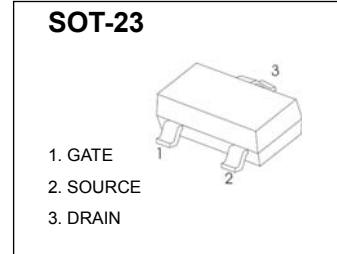


SOT-23 Plastic-Encapsulate MOSFETS

HM3400 N-Channel Enhancement Mode Field Effect Transistor

| $V_{(BR)DSS}$ | $R_{DS(on)MAX}$ | I_D |
|---------------|-----------------|-------|
| 30V | 35mΩ@10V | 5.8A |
| | 40mΩ@4.5V | |
| | 52mΩ@2.5V | |



FEATURE

- High dense cell design for extremely low $R_{DS(ON)}$
- Exceptional on-resistance and maximum DC current capability

APPLICATION

- Load/Power Switching
- Interfacing Switching

Maximum ratings ($T_a=25^{\circ}C$ unless otherwise noted)

| Parameter | Symbol | Value | Unit |
|--|-----------------|----------|---------------|
| Drain-Source Voltage | V_{DS} | 30 | V |
| Gate-Source Voltage | V_{GS} | ±12 | V |
| Continuous Drain Current | I_D | 5.8 | A |
| Drain Current-Pulsed (note 1) | I_{DM} | 30 | A |
| Power Dissipation | P_D | 350 | mW |
| Thermal Resistance from Junction to Ambient (note 2) | $R_{\theta JA}$ | 357 | $^{\circ}C/W$ |
| Junction Temperature | T_J | 150 | $^{\circ}C$ |
| Storage Temperature | T_{STG} | -55~+150 | $^{\circ}C$ |

MOSFET ELECTRICAL CHARACTERISTICS

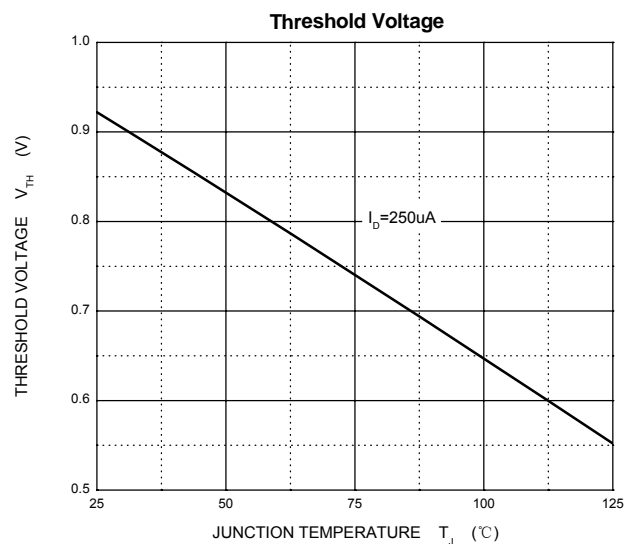
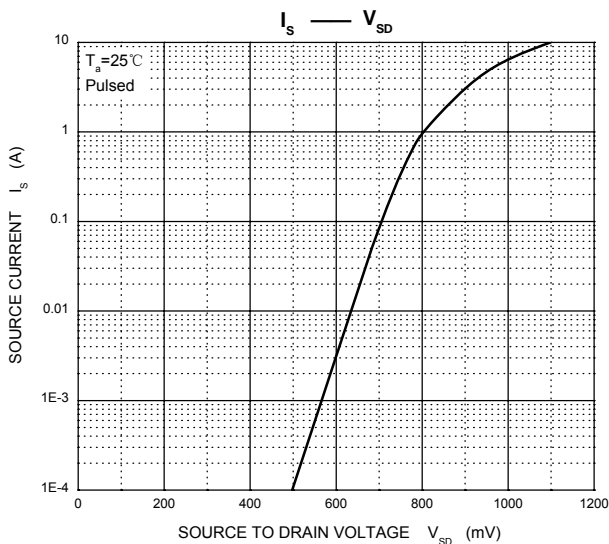
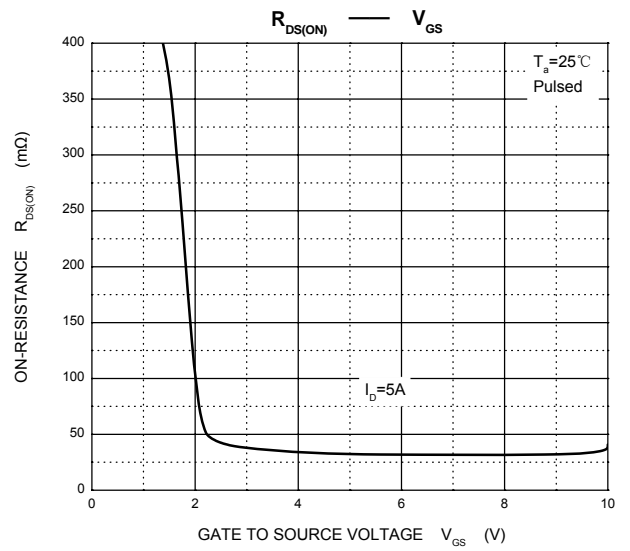
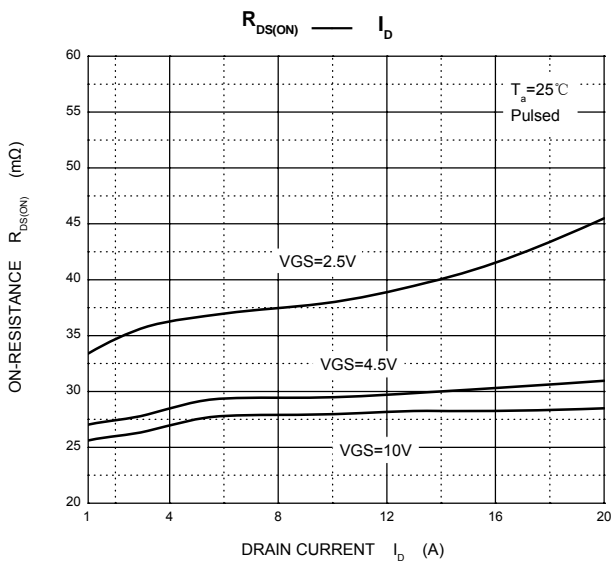
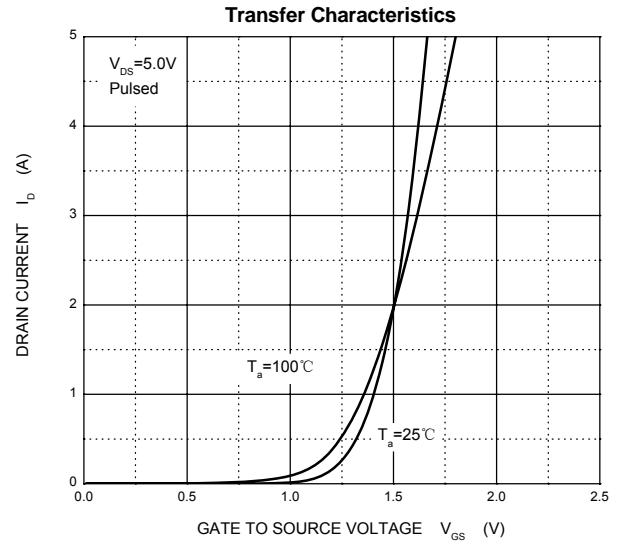
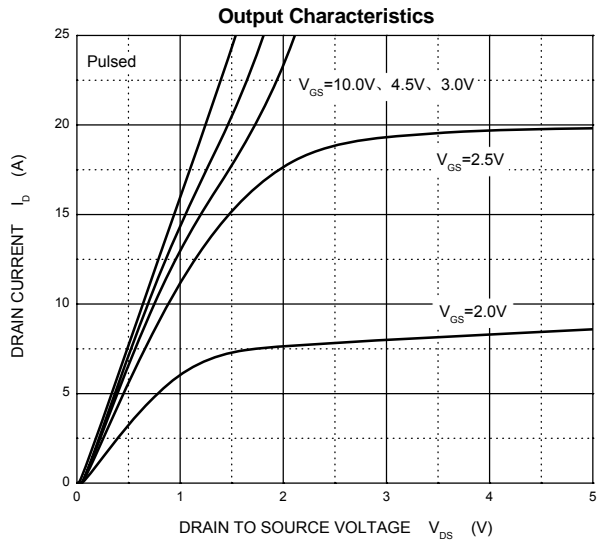
$T_a=25^\circ\text{C}$ unless otherwise specified

| Parameter | Symbol | Test Condition | Min | Typ | Max | Unit |
|---|---------------|---|-----|-----|-----------|------------|
| Off Characteristics | | | | | | |
| Drain-source breakdown voltage | $V_{(BR)DSS}$ | $V_{GS} = 0V, I_D = 250\mu A$ | 30 | | | V |
| Zero gate voltage drain current | I_{DSS} | $V_{DS} = 24V, V_{GS} = 0V$ | | | 1 | μA |
| Gate-source leakage current | I_{GSS} | $V_{GS} = \pm 12V, V_{DS} = 0V$ | | | ± 100 | nA |
| On characteristics | | | | | | |
| Drain-source on-resistance (note 3) | $R_{DS(on)}$ | $V_{GS} = 10V, I_D = 5.8A$ | | | 35 | m Ω |
| | | $V_{GS} = 4.5V, I_D = 5A$ | | | 40 | m Ω |
| | | $V_{GS} = 2.5V, I_D = 4A$ | | | 52 | m Ω |
| Forward transconductance | g_{FS} | $V_{DS} = 5V, I_D = 5A$ | 8 | | | S |
| Gate threshold voltage | $V_{GS(th)}$ | $V_{DS} = V_{GS}, I_D = 250\mu A$ | 0.7 | | 1.4 | V |
| Dynamic Characteristics (note 4,5) | | | | | | |
| Input capacitance | C_{iss} | $V_{DS} = 15V, V_{GS} = 0V, f = 1MHz$ | | | 1050 | pF |
| Output capacitance | C_{oss} | | | 99 | | pF |
| Reverse transfer capacitance | C_{rss} | | | 77 | | pF |
| Gate resistance | R_g | $V_{DS} = 0V, V_{GS} = 0V, f = 1MHz$ | | | 3.6 | Ω |
| Switching Characteristics (note 4,5) | | | | | | |
| Turn-on delay time | $t_{d(on)}$ | $V_{GS} = 10V, V_{DS} = 15V,$ $R_L = 2.7\Omega, R_{GEN} = 3\Omega$ | | | 5 | ns |
| Turn-on rise time | t_r | | | | 7 | ns |
| Turn-off delay time | $t_{d(off)}$ | | | | 40 | ns |
| Turn-off fall time | t_f | | | | 6 | ns |
| Drain-source diode characteristics and maximum ratings | | | | | | |
| Diode forward voltage (note 3) | V_{SD} | $I_S = 1A, V_{GS} = 0V$ | | | 1 | V |

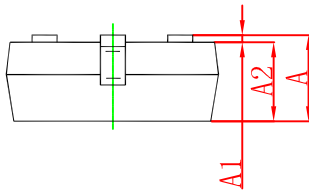
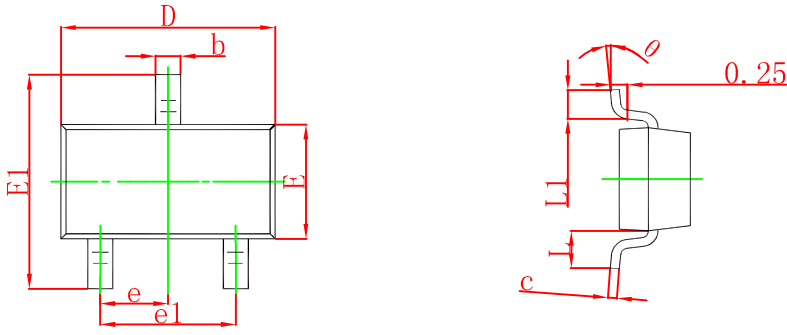
Note :

1. Repetitive Rating : Pulse width limited by maximum junction temperature.
2. Surface Mounted on FR4 Board, $t < 5$ sec.
3. Pulse Test : Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 2\%$.
4. Guaranteed by design, not subject to production testing.

Typical Characteristics



SOT-23 Package Outline Dimensions



| Symbol | Dimensions In Millimeters | | Dimensions In Inches | |
|--------|---------------------------|-------|----------------------|-------|
| | Min | Max | Min | Max |
| A | 0.900 | 1.150 | 0.035 | 0.045 |
| A1 | 0.000 | 0.100 | 0.000 | 0.004 |
| A2 | 0.900 | 1.050 | 0.035 | 0.041 |
| b | 0.300 | 0.500 | 0.012 | 0.020 |
| c | 0.080 | 0.150 | 0.003 | 0.006 |
| D | 2.800 | 3.000 | 0.110 | 0.118 |
| E | 1.200 | 1.400 | 0.047 | 0.055 |
| E1 | 2.250 | 2.550 | 0.089 | 0.100 |
| e | 0.950 TYP | | 0.037 TYP | |
| e1 | 1.800 | 2.000 | 0.071 | 0.079 |
| L | 0.550 REF | | 0.022 REF | |
| L1 | 0.300 | 0.500 | 0.012 | 0.020 |
| θ | 0° | 8° | 0° | 8° |

SOT-23 Suggested Pad Layout



- Note:
1. Controlling dimension: in millimeters.
 2. General tolerance: ± 0.05 mm.
 3. The pad layout is for reference purposes only.