Elektronische Bauelemente

# SSD30N10-50D

**26A, 100V, $R_{DS(ON)}$ 50mΩ**
**N-Ch Enhancement Mode Power MOSFET**

RoHS Compliant Product
A suffix of "-C" specifies halogen free

## DESCRIPTION

These miniature surface mount MOSFETs utilize a high cell density trench process to provide low $R_{DS(on)}$ and to ensure minimal power loss and heat dissipation.

## FEATURES

- Low $R_{DS(on)}$ provides higher efficiency and extends battery life
- Low thermal impedance copper leadframe TO-252 saves board space
- Fast switching speed
- High performance trench technology

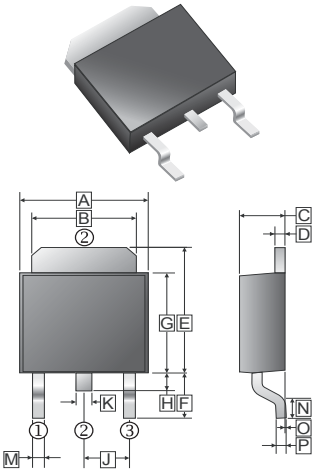
## APPLICATION

DC-DC converters and power management in portable and battery-powered products such as computers, printers, PCMCIA cards, cellular and cordless telephones.

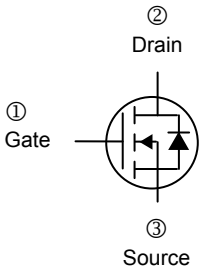
## PACKAGE INFORMATION

| Package | MPQ | LeaderSize |
|---|---|---|
| TO-252 | 2.5K | 13' inch |

**TO-252(D-Pack)**




| REF. | Millimeter | | REF. | Millimeter | |
|---|---|---|---|---|---|
| | Min. | Max. | | Min. | Max. |
| A | 6.4 | 6.8 | J | 2.30 REF. | |
| B | 5.20 | 5.50 | K | 0.70 | 0.90 |
| C | 2.20 | 2.40 | M | 0.50 | 1.1 |
| D | 0.45 | 0.58 | N | 0.9 | 1.6 |
| E | 6.8 | 7.3 | O | 0 | 0.15 |
| F | 2.40 | 3.0 | P | 0.43 | 0.58 |
| G | 5.40 | 6.2 | | | |
| H | 0.8 | 1.20 | | | |




## ABSOLUTE MAXIMUM RATINGS ($T_A$ = 25°C unless otherwise specified)

| Parameter | | Symbol | Ratings | Unit |
|---|---|---|---|---|
| Drain-Source Voltage | | $V_{DS}$ | 100 | V |
| Gate-Source Voltage | | $V_{GS}$ | ±20 | V |
| Continuous Drain Current [1] | $T_C$=25℃ | $I_D$ | 20 | A |
| Pulsed Drain Current [2] | | $I_{DM}$ | 36 | A |
| Continuous Source Current (Diode Conduction) [1] | | $I_S$ | 30 | A |
| Power Dissipation [1] | $T_C$=25℃ | $P_D$ | 50 | W |
| Operating Junction and Storage Temperature Range | | $T_J$, $T_{STG}$ | -55 ~ 175 | °C |
| **Thermal Resistance Ratings** | | | | |
| Maximum Thermal Resistance Junction-Ambient [1] | | $R_{\theta JA}$ | 50 | °C / W |
| Maximum Thermal Resistance Junction-Case | | $R_{\theta JC}$ | 3.0 | °C / W |

Notes:
1. Surface Mounted on 1" x 1" FR4 Board.
2. Pulse width limited by maximum junction temperature.

## ELECTRICAL CHARACTERISTICS ($T_A$ = 25°C unless otherwise specified)

| Parameter | Symbol | Min. | Typ. | Max. | Unit | Test conditions |
|---|---|---|---|---|---|---|
| **Static** | | | | | | |
| Gate-Source Threshold Voltage | $V_{GS(th)}$ | 1.0 | - | - | V | $V_{DS}$=$V_{GS}$, $I_D$=250μA |
| Gate-Body Leakage | $I_{GSS}$ | - | - | ±100 | nA | $V_{DS}$=0, $V_{GS}$=20V |
| Zero Gate Voltage Drain Current | $I_{DSS}$ | - | - | 1 | μA | $V_{DS}$=80V, $V_{GS}$=0 |
| | | - | - | 25 | | $V_{DS}$=80V, $V_{GS}$=0, $T_J$=55°C |
| On-State Drain Current [1] | $I_{D(ON)}$ | 34 | - | - | A | $V_{DS}$=5V, $V_{GS}$=10V |
| Drain-Source On-Resistance [1] | $R_{DS(ON)}$ | - | - | 50 | mΩ | $V_{GS}$=10V, $I_D$=9.2A |
| | | - | - | 59 | | $V_{GS}$=4.5V, $I_D$=6.1A |
| Forward Transconductance [1] | $g_{fs}$ | - | 4.4 | - | S | $V_{DS}$=40V, $I_D$=5.5A |
| Diode Forward Voltage | $V_{SD}$ | - | 1.1 | - | V | $I_S$=9A, $V_{GS}$=0 |
| **Dynamic [2]** | | | | | | |
| Total Gate Charge | $Q_g$ | - | 25 | - | nC | $I_D$= 9 A<br>$V_{DS}$= 25 V<br>$V_{GS}$= 10 V |
| Gate-Source Charge | $Q_{gs}$ | - | 5 | - | | |
| Gate-Drain Change | $Q_{gd}$ | - | 19 | - | | |
| Turn-on Delay Time | $T_{d(on)}$ | - | 9 | - | nS | $V_{DD}$=100V<br>$I_D$= 9A<br>$R_L$= 25Ω<br>$V_{GEN}$= 10V |
| Rise Time | $T_r$ | - | 15 | - | | |
| Turn-off Delay Time | $T_{d(off)}$ | - | 45 | - | | |
| Fall Time | $T_f$ | - | 39 | - | | |

Notes:
1. Pulse test： PW ≦ 300 us duty cycle ≦ 2%.
2. Guaranteed by design, not subject to production testing.