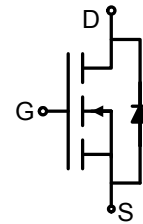


100V/3.0A N-Channel Advanced Power MOSFET

Description

The 03N10A uses advanced trench technology and design to provide excellent $R_{DS(ON)}$ with low gate charge. It can be used in a wide variety of applications.



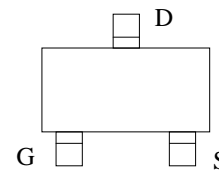
Schematic diagram

General Features

- $V_{DS} = 100V, I_D = 3.0A$
 $R_{DS(ON)} < 135m\Omega @ V_{GS}=10V$
- High density cell design for ultra low R_{dson}

Application

- Power switching application
- Hard switched and high frequency circuits
- Uninterruptible power supply



SOT-23-3L

Absolute Maximum Ratings ($T_A=25^\circ C$ unless otherwise noted)

| Parameter | Symbol | Limit | Unit |
|---|-----------|------------|------------|
| Drain-Source Voltage | V_{DS} | 100 | V |
| Gate-Source Voltage | V_{GS} | ± 20 | V |
| Drain Current-Continuous $T_c = 25^\circ C$ | I_D | 3.0 | A |
| Drain Current-Pulsed ^(Note 1) $T_c = 25^\circ C$ | I_{DM} | 20 | A |
| Maximum Power Dissipation $T_c = 25^\circ C$ | P_D | 1.2 | W |
| Maximum Operating Temperature | T_J | 150 | $^\circ C$ |
| Storage Temperature Range | T_{STG} | -55 To 150 | $^\circ C$ |

Thermal Characteristic

| | | | |
|---|-----------------|-----|--------------|
| Thermal Resistance, Junction-to-Ambient ^(Note 2) | $R_{\theta JA}$ | 125 | $^\circ C/W$ |
|---|-----------------|-----|--------------|

Electrical Characteristics ($T_J=25^\circ C$ unless otherwise noted)

| Parameter | Symbol | Condition | Min | Typ | Max | Unit |
|---------------------------------|------------|---------------------------|-----|-----|-----|---------|
| Off Characteristics | | | | | | |
| Drain-Source Breakdown Voltage | BV_{DSS} | $V_{GS}=0V, I_D=250\mu A$ | 100 | | - | V |
| Zero Gate Voltage Drain Current | I_{DSS} | $V_{DS}=80V, V_{GS}=0V$ | - | - | 1 | μA |

100V/3.0A N-Channel Advanced Power MOSFET

| | | | | | | |
|---|--------------|--|-----|-----|-----------|------------|
| Gate-Body Leakage Current | I_{GSS} | $V_{GS}=\pm 20V, V_{DS}=0V$ | - | - | ± 100 | nA |
| On Characteristics (Note 3) | | | | | | |
| Gate Threshold Voltage | $V_{GS(th)}$ | $V_{DS}=V_{GS}, I_D=250\mu A$ | 1.0 | 1.8 | 3.0 | V |
| Drain-Source On-State Resistance | $R_{DS(ON)}$ | $V_{GS}=10V, I_D=3.0A$ | - | | 135 | m Ω |
| Dynamic Characteristics (Note4) | | | | | | |
| Input Capacitance | C_{iss} | $V_{DS}=30V, V_{GS}=0V,$ $F=1.0MHz$ | - | 680 | - | PF |
| Output Capacitance | C_{oss} | | - | 110 | - | PF |
| Reverse Transfer Capacitance | C_{rss} | | - | 80 | - | PF |
| Switching Characteristics (Note 4) | | | | | | |
| Turn-on Delay Time | $t_{d(on)}$ | $V_{DD}=30V, I_D=2A,$ $V_{GS}=10V, R_G=2.5\Omega$ | - | 11 | - | nS |
| Turn-on Rise Time | t_r | | - | 8.4 | - | nS |
| Turn-Off Delay Time | $t_{d(off)}$ | | - | 33 | - | nS |
| Turn-Off Fall Time | t_f | | - | 9.5 | - | nS |
| Total Gate Charge | Q_g | $V_{DS}=30V, I_D=3A,$ $V_{GS}=10V$ | - | 16 | | nC |
| Gate-Source Charge | Q_{gs} | | - | 3.5 | - | nC |
| Gate-Drain Charge | Q_{gd} | | - | 4 | - | nC |
| Drain-Source Diode Characteristics | | | | | | |
| Diode Forward Voltage (Note 3) | V_{SD} | $V_{GS}=0V, I_S=2.5A$ | - | - | 1.3 | V |

1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2. Surface Mounted on FR4 Board, $t \leq 10$ sec.
3. Pulse Test: Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 2\%$.
4. Guaranteed by design, not subject to production

Typical Characteristics

