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.

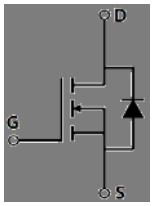
The GreenMOS® Generic series is optimized for extreme switching performance to minimize switching loss. It is tailored for high power density applications to meet the highest efficiency standards.

- Low $R_{DS(ON)}$ & FOM
- Extremely low switching loss
- Excellent stability and uniformity

- PC power
- LED lighting
- Telecom power
- Server power
- EV Charger
- Solar/UPS

| | | |
|---|---|---|
| $V_{DS,\ min}$ @ $T_{j(max)}$ | 650 | V |
| $I_{D,\ pulse}$ | 12 | A |
| $R_{DS(ON)\ ,\ max}$ @ $V_{GS}$=10V | 1.2 | Ω |
| $Q_g$ | 6.8 | nC |

| | | |
|---|---|---|
| | | |

at $T_j$=25°C unless otherwise noted

| | | | |
|---|---|---|---|
| Drain-source voltage | $V_{DS}$ | 600 | V |
| Gate-source voltage | $V_{GS}$ | ±30 | V |
| Continuous drain current[1], $T_C$=25 °C | $I_D$ | 4 | A |
| Continuous drain current[1], $T_C$=100 °C | | 2.5 | |
| Pulsed drain current[2], $T_C$=25 °C | $I_{D, pulse}$ | 12 | A |
| Continuous diode forward current[1], $T_C$=25 °C | $I_S$ | 4 | A |
| Diode pulsed current[2], $T_C$=25 °C | $I_{S, pulse}$ | 12 | A |
| Power dissipation[3], $T_C$=25 °C | $P_D$ | 28.4 | W |
| Single pulsed avalanche energy[5] | $E_{AS}$ | 100 | mJ |
| MOSFET dv/dt ruggedness, $V_{DS}$=0…480 V | dv/dt | 50 | V/ns |
| Reverse diode dv/dt, $V_{DS}$=0…480 V, $I_{SD}$≤$I_D$ | dv/dt | 15 | V/ns |
| Operation and storage temperature | $T_{stg}$, $T_j$ | -55 to 150 | °C |

| | | | |
|---|---|---|---|
| Thermal resistance, junction-case | $R_{\theta JC}$ | 4.4 | °C/W |
| Thermal resistance, junction-ambient[4] | $R_{\theta JA}$ | 62 | °C/W |

at $T_j$=25°C unless otherwise specified

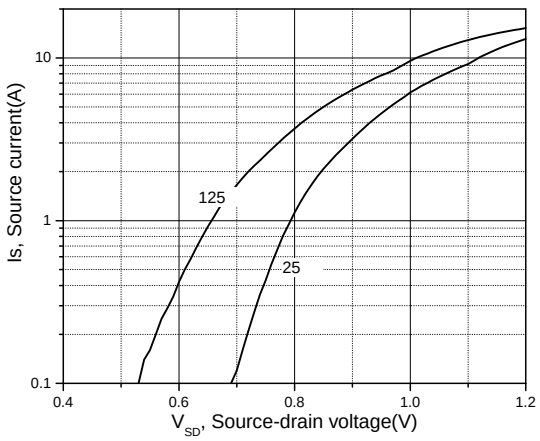
| | | | | | | |
|---|---|---|---|---|---|---|
| Drain-source breakdown voltage | $BV_{DSS}$ | 600 | | | V | $V_{GS}$=0 V, $I_D$=250 uA |
| | | 650 | 750 | | | $V_{GS}$=0 V, $I_D$=250 uA, $T_j$=150 °C |
| Gate threshold voltage | $V_{GS(th)}$ | 2.0 | | 4.0 | V | $V_{DS}$=$V_{GS}$, $I_D$=250 uA |
| Drain-source on-state resistance | $R_{DS(ON)}$ | | 1.0 | 1.2 | Ω | $V_{GS}$=10 V, $I_D$=2 A |
| | | | 2.4 | | | $V_{GS}$=10 V, $I_D$=2 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 | μA | $V_{DS}$=600 V, $V_{GS}$=0 V |

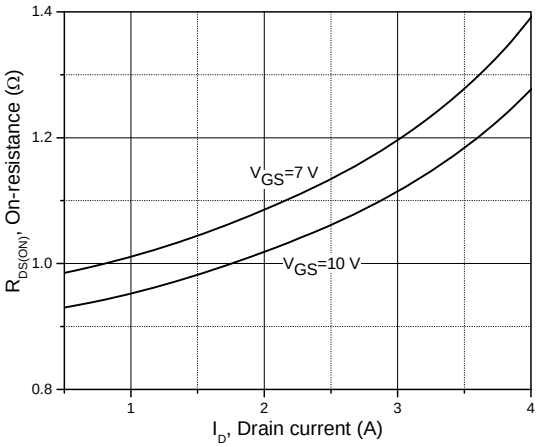
| | | | | | | |
|---|---|---|---|---|---|---|
| Input capacitance | $C_{iss}$ | | 259.6 | | pF | $V_{GS}$=0 V, $V_{DS}$=50 V, $f$=1 MHz |
| Output capacitance | $C_{oss}$ | | 21.3 | | pF | |
| Reverse transfer capacitance | $C_{rss}$ | | 0.9 | | pF | |
| Turn-on delay time | $t_{d(on)}$ | | 32.6 | | ns | $V_{GS}$=10 V, $V_{DS}$=400 V, $R_G$=25 Ω, $I_D$=4 A |
| Rise time | $t_r$ | | 18.4 | | ns | |
| Turn-off delay time | $t_{d(off)}$ | | 59.6 | | ns | |
| Fall time | $t_f$ | | 30 | | ns | |

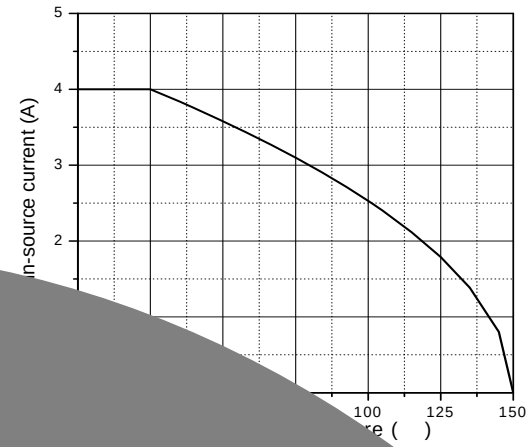
| | | | | | | |
|---|---|---|---|---|---|---|
| Total gate charge | $Q_g$ | | 6.8 | | nC | $V_{GS}$=10 V, $V_{DS}$=400 V, $I_D$=4 A |
| Gate-source charge | $Q_{gs}$ | | 2 | | nC | |
| Gate-drain charge | $Q_{gd}$ | | 3.1 | | nC | |
| Gate plateau voltage | $V_{plateau}$ | | 5.6 | | V | |

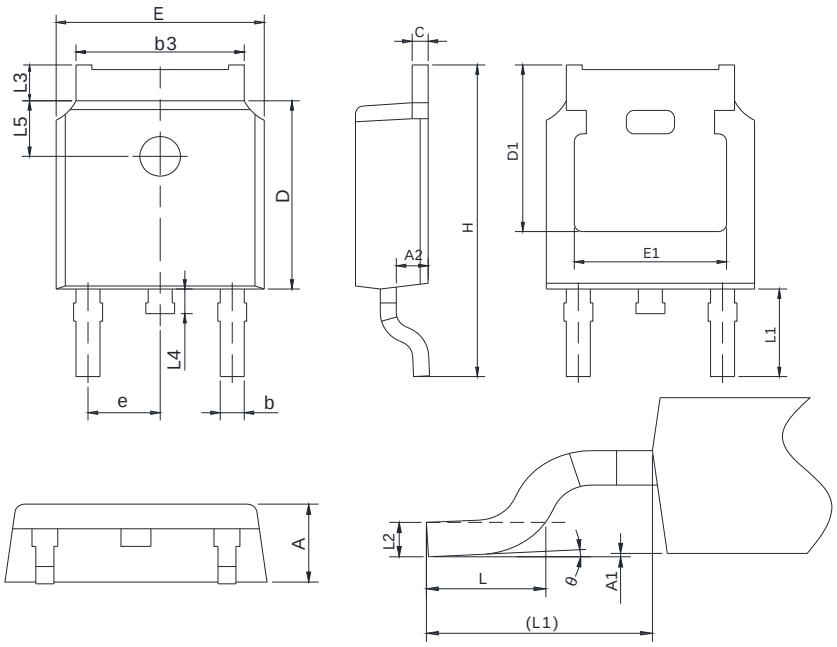
| | | | | | | |
|---|---|---|---|---|---|---|
| Diode forward voltage | $V_{SD}$ | | | 1.3 | V | $I_S$=4 A, $V_{GS}$=0 V |
| Reverse recovery time | $t_{rr}$ | | 157.6 | | ns | $V_R$=400 V, $I_S$=4 A, di/dt=100 A/μs |
| Reverse recovery charge | $Q_{rr}$ | | 1.1 | | μC | |
| Peak reverse recovery current | $I_{rrm}$ | | 11.3 | | A | |

1) Calculated continuous current based on maximum allowable junction temperature.
2) Repetitive rating; pulse width limited by max. junction temperature.
3) Pd is based on max. junction temperature, using junction-case thermal resistance.
4) The value of $R_{\theta JA}$ is measured with the device mounted on 1 in 2 FR-4 board with 2oz. Copper, in a still air environment with $T_a$=25 °C.
5) $V_{DD}$=50 V, $V_{GS}$=10 V, L=20 mH, starting $T_j$=25 °C.


Is, Source current(A)
10
1
0.1
125
25
0.4
0.6
0.8
1.0
1.2
$V_{SD}$, Source-drain voltage(V)

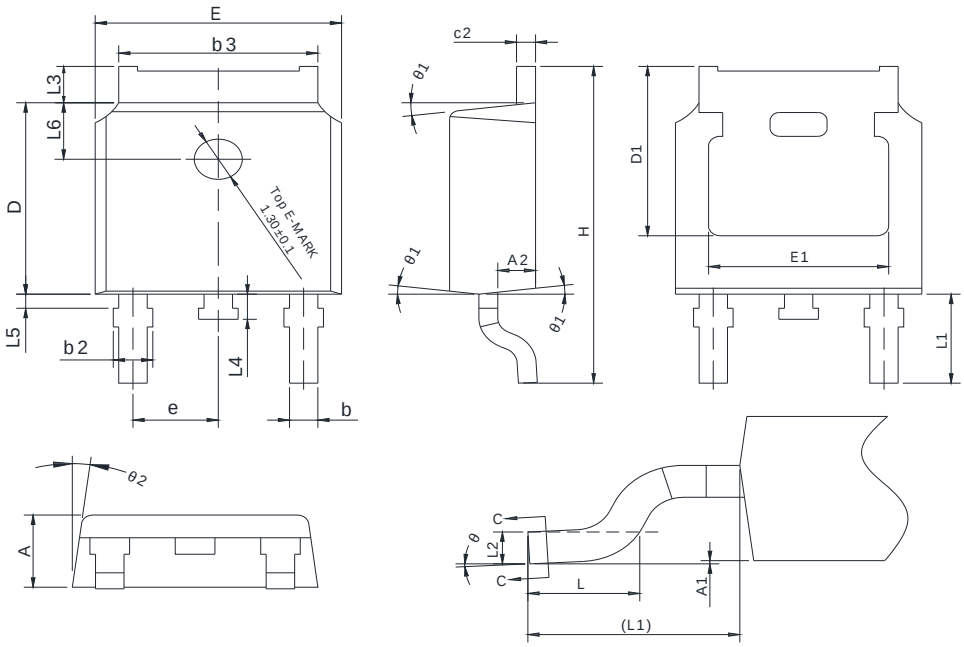

$R_{DS(ON)}$, On-resistance (Ω)
1.4
1.2
1.0
0.8
$V_{GS}$=7 V
$V_{GS}$=10 V
1
2
3
4
$I_D$, Drain current (A)


n-source current (A)
5
4
3
2
100
125
150




| Symbol | mm | | |
|---|---|---|---|
| | Min | Nom | Max |
| A | 2.20 | 2.30 | 2.38 |
| A1 | 0.00 | - | 0.20 |
| A2 | 0.97 | 1.07 | 1.17 |
| b | 0.68 | 0.78 | 0.90 |
| b3 | 5.20 | 5.33 | 5.46 |
| c | 0.43 | 0.53 | 0.61 |
| D | 5.98 | 6.10 | 6.22 |
| D1 | 5.30REF | | |
| E | 6.40 | 6.60 | 6.73 |
| E1 | 4.63 | - | - |
| e | 2.286BSC | | |
| H | 9.40 | 10.10 | 10.50 |
| L | 1.38 | 1.50 | 1.75 |
| L1 | 2.90REF | | |
| L2 | 0.51BSC | | |
| L3 | 0.88 | - | 1.28 |
| L4 | 0.50 | - | 1.00 |
| θ | 0° | - | 8° |

Version 1: TO252-C outline dimension




| Symbol | mm | | |
|---|---|---|---|
| | Min | Nom | Max |
| A | 2.20 | 2.30 | 2.38 |
| A1 | 0.00 | - | 0.10 |
| A2 | 0.90 | 1.01 | 1.10 |
| b | 0.72 | - | 0.85 |
| b1 | 0.71 | 0.76 | 0.81 |
| b2 | 0.72 | - | 0.90 |
| b3 | 5.13 | 5.33 | 5.46 |
| c | 0.47 | - | 0.60 |
| c1 | 0.46 | 0.51 | 0.56 |
| c2 | 0.47 | - | 0.60 |
| D | 6.00 | 6.10 | 6.20 |
| D1 | 5.25 | - | - |
| E | 6.50 | 6.60 | 6.70 |
| E1 | 4.70 | - | - |
| e | 2.186 | 2.286 | 2.386 |
| H | 9.80 | 10.10 | 10.40 |
| L | 1.40 | 1.50 | 1.70 |
| L1 | 2.90REF | | |
| L2 | 0.508BSC | | |
| L3 | 0.90 | - | 1.25 |
| L4 | 0.60 | 0.80 | 1.00 |
| L5 | 0.15 | - | 0.75 |
| L6 | 1.80REF | | |
| θ | 0° | - | 8° |
| θ1 | 5° | 7° | 9° |
| θ2 | 5° | 7° | 9° |

Version 2: TO252-J package outline dimension

| | | | | | |
|---|---|---|---|---|---|
| TO252-C | 2500 | 2 | 5000 | 5 | 25000 |
| TO252-J | 2500 | 2 | 5000 | 5 | 25000 |

| | | | | |
|---|---|---|---|---|
| OSG60R1K2DF | TO252 | yes | yes | yes |

The information given in this document shall in no event be reg