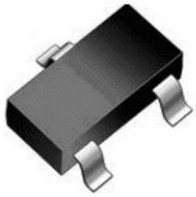
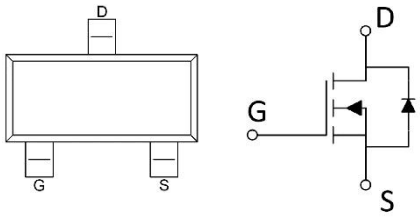
# 40$V_{DS}$/±20$V_{GS}$ N-Channel Enhancement Mode MOSFET

## Features

- $V_{DS}$=40V,$I_D$=5A
- $R_{DS(ON)}$=45mΩ（TYP.）$V_{GS}$=10V
- $R_{DS(ON)}$=60mΩ（TYP.）$V_{GS}$=4.5V
- Reliable and Rugged
- Avalanche Rated
- Low On-Resistance

SOT23






## Applications

- Portable device
- Switch switching

## Ordering Information

| Device | package | Device Marking | Package Qty. |
|---|---|---|---|
| HMN2318 | SOT-23 | S18 | 3000/PCS |

## Absolute Maximum Ratings (T$_C$=25℃,unless otherwise noted)

| Parameter | Symbol | Value | Unit |
|---|---|---|---|
| Drain-Source Voltage ($V_{GS}$=0V) | $V_{DS}$ | 40 | V |
| Gate-Source Voltage ($V_{GS}$=0V,static) | $V_{GS}$ | ±20 | V |
| Continuous Drain Current ($T_C$=25℃) | $I_D$ | 5 | A |
| Continuous Drain Current ($T_C$=100℃) | | 2.6 | A |
| Pulesd Drain Current | $I_{DM}$ | 20 | A |
| Maximum Power Dissipation ($T_C$=25℃) | $P_D$ | 1.25 | W |
| Maximum Power Dissipation ($T_C$=100℃) | | 0.35 | W |
| Operating,Storage Temperature Range | $T_J$,$T_{STG}$ | -55~150 | ℃ |

## Electrical Characteristics

| Parameter | Symbol | Test Conditions | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|---|
| Drain-Source Breakdown Voltage | $BV_{DSS}$ | $V_{GS}$=0V,$I_D$=250μA | 40 | - | - | V |
| Zero Gate Voltage Drain Current | $I_{DSS}$ | $V_{DS}$=24V, $V_{GS}$=0V | - | - | 1 | μA |
| Gate -Source Leakage Current | $I_{GSS}$ | $V_{GS}$=±12V, $V_{DS}$=0V | - | - | ±100 | nA |
| Gate Threshold Voltage | $V_{GS(th)}$ | $V_{DS}$= $V_{GS}$,$I_D$=250μA | 0.8 | - | 1.8 | V |
| Drain-Source On-stage Resistance | $R_{DS(ON)}$ | $V_{GS}$=10V,$I_D$=5.8A | - | - | 45 | mΩ |
| | | $V_{GS}$=4.5V,$I_D$=5A | - | - | 60 | |

## Dynamic Characteristics

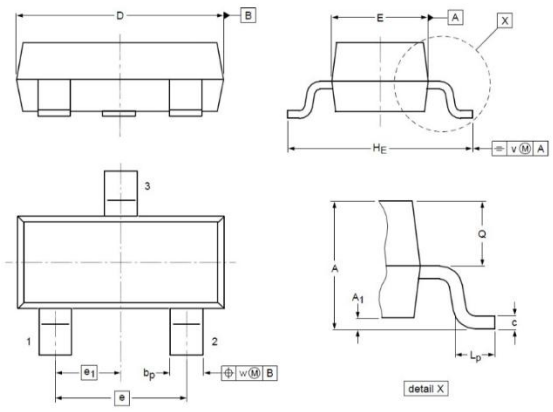
| Parameter | Symbol | Test Conditions | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|---|
| Input capacitance | $C_{iss}$ | $V_{DS}$=15V | - | 330 | - | pF |
| Output capacitance | $C_{oss}$ | $V_{GS}$=0V | - | 93 | - | |
| Reverse transfer capacitance | $C_{rss}$ | f=1MHz | - | 20 | - | |
| Gate Resistance | $R_g$ | f=1MHz | - | - | - | Ω |
| Body Diode Forward Voltage | $V_{SD}$ | $V_{GS}$=0V,$I_{SD}$=1A | - | - | 1.2 | V |
| Total Gate Charge | $Q_g$ | $V_{DS}$=15V | - | 5.4 | - | nC |
| Gate Source Charge | $Q_{gs}$ | $V_{GS}$=4.5V | - | 1.5 | - | |
| Gate Drain Charge | $Q_{gd}$ | $I_D$=5.8A | - | 1.9 | - | |
| Turn-on delay Time | $t_{d(on)}$ | $V_{GS}$=10V | - | 13 | - | ns |
| Rise time | $t_r$ | $V_{DS}$=15V | - | 52 | - | |
| Turn-off delay Time | $t_{d(off)}$ | $R_L$=2.7Ω | - | 17 | - | |
| Fall time | $t_f$ | $R_G$=3Ω | - | 10 | - | |
| Reverse Recovery Time | $t_{rr}$ | $V_{GS}$=0V,$I_{SD}$=5A | - | 16 | - | ns |
| Reverse Recovery Charge | $Q_{rr}$ | $d_i/d_t$=100A/μs | - | 9 | - | nC |

## Thermal Characteristics

| Parameter | Symbol | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|
| Thermal Resistance,Junction-to-Case | $R_{\theta JC}$ | - | 60 | - | ℃/ W |
| Thermal Resistance,Junction-to-Ambient | $R_{\theta JA}$ | - | 125 | - | ℃/ W |

## Physical Dimensions

### SOT23




| 符号 | 尺寸(mm) | | | 符号 | 尺寸(mm) | | |
|---|---|---|---|---|---|---|---|
| | 最小值 | 典型值 | 最大值 | | 最小值 | 典型值 | 最大值 |
| A | 0.90 | 1.03 | 1.10 | A1 | 0.01 | 0.05 | 0.10 |
| bp | 0.38 | 0.42 | 0.48 | c | 0.09 | 0.13 | 0.15 |
| D | 2.80 | 2.92 | 3.00 | E | 1.20 | 1.33 | 1.40 |
| e | - | 1.90 | - | e1 | - | 0.95 | - |
| HE | 2.10 | 2.40 | 2.50 | Lp | 0.15 | 0.23 | 0.45 |
| Q | 0.45 | 0.49 | 0.55 | v | - | 0.20 | - |
| w | - | 0.10 | - | | | | |