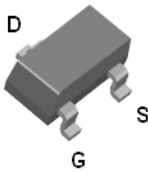


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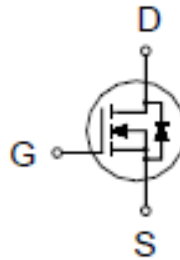
N-Channel Enhancement Mode MOSFET

PRODUCT SUMMARY

| $V_{(BR)DSS}$ | $R_{DS(ON)}$ | I_D |
|---------------|------------------------|-------|
| 20V | 40mΩ @ $V_{GS} = 4.5V$ | 3.3A |



SOT-23(S)



ABSOLUTE MAXIMUM RATINGS ($T_A = 25\text{ °C}$ Unless Otherwise Noted)

| PARAMETERS/TEST CONDITIONS | | SYMBOL | LIMITS | UNITS |
|--|----------------------|----------------|------------|-------|
| Gate-Source Voltage | | V_{GS} | ±8 | V |
| Continuous Drain Current | $T_A = 25\text{ °C}$ | I_D | 3.3 | A |
| | $T_A = 70\text{ °C}$ | | 2.7 | |
| Pulsed Drain Current ¹ | | I_{DM} | 12 | |
| Power Dissipation | $T_A = 25\text{ °C}$ | P_D | 0.7 | W |
| | $T_A = 70\text{ °C}$ | | 0.4 | |
| Operating Junction & Storage Temperature Range | | T_J, T_{STG} | -55 to 150 | °C |

THERMAL RESISTANCE RATINGS

| THERMAL RESISTANCE | SYMBOL | TYPICAL | MAXIMUM | UNITS |
|----------------------------------|-----------------|---------|---------|--------|
| Junction-to-Ambient ² | $R_{\theta JA}$ | | 170 | °C / W |

¹Pulse width limited by maximum junction temperature.

²The value of $R_{\theta JA}$ is measured with the device mounted on 1in² FR-4 board with 2oz. Copper, in a still air environment with $T_A = 25\text{ °C}$.

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N-Channel Enhancement Mode MOSFET

ELECTRICAL CHARACTERISTICS (T_J = 25 °C, Unless Otherwise Noted)

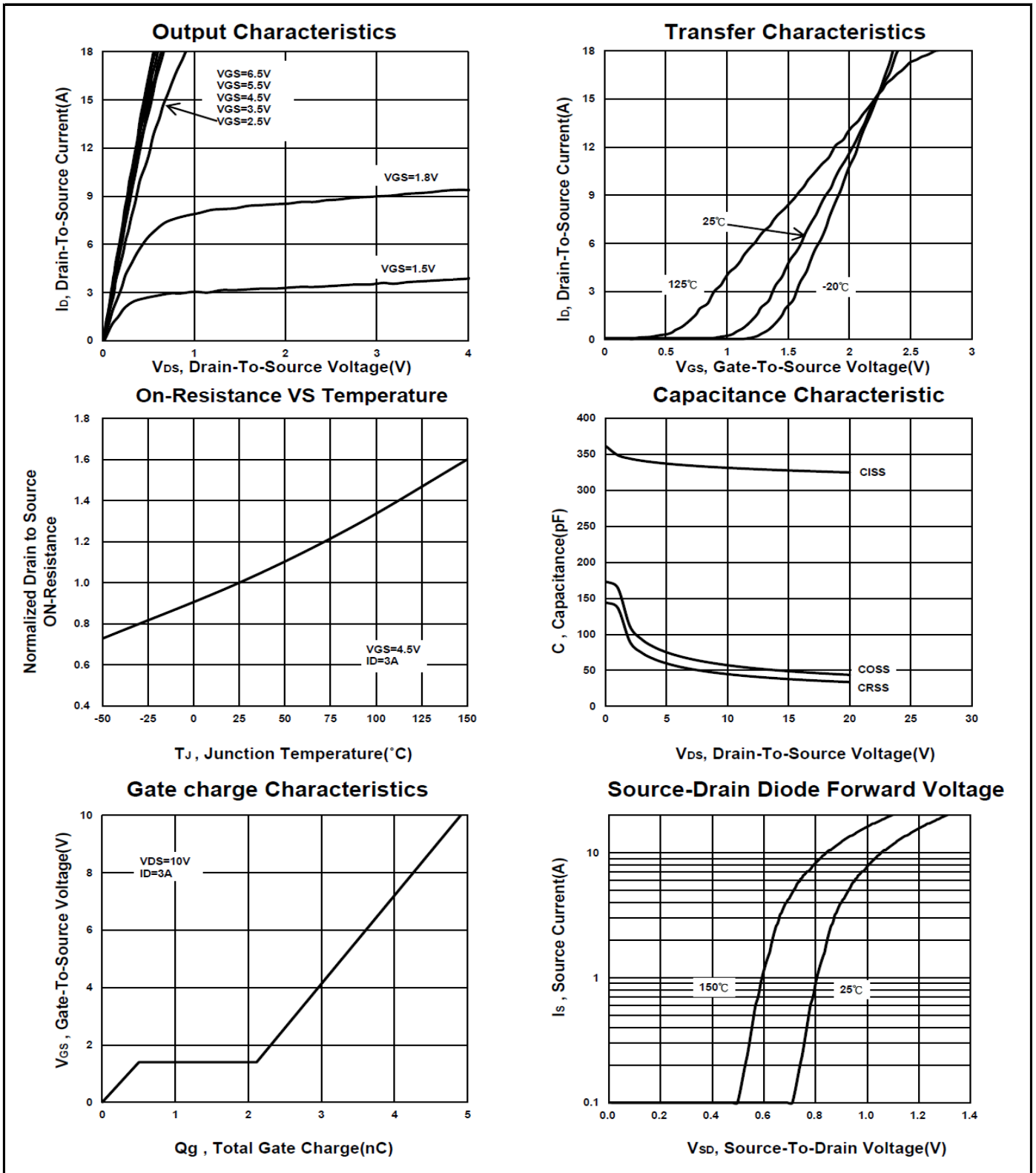
| PARAMETER | SYMBOL | TEST CONDITIONS | LIMITS | | | UNITS |
|--|----------------------|--|--------|-----|------|-------|
| | | | MIN | TYP | MAX | |
| STATIC | | | | | | |
| Drain-Source Breakdown Voltage | V _{(BR)DSS} | V _{GS} = 0V, I _D = 250μA | 20 | | | V |
| Gate Threshold Voltage | V _{GS(th)} | V _{DS} = V _{GS} , I _D = 250μA | 0.5 | 0.7 | 1 | |
| Gate-Body Leakage | I _{GSS} | V _{DS} = 0V, V _{GS} = ±8V | | | ±100 | nA |
| Zero Gate Voltage Drain Current | I _{DSS} | V _{DS} = 16V, V _{GS} = 0V | | | 1 | μA |
| | | V _{DS} = 10V, V _{GS} = 0V, T _J = 55 °C | | | 10 | |
| Drain-Source On-State Resistance ¹ | R _{DS(ON)} | V _{GS} = 1.8V, I _D = 2.5A | | 55 | 80 | mΩ |
| | | V _{GS} = 2.5V, I _D = 2.8A | | 36 | 50 | |
| | | V _{GS} = 4.5V, I _D = 3A | | 29 | 40 | |
| Forward Transconductance ¹ | g _{fs} | V _{DS} = 5V, I _D = 3A | | 16 | | S |
| DYNAMIC | | | | | | |
| Input Capacitance | C _{iss} | V _{GS} = 0V, V _{DS} = 10V, f = 1MHz | | 331 | | pF |
| Output Capacitance | C _{oss} | | | 56 | | |
| Reverse Transfer Capacitance | C _{rss} | | | 44 | | |
| Total Gate Charge ² | Q _g | V _{DS} = 10V, V _{GS} = 4.5V, I _D = 3A | | 5 | | nC |
| Gate-Source Charge ² | Q _{gs} | | | 0.6 | | |
| Gate-Drain Charge ² | Q _{gd} | | | 1.7 | | |
| Turn-On Delay Time ² | t _{d(on)} | V _{DD} = 10V I _D ≅ 3A, V _{GEN} = 4.5V, R _G = 6Ω | | 30 | | nS |
| Rise Time ² | t _r | | | 30 | | |
| Turn-Off Delay Time ² | t _{d(off)} | | | 90 | | |
| Fall Time ² | t _f | | | 31 | | |
| SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTIC (T_J = 25 °C) | | | | | | |
| Continuous Current | I _S | | | | 0.7 | A |
| Forward Voltage ¹ | V _{SD} | I _F = 3A, V _{GS} = 0V | | | 1 | V |
| Reverse Recovery Time | t _{rr} | I _F = 3A, di _F /dt = 100A /μS | | 10 | | nS |
| Reverse Recovery Charge | Q _{rr} | | | | 2 | |

¹Pulse test : Pulse Width ≤ 300 μsec, Duty Cycle ≤ 2%.

²Independent of operating temperature.

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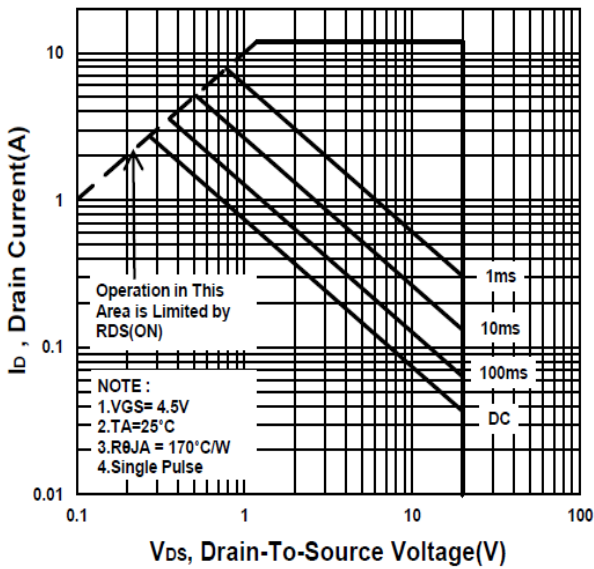
N-Channel Enhancement Mode MOSFET



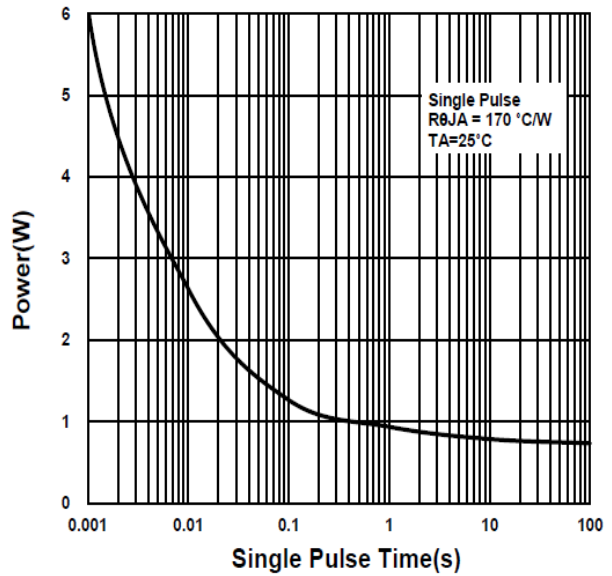
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N-Channel Enhancement Mode MOSFET

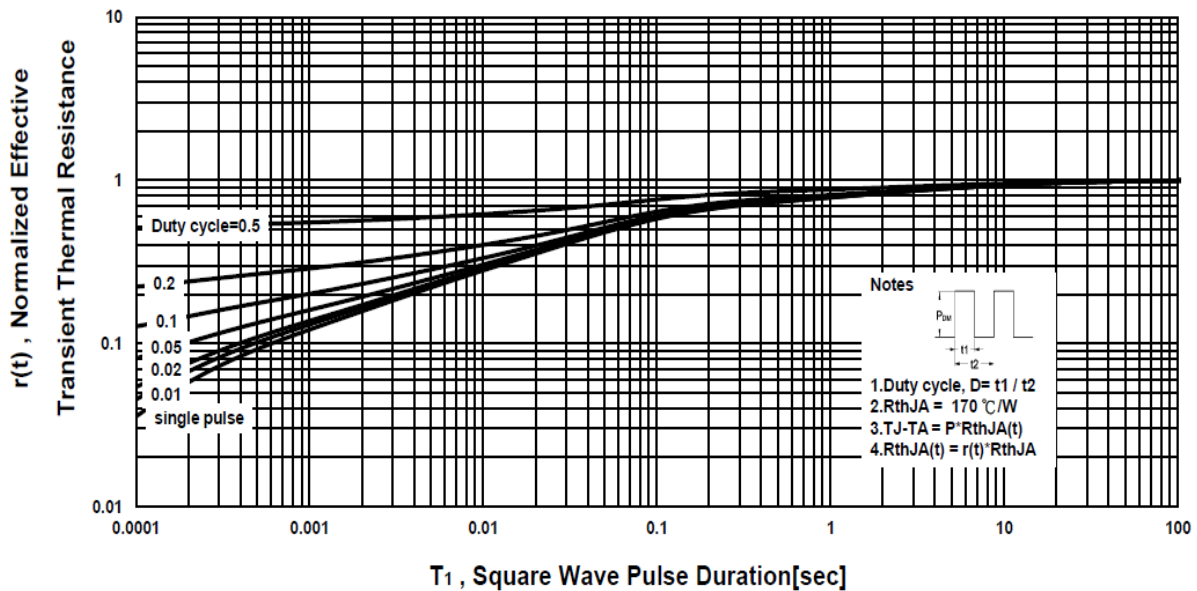
Safe Operating Area



Single Pulse Maximum Power Dissipation



Transient Thermal Response Curve



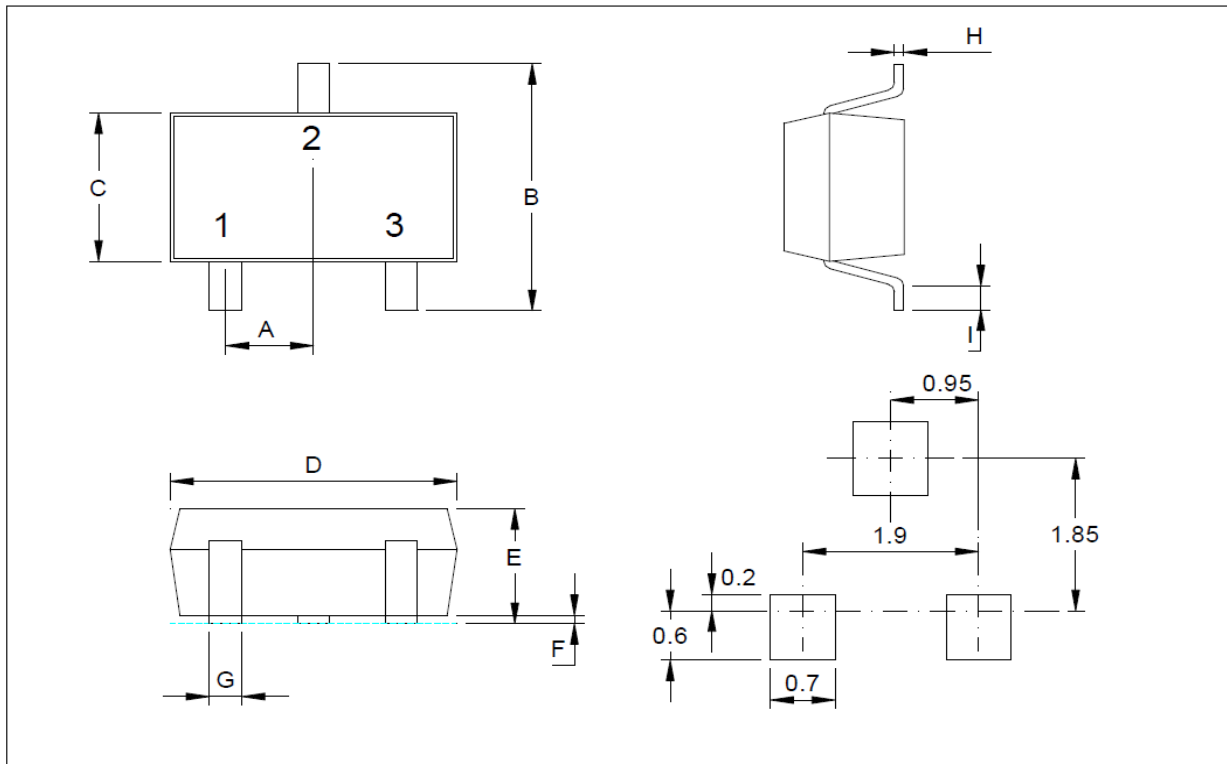
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N-Channel Enhancement Mode MOSFET

Package Dimension

SOT-23 (S) MECHANICAL DATA

| Dimension | mm | | | Dimension | mm | | |
|-----------|------|------|------|-----------|------|------|------|
| | Min. | Typ. | Max. | | Min. | Typ. | Max. |
| A | 0.9 | | 1 | H | 0.08 | | 0.2 |
| B | 2.25 | | 2.85 | I | 0.15 | | 0.6 |
| C | 1.2 | | 1.4 | | | | |
| D | 2.8 | | 3.04 | | | | |
| E | 0.89 | | 1.2 | | | | |
| F | 0 | | 0.1 | | | | |
| G | 0.3 | | 0.5 | | | | |

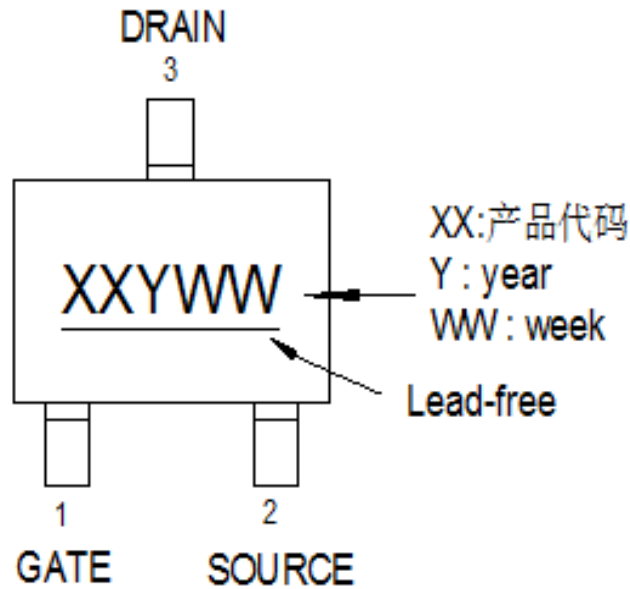


*因为各家封装模具不同而外观略有所差异，不影响电性及Layout。

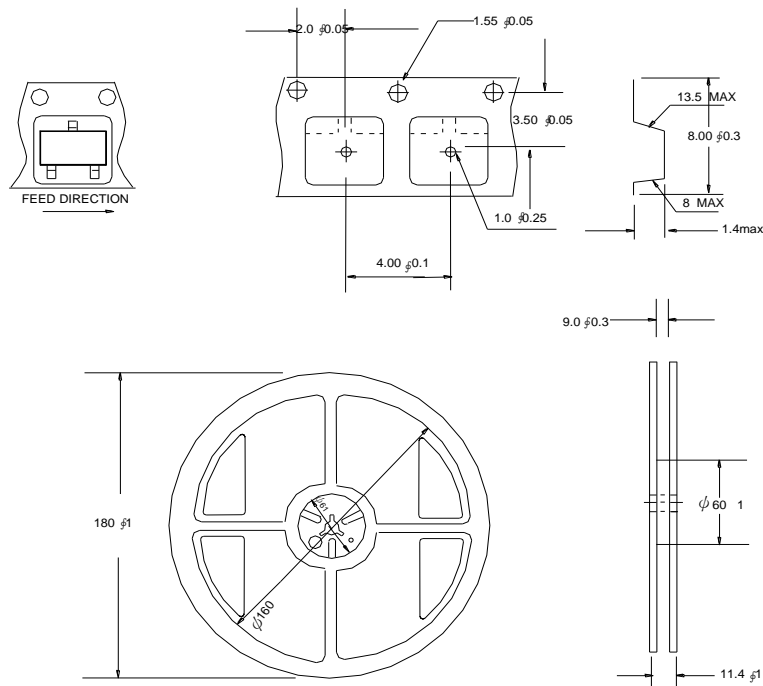
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N-Channel Enhancement Mode MOSFET

A. Marking Information (此产品代码为：2U)



B. Tape&Reel Information:3000pcs/Reel

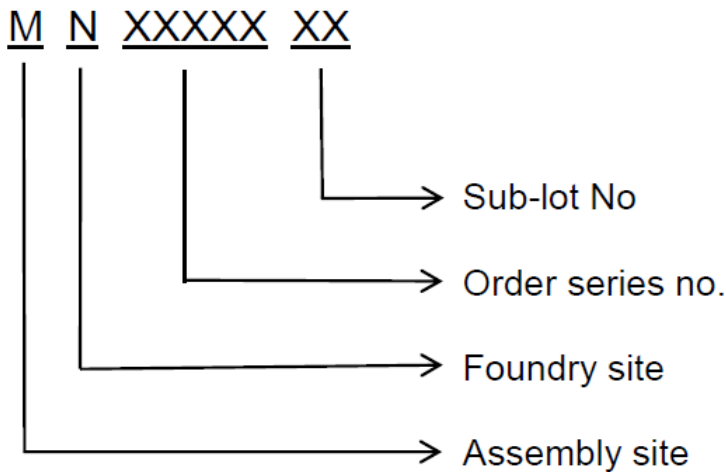


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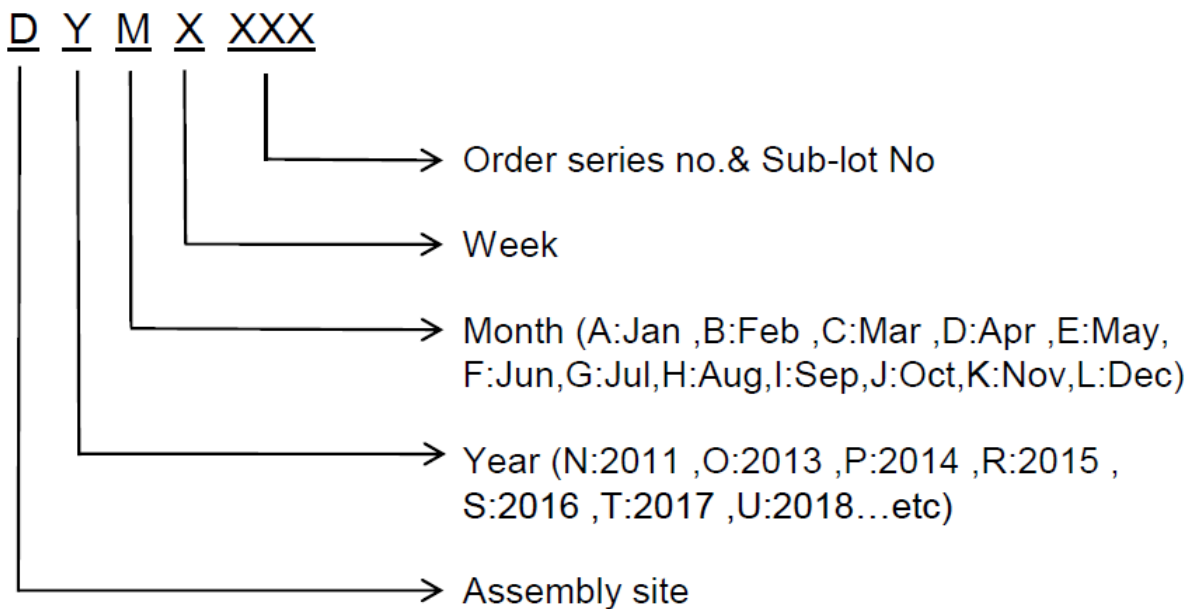
N-Channel Enhancement Mode MOSFET

C. Lot No.&Date Code rule

1.Lot No.



2.Date Code





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N-Channel Enhancement Mode MOSFET

D.Label rule

标签内容(Label content)



| | | |
|----|--------------------|---|
| 1 | Label Size | 30 * 90 mm |
| 2 | Font style | Times New Roman or Arial (或可区分英文"0"和数字"0", "G"和"Q"的字型即可) |
| 3 | U-NIKC | Height: 4 mm |
| 4 | Package | Height: 2 mm |
| 5 | Date | Height: 2 mm Shipping date: YYYY/MM/DD, ex. 2008/09/12 |
| 6 | Device | Height: 3 mm (Max: 16 Digit) |
| 7 | Lot | Height: 3 mm (Max: 9 Digit) Sub lot |
| 8 | D/C | Height: 3 mm (Max: 7 Digit) |
| 9 | QTY | Height: 3 mm (Max: 6 Digit) Thousand mark is no needed |
| 10 | RoHS label |  long axis: 12 mm minor axis: 6 mm bottom color: White Font color: Black Font style: Arial |
| 11 | Halogen Free label |  Diameter: 10 mm bottom color: Green Font color: Black Font style: Arial |
| 12 | Scan information | Device / Lot / D/C / QTY , Insert " / " between every parts. for example: P3055LDG/G12345601/GGG2301/2000 DPI (Dots per inch): Over 300 dpi Code : Code 128 Height: 6 mm at least |