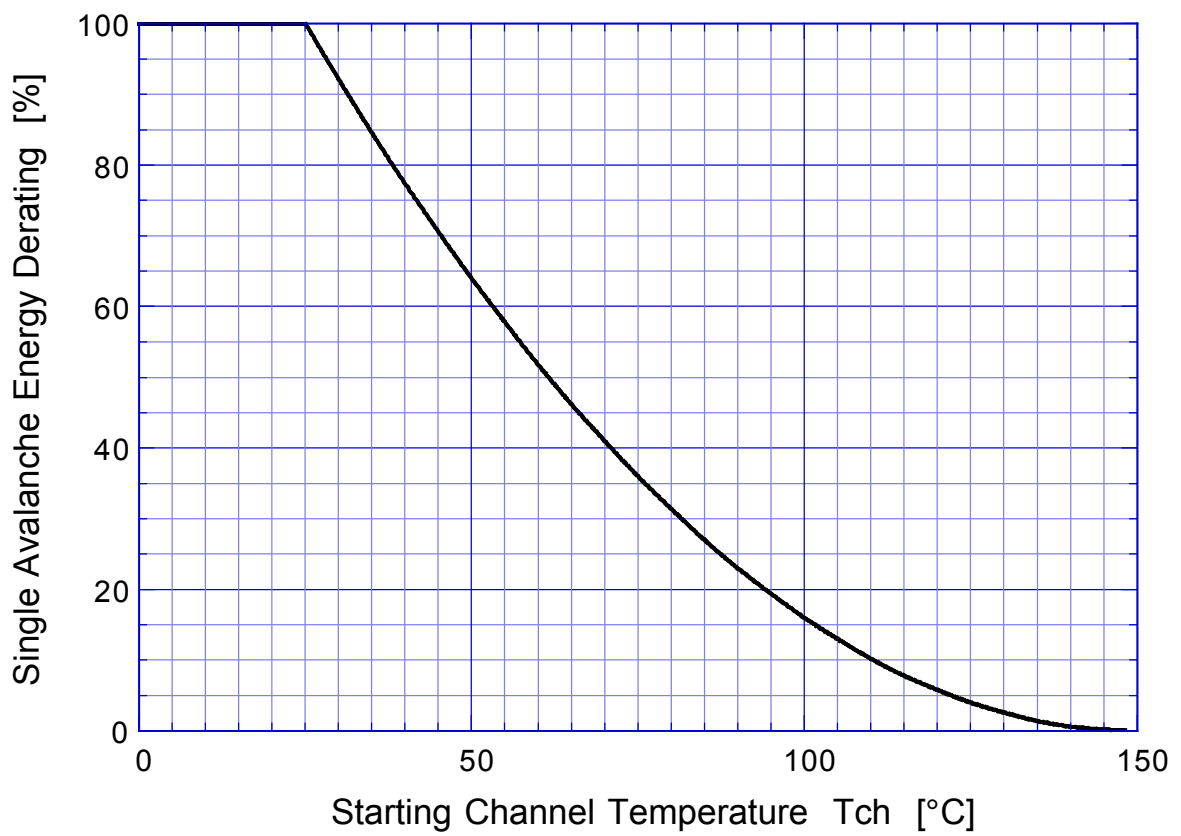
## 2SK2564 Safe Operating Area

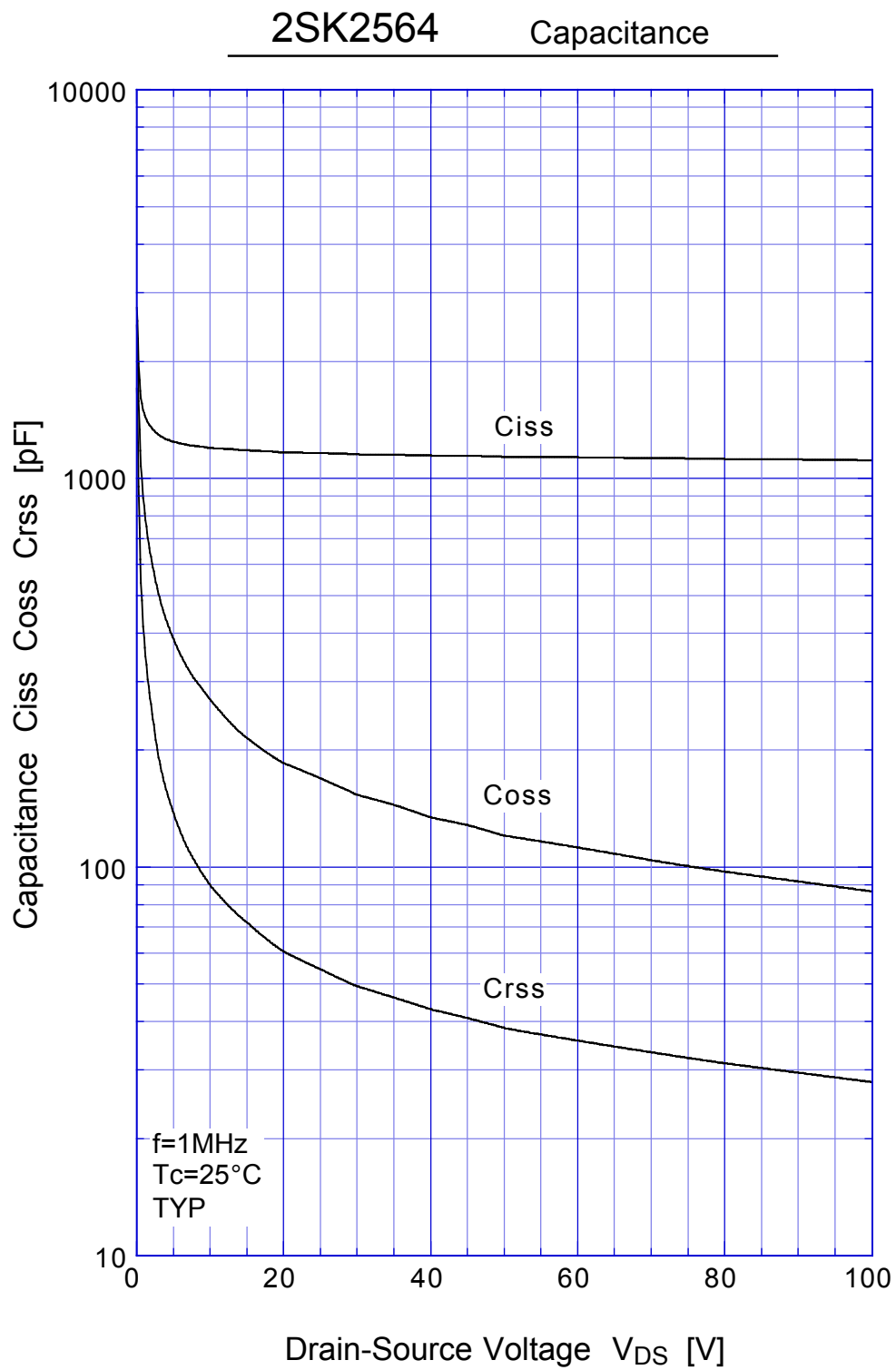


2SK2564 Transient Thermal Impedance

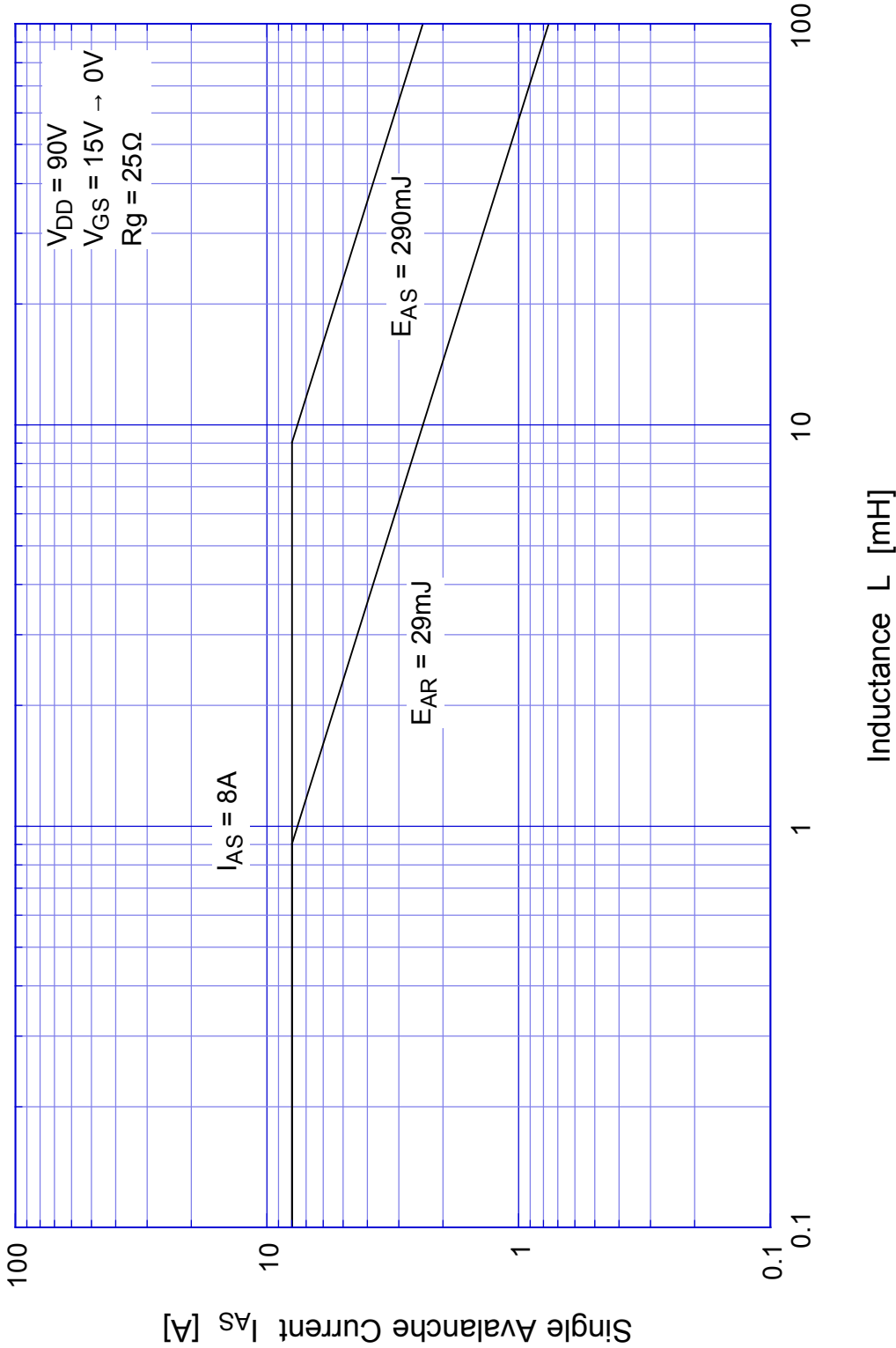


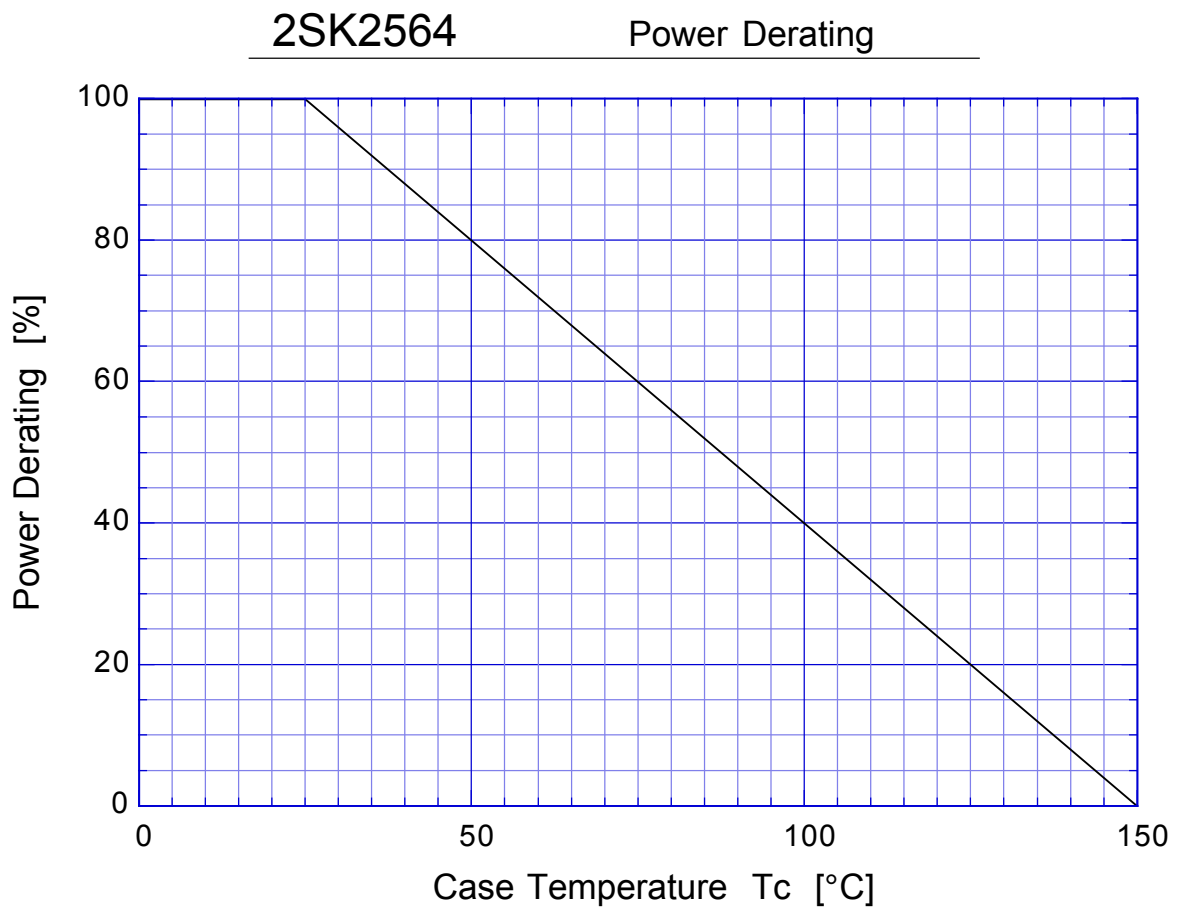
### 2SK2564 Single Avalanche Energy Derating





2SK2564 Single Avalanche Current - Inductive Load





## 2SK2564 Gate Charge Characteristics

