

### 1. Product Information

#### Features

- Low FOM  $R_{DS(ON)} \times Q_G$
- Fast switching capability
- Lead free product is acquired

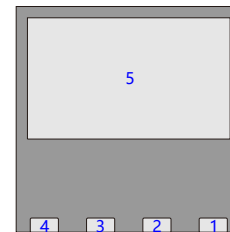
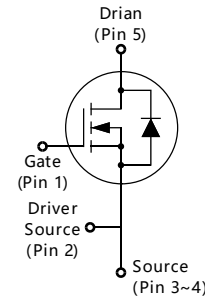
#### Applications

- Power supplies
- Charger
- Solar/UPS-Micro inverter system

#### Quick reference

- $V_{DS} \geq 800\text{ V}$
- $I_D \leq 24\text{ A}$
- $R_{DS(ON)} = 180\text{ m}\Omega @ V_{GS} = 18\text{ V (Type)}$

#### Pin Description



Bottom View

DFN 8x8

#### Package Marking and Ordering Information

| Part number  | Marking      | Package | Packaging                                       | Quantity | Reel size | Tape width |
|--------------|--------------|---------|-------------------------------------------------|----------|-----------|------------|
| KJSC65R190G8 | KJSC65R190G8 | DFN 8x8 | <input checked="" type="checkbox"/> Tape & Reel | 3000 PCS | N/A       | N/A        |
|              |              |         | <input type="checkbox"/> Tube                   | N/A      | N/A       | N/A        |

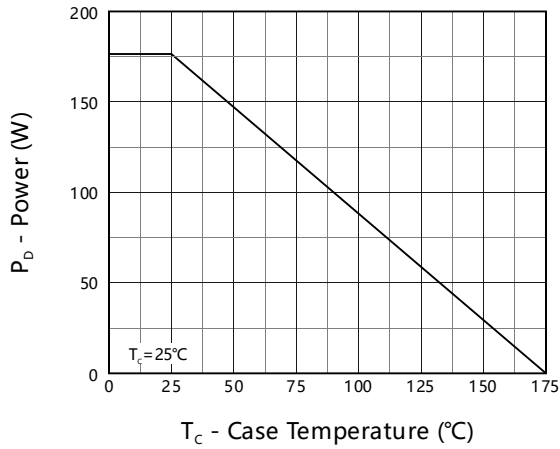
### 2. Absolute Maximum Ratings (T<sub>C</sub>=25°C unless otherwise noted)

| Symbol          | Parameter                                        | Values     | Unit |
|-----------------|--------------------------------------------------|------------|------|
| $V_{DS}$        | Drain-Source Voltage                             | 800        | V    |
| $V_{GS}$        | Gate-Source Voltage                              | -10/+25    | V    |
| $I_D$           | Continuous Drain Current (T <sub>C</sub> =25°C)  | 24         | A    |
|                 | Continuous Drain Current (T <sub>C</sub> =100°C) | 17         | A    |
| $I_{DM}$        | Pulsed Drain Current                             | 48         | A    |
| $P_D$           | Power Dissipation                                | 176        | W    |
| $T_J, T_{stg}$  | Operating Junction and Storage Temperature Range | -55 to 175 | °C   |
| $R_{\theta JA}$ | Thermal Resistance, Junction-Ambient             | 42         | °C/W |
| $R_{\theta JC}$ | Thermal Resistance, Junction-Case                | 0.85       | °C/W |

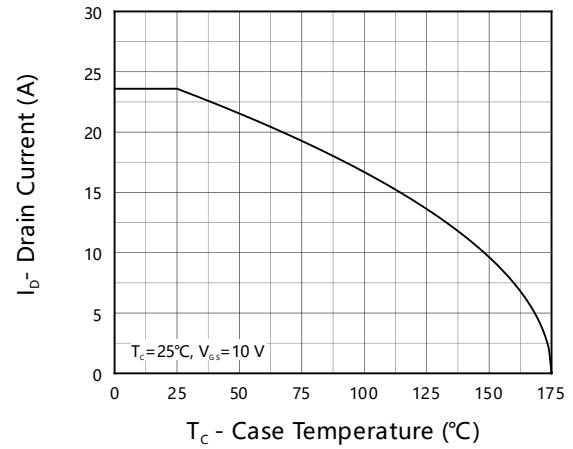
## 3. Electrical Characteristics (T<sub>J</sub>=25°C, unless otherwise noted)

| Symbol                             | Parameter                          | Test Conditions                                                                         | Min | Type | Max | Unit |
|------------------------------------|------------------------------------|-----------------------------------------------------------------------------------------|-----|------|-----|------|
| Static Characteristics             |                                    |                                                                                         |     |      |     |      |
| BV <sub>DSS</sub>                  | Drain-Source Breakdown Voltage     | V <sub>GS</sub> =0 V, I <sub>D</sub> =100 μA                                            | 800 | -    | -   | V    |
| I <sub>DSS</sub>                   | Zero Gate Voltage Drain Current    | V <sub>DS</sub> =800 V, V <sub>GS</sub> =0 V                                            | -   | 1    | 50  | μA   |
| I <sub>GSS</sub>                   | Gate-Body Leakage Current          | V <sub>GS</sub> =18 V, V <sub>DS</sub> =0 V                                             | -   | -    | 250 | nA   |
| V <sub>GS(th)</sub>                | Gate Threshold Voltage             | V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =250 μA                               | -   | 3.1  | -   | V    |
|                                    |                                    | T <sub>J</sub> =175°C                                                                   | -   | 2    | -   | V    |
| R <sub>DS(ON)</sub>                | Drain-Source On-State Resistance   | V <sub>GS</sub> =15 V, I <sub>D</sub> =5 A                                              | -   | 240  | 300 | mΩ   |
|                                    |                                    | V <sub>GS</sub> =18 V, I <sub>D</sub> =5 A                                              | -   | 180  | 190 | mΩ   |
| Dynamic Characteristics            |                                    |                                                                                         |     |      |     |      |
| C <sub>iss</sub>                   | Input Capacitance                  | V <sub>DS</sub> =400 V, V <sub>GS</sub> =0 V, f=1 MHz                                   | -   | 380  | -   | pF   |
| C <sub>oss</sub>                   | Output Capacitance                 |                                                                                         | -   | 42   | -   | pF   |
| C <sub>rss</sub>                   | Reverse Transfer Capacitance       |                                                                                         | -   | 9    | -   | pF   |
| R <sub>G</sub>                     | Internal Gate Resistance           | f=1 MHz                                                                                 | -   | 3.5  | -   | Ω    |
| Switching Characteristics          |                                    |                                                                                         |     |      |     |      |
| t <sub>d(on)</sub>                 | Turn-on Delay Time                 | V <sub>DS</sub> =400 V, I <sub>D</sub> =5 A, R <sub>G</sub> =2 Ω, V <sub>GS</sub> =18 V | -   | 8    | -   | ns   |
| t <sub>r</sub>                     | Turn-on Rise Time                  |                                                                                         | -   | 9    | -   | ns   |
| t <sub>d(off)</sub>                | Turn-off Delay Time                |                                                                                         | -   | 15   | -   | ns   |
| t <sub>f</sub>                     | Turn-off Fall Time                 |                                                                                         | -   | 14   | -   | ns   |
| R <sub>g</sub>                     | Gate resistance                    | f=1 MHz                                                                                 | -   | 6.5  | -   | Ω    |
| Q <sub>g</sub>                     | Total Gate Charge                  | V <sub>DS</sub> =400 V, I <sub>D</sub> =5 A, V <sub>GS</sub> =18 V                      | -   | 30   | -   | nC   |
| Q <sub>gs</sub>                    | Gate-Source Charge                 |                                                                                         | -   | 9    | -   | nC   |
| Q <sub>gd</sub>                    | Gate-Drain Charge                  |                                                                                         | -   | 8    | -   | nC   |
| Source-Drain Diode Characteristics |                                    |                                                                                         |     |      |     |      |
| V <sub>SD</sub>                    | Drain-Source Diode Forward Voltage | V <sub>GS</sub> =-4 V, I <sub>F</sub> =5 A                                              | -   | 3    | -   | V    |
| Q <sub>rr</sub>                    | Reverse Recovery Time              | V <sub>R</sub> =400 V, I <sub>F</sub> =5 A, di/dt=100 A/μs                              | -   | 55   | -   | μC   |
| T <sub>rr</sub>                    | Reverse Recovery Charge            |                                                                                         | -   | 22   | -   | ns   |

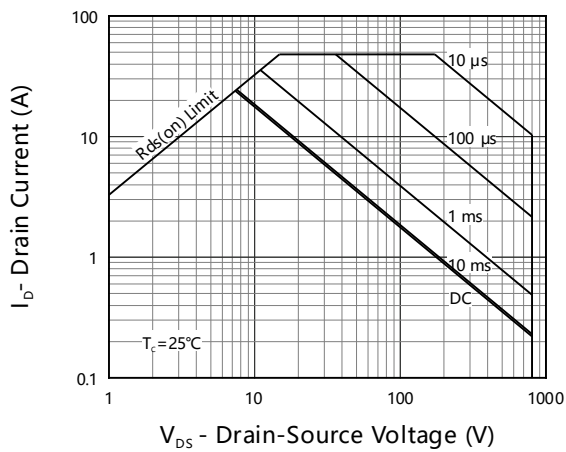
## 4. Electrical Characteristics



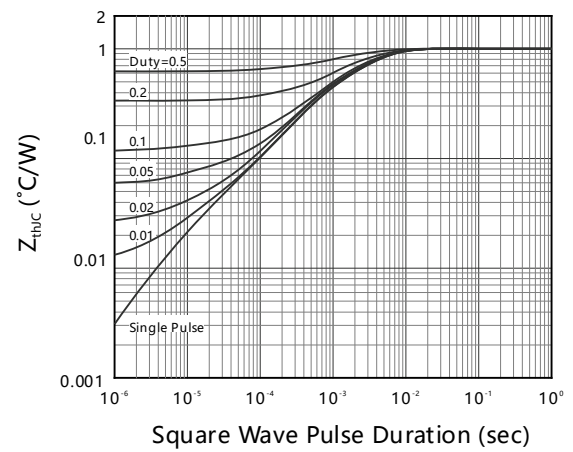
**Fig 1. Power Capability**



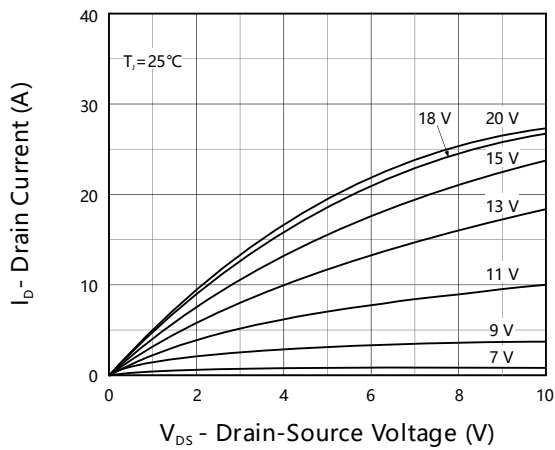
**Fig 2. Current Capability**



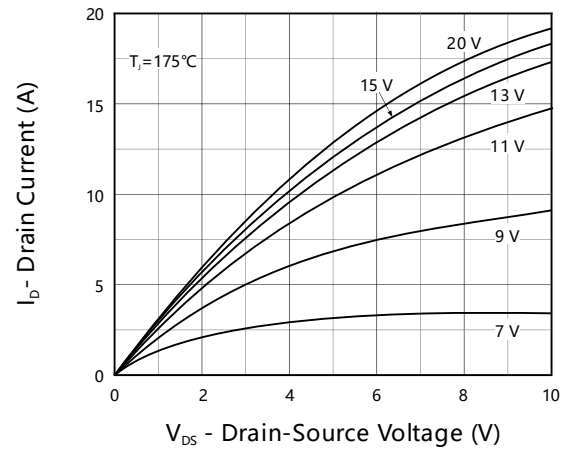
**Fig 3. Safe Operation Area**



**Fig 4. Transient Thermal Impedance**

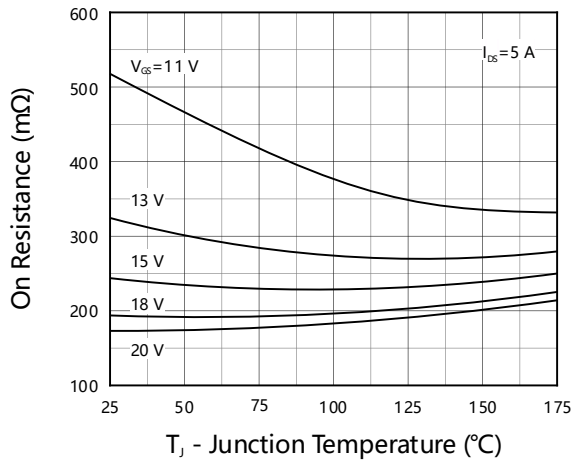


**Fig 5. Output Characteristics,  $T_J = 25^{\circ}\text{C}$**

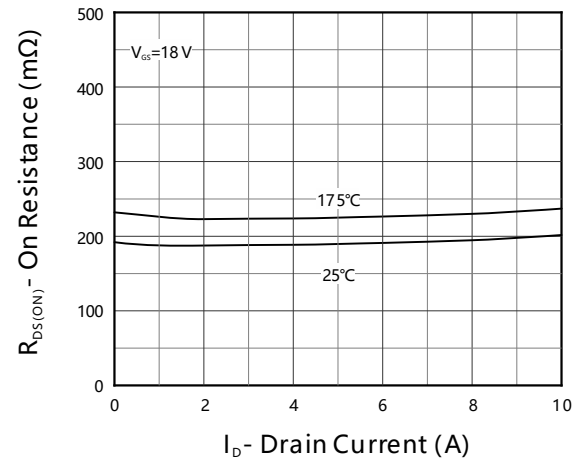


**Fig 6. Output Characteristics,  $T_J = 175^{\circ}\text{C}$**

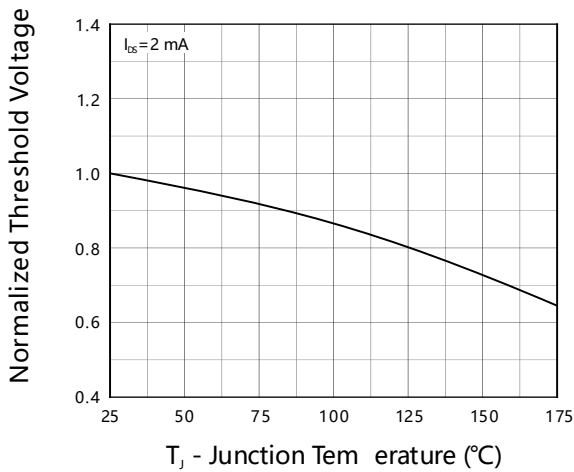
## 4. Electrical Characteristics (cont.)



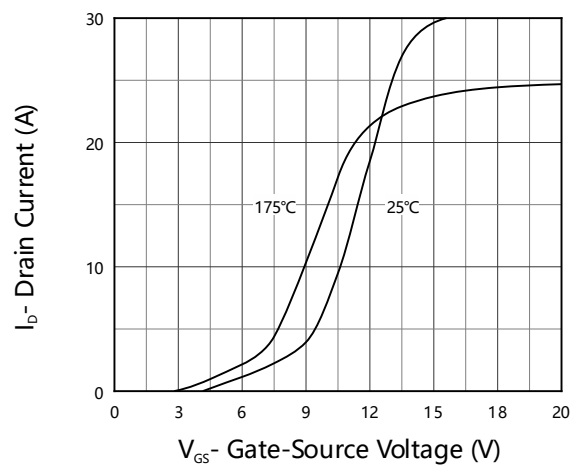
**Fig 7. On Resistance vs.  $T_j$**



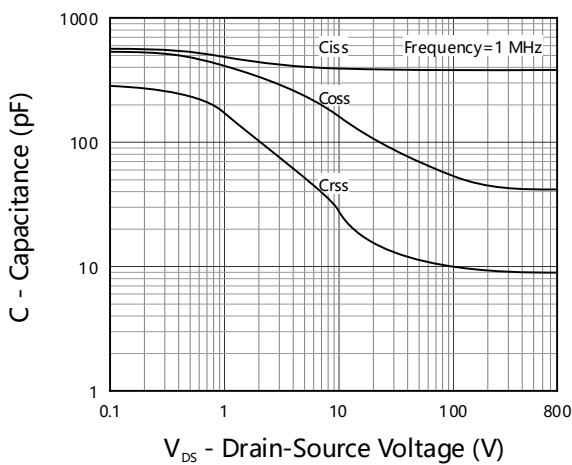
**Fig 8. On Resistance vs.  $I_D$**



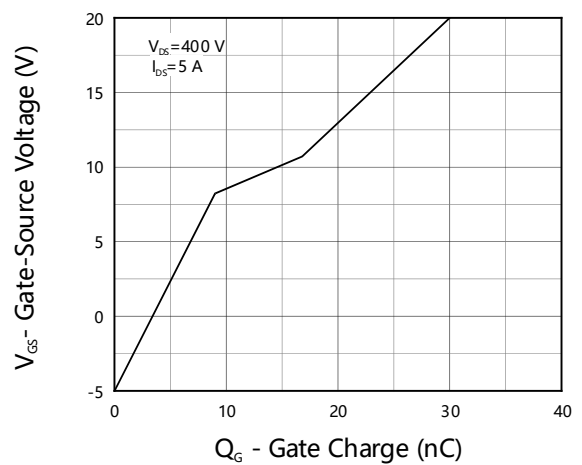
**Fig 9. Normalized Threshold Voltage**



**Fig 10. Diode Forward Current**



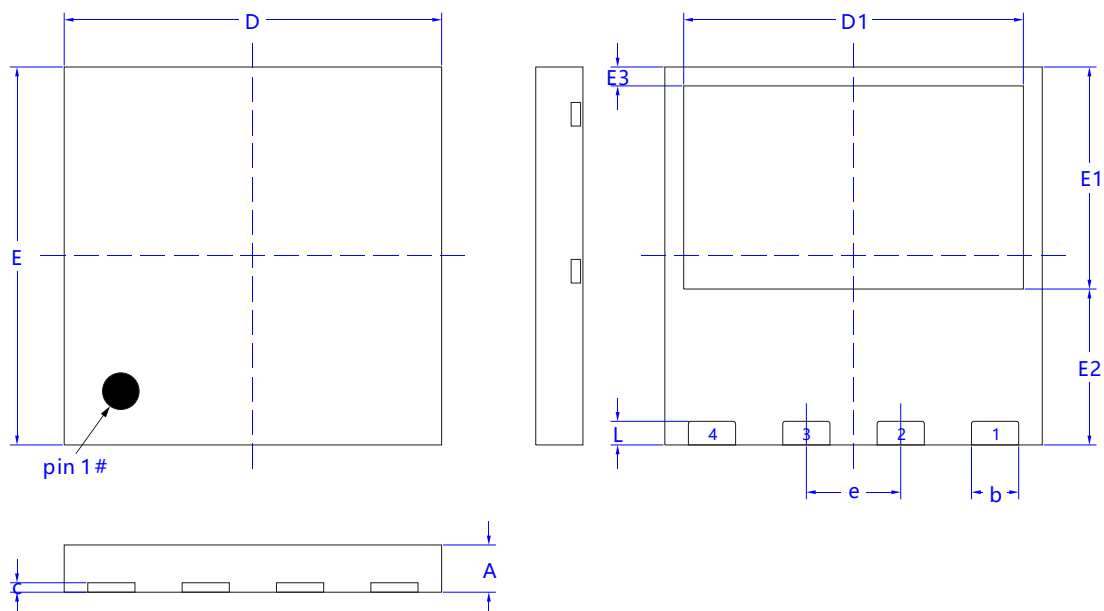
**Fig 11. Capacitance**



**Fig 12. Gate Charge**

## 5. Package Mechanical Data

### DFN 8x8 Package



| Symbol | Dimensions in Millimeters |      |
|--------|---------------------------|------|
|        | Min                       | Max  |
| A      | 0.75                      | 1.10 |
| b      | 0.90                      | 1.10 |
| c      | 0.10                      | 0.30 |
| D      | 7.90                      | 8.10 |
| D1     | 7.10                      | 7.30 |
| E      | 7.90                      | 8.10 |
| E1     | 4.65                      | 4.85 |
| E2     | 2.65                      | 2.85 |
| E3     | 0.30                      | 0.50 |
| e      | 2.00 BSC                  |      |
| L      | 0.40                      | 0.60 |