The GreenMOS® high voltage MOSFET utilizes charge balance technology to achieve outstanding low on-resistance and lower gate charge. It is engineered to minimize conduction loss, provide superior switching performance and robust avalanche capability.

The GreenMOS® Generic series is optimized for extreme switching performance to minimize switching loss. It is tailored for high power density applications to meet the highest efficiency standards.

GreenMOS®

RoHS

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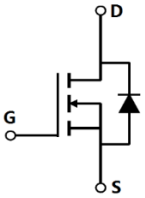
| Parameter | Value | Unit |
|---|---|---|
| $V_{DS,\ min}$ @ $T_{j(max)}$ | 750 | V |
| $I_{D,\ pulse}$ | 6 | A |
| $R_{DS(ON)\ ,\ max}$ @ $V_{GS}$=10V | 2.6 | |
| $Q_g$ | 7.9 | nC |

| Product Name | Package | Marking |
|---|---|---|
| OSG70R2K6FF | TO220F | OSG70R2K6F |

## Absolute Maximum Ratings at $T_j$=25 unless otherwise noted

| Parameter | Symbol | Value | Unit |
|---|---|---|---|
| Drain-source voltage | $V_{DS}$ | 700 | V |
| Gate-source voltage | $V_{GS}$ | ±30 | V |
| Continuous drain current[1], $T_C$=25 °C | $I_D$ | 2 | A |
| Continuous drain current[1], $T_C$=100 °C | | 1.3 | |
| Pulsed drain current[2], $T_C$=25 °C | $I_{D, pulse}$ | 6 | A |
| Continuous diode forward current[1], $T_C$=25 °C | $I_S$ | 2 | A |
| Diode pulsed current[2], $T_C$=25 °C | $I_{S, pulse}$ | 6 | A |
| Power dissipation[3], $T_C$=25 °C | $P_D$ | 20 | W |
| Single pulsed avalanche energy[5] | $E_{AS}$ | 70 | mJ |
| MOSFET dv/dt ruggedness, $V_{DS}$ | dv/dt | 50 | V/ns |
| Reverse diode dv/dt, $V_{DS}$ SD D | dv/dt | 15 | V/ns |
| Operation and storage temperature | $T_{stg}$, $T_j$ | -55 to 150 | °C |

## Thermal Characteristics

| Parameter | Symbol | Value | Unit |
|---|---|---|---|
| Thermal resistance, junction-case | R | 6.3 | °C/W |
| Thermal resistance, junction-ambient[4] | R | 62.5 | °C/W |

## Electrical Characteristics at $T_j$=25 unless otherwise specified

| Parameter | Symbol | Min. | Typ. | Max. | Unit | Test condition |
|---|---|---|---|---|---|---|
| Drain-source breakdown voltage | $BV_{DSS}$ | 700 | | | V | $V_{GS}$=0 V, $I_D$=250 A |
| | | 750 | 810 | | | $V_{GS}$=0 V, $I_D$ , $T_j$=150 °C |
| Gate threshold voltage | $V_{GS(th)}$ | 2.0 | | 4.0 | V | $V_{DS}$=$V_{GS}$, $I_D$=250 A |
| Drain-source on-state resistance | $R_{DS(ON)}$ | | 2.3 | 2.6 | | $V_{GS}$=10 V, $I_D$=1 A |
| | | | 5.3 | | | $V_{GS}$=10 V, $I_D$=1 A, $T_j$=150 °C |
| Gate-source leakage current | $I_{GSS}$ | | | 100 | nA | $V_{GS}$=30 V |
| | | | | -100 | | $V_{GS}$=-30 V |
| Drain-source leakage current | $I_{DSS}$ | | | 1 | A | $V_{DS}$=700 V, $V_{GS}$=0 V |

## Dynamic Characteristics

| Parameter | Symbol | Min. | Typ. | Max. | Unit | Test condition |
|---|---|---|---|---|---|---|
| Input capacitance | $C_{iss}$ | | 182 | | pF | $V_{GS}$=0 V, $V_{DS}$=50 V, Hz |
| Output capacitance | $C_{oss}$ | | 12.08 | | pF | |
| Reverse transfer capacitance | [redacted] | | 0.75 | | pF | |
| Turn-on delay time | [redacted] | | 20.5 | | ns | $V_{GS}$=10 V, $V_{DS}$=350 V, $R_G$=25 $I_D$=1 A |
| Rise time | [redacted] | | 11.2 | | ns | |
| Turn-off delay time | [redacted] | | | | | |

## Electrical Characteristics Diagrams

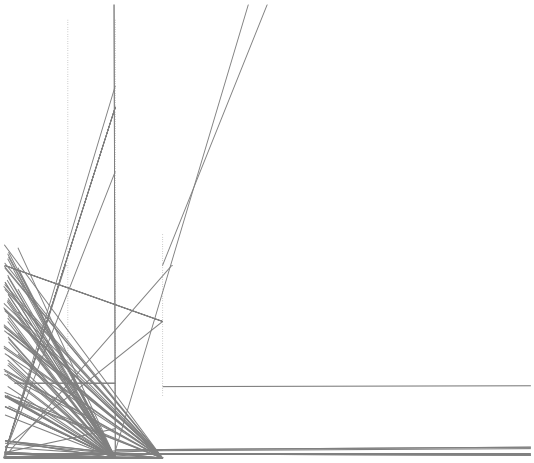


Figure 1. Typ. output characteristics

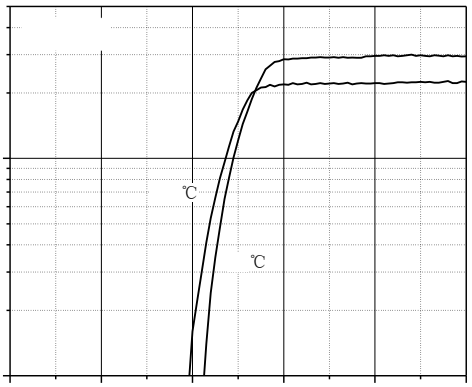



Figure 2. Typ. transfer characteristics

Figure 3. Typ. capacitances

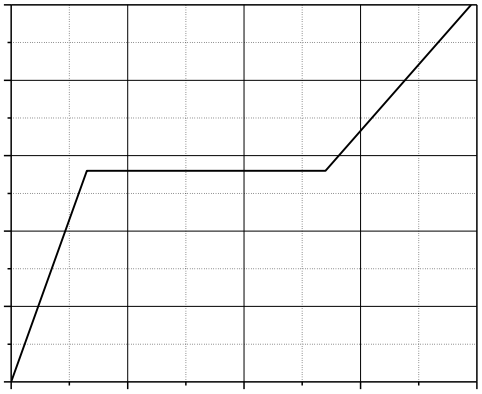


Figure 4. Typ. gate charge

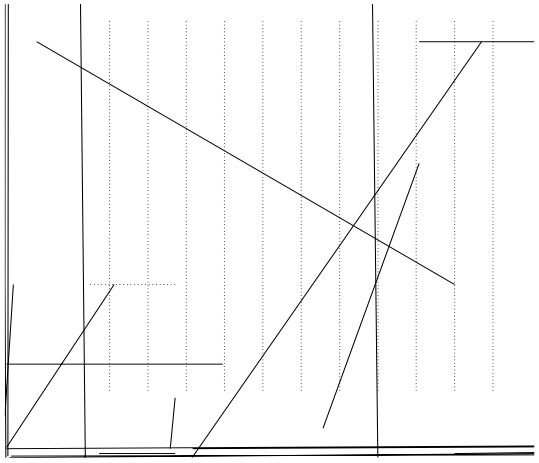


Figure 5. Drain-source breakdown voltage

Figure 6. Drain-source on-state resistance

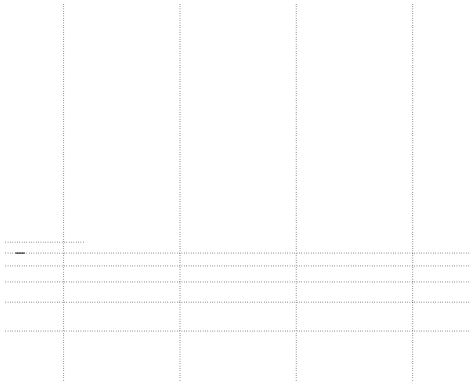


**Figure 7. Forward characteristic of body diode**

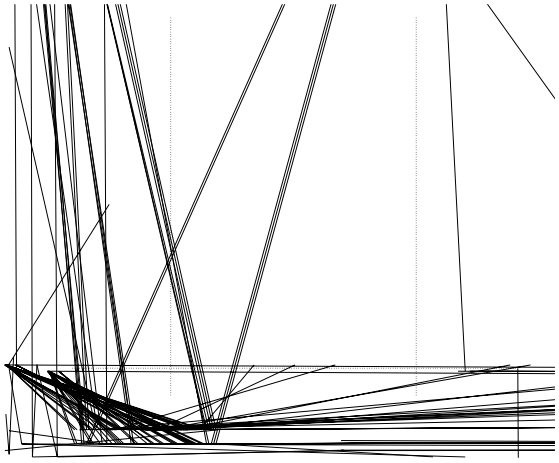


**Figure 8. Drain-source on-state resistance**

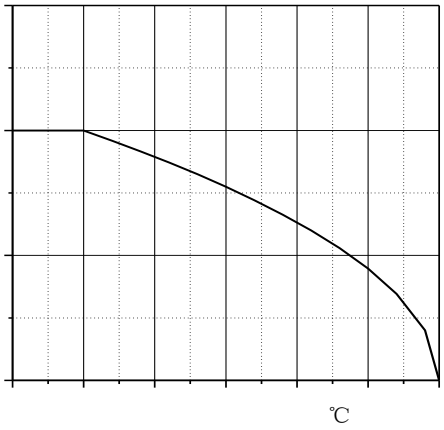


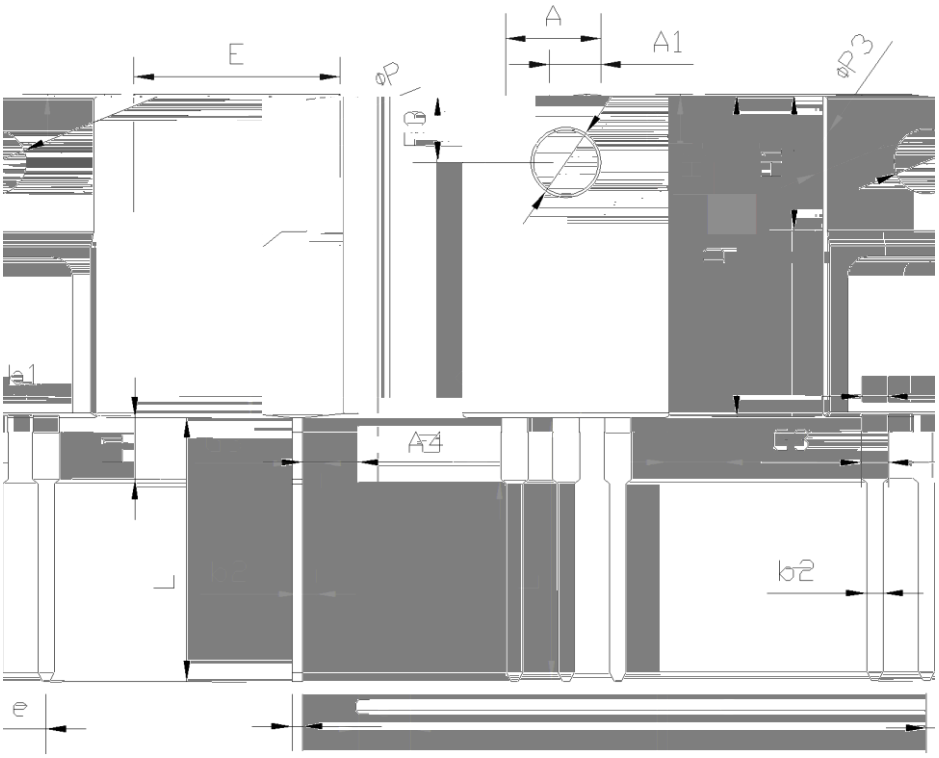

**Figure 9. Drain current**



**Figure 10. Safe operation area $T_C$=25 °C**

## Test circuits and waveforms

## Package Information




| Symbol | mm | | |
|---|---|---|---|
| | Min | Nom | Max |
| E | 9.96 | 10.16 | 10.36 |
| A | 4.50 | 4.70 | 4.90 |
| A1 | 2.34 | 2.54 | 2.74 |
| A4 | 2.56 | 2.76 | 2.96 |
| c | 0.40 | 0.50 | 0.65 |
| D | 15.57 | 15.87 | 16.17 |
| H1 | 6.70REF | | |
| e | 2.54BSC | | |
| L | 12.68 | 12.98 | 13.28 |
| L1 | 2.88 | 3.03 | 3.18 |
| | 3.03 | 3.18 | 3.38 |
| | 3.15 | 3.45 | 3.65 |
| F3 | 3.15 | 3.30 | 3.45 |
| G3 | 1.25 | 1.35 | 1.55 |
| b1 | 1.18 | 1.28 | 1.43 |
| b2 | 0.70 | 0.80 | 0.95 |

Version 1: TO220F-C package outline dimension

## Ordering Information

| Package Type | Units/ Tube | Tubes/ Inner Box | Units/ Inner Box | Inner Boxes/ Carton Box | Units/ Carton Box |
|---|---|---|---|---|---|
| TO220F-C | 50 | 20 | 1000 | 6 | 6000 |

## Product Information

| Product | Package | Pb Free | RoHS | Halogen Free |
|---|---|---|---|---|
| OSG70R2K6FF | TO220F | yes | yes | yes |