Elektronische Bauelemente

# SSN318NE-C

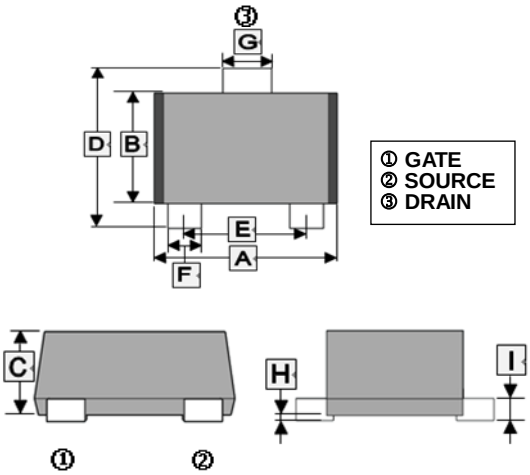
**0.25A , 60V, $R_{DS(ON)}$ 1.6Ω**
**N-Channel Enhancement MOSFET**

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

## FEATURES

- 60V/250mA
  $R_{DS(ON)}$≦ 1.6Ω@$V_{GS}$=10V
  $R_{DS(ON)}$≦ 2Ω@$V_{GS}$=4.5V
  $R_{DS(ON)}$≦ 4.5Ω@$V_{GS}$=2.5V
- Reliable and Rugged
- Green Device Available
- ESD Protection

**SOT-723**




## MARKING

**318**

## PACKAGE INFORMATION

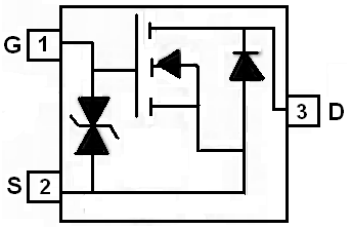
| Package | MPQ | Leader Size |
|---|---|---|
| SOT-723 | 8K | 7 inch |

| REF. | Millimeter | | REF. | Millimeter | |
|---|---|---|---|---|---|
| | Min. | Max. | | Min. | Max. |
| A | 1.150 | 1.250 | F | 0.170 | 0.270 |
| B | 0.750 | 0.850 | G | 0.270 | 0.370 |
| C | - | 0.500 | H | 0 | 0.050 |
| D | 1.150 | 1.250 | I | - | 0.150 |
| E | 0.800TYP. | | | | |

## ORDER INFORMATION

| Part Number | Type |
|---|---|
| SSN318NE-C | Lead (Pb)-free and Halogen-free |

**Top View**




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

| Parameter | | Symbol | Ratings | Unit |
|---|---|---|---|---|
| Drain-Source Voltage | | $V_{DS}$ | 60 | V |
| Gate-Source Voltage | | $V_{GS}$ | ±20 | V |
| Continuous Drain Current @$V_{GS}$=10V [1] | $T_A$=25°C | $I_D$ | 0.25 | A |
| | $T_A$=85°C | | 0.18 | |
| Pulsed Drain Current [2] | | $I_{DM}$ | 1 | A |
| Total Power Dissipation | $T_A$=25°C | $P_D$ | 150 | mW |
| Operating Junction & Storage Temperature Range | | $T_J$, $T_{STG}$ | -55~150 | °C |
| **Thermal Resistance Ratings** | | | | |
| Thermal Resistance Junction-ambient [1] | | $R_{\theta JA}$ | 833 | °C / W |

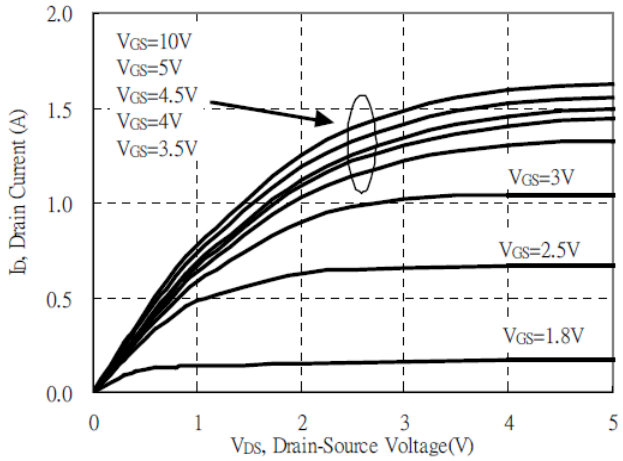
## ELECTRICAL CHARACTERISTICS ($T_J$=25°C unless otherwise specified)

| Parameter | Symbol | Min. | Typ. | Max. | Unit | Test Conditions |
|---|---|---|---|---|---|---|
| Drain-Source Breakdown Voltage | $BV_{DSS}$ | 60 | - | - | V | $V_{GS}$=0, $I_D$=250μA |
| Gate Threshold Voltage | $V_{GS(th)}$ | 0.5 | - | 1.5 | V | $V_{DS}$=10V, $I_D$=1mA |
| Gate-Body Leakage Current | $I_{GSS}$ | - | - | ±10 | μA | $V_{DS}$=0, $V_{GS}$=±16V |
| Zero Gate Voltage Drain Current | $I_{DSS}$ | - | - | 1 | μA | $V_{DS}$=48V, $V_{GS}$=0,$T_J$=25°C |
| | | - | - | 10 | | $V_{DS}$=48V, $V_{GS}$=0,$T_J$=70°C |
| Drain-Source On-Resistance [3] | $R_{DS(ON)}$ | - | - | 1.6 | Ω | $V_{GS}$=10V, $I_D$=220mA |
| | | - | - | 2 | | $V_{GS}$=4.5V, $I_D$=220mA |
| | | - | - | 4.5 | | $V_{GS}$=2.5V, $I_D$=120mA |
| Total Gate Charge | $Q_g$ | - | 0.69 | - | nC | $I_{DS}$=100mA, $V_{DS}$=30V, $V_{GS}$=4.5V |
| Gate-Source Charge | $Q_{gs}$ | - | 0.3 | - | | |
| Gate-Drain (“Miller”) Change | $Q_{gd}$ | - | 0.18 | - | | |
| Turn-On Delay Time | $T_{d(on)}$ | - | 7 | - | nS | $V_{DD}$=30V, $I_{DS}$=100mA, $V_{GS}$=4.5V, $R_{GEN}$=10Ω |
| Rise Time | $T_r$ | - | 6.6 | - | | |
| Turn-Off Delay Time | $T_{d(off)}$ | - | 20 | - | | |
| Fall Time | $T_f$ | - | 80 | - | | |
| Input Capacitance | $C_{iss}$ | - | 27 | - | pF | $V_{GS}$=0V, $V_{DS}$=25V, f=1MHz |
| Output Capacitance | $C_{oss}$ | - | 13 | - | | |
| Reverse Transfer Capacitance | $C_{rss}$ | - | 6 | - | | |
| **Source-Drain Diode** | | | | | | |
| Diode Forward Voltage [3] | $V_{SD}$ | - | - | 1.2 | V | $I_S$=200mA, $V_{GS}$=0V |

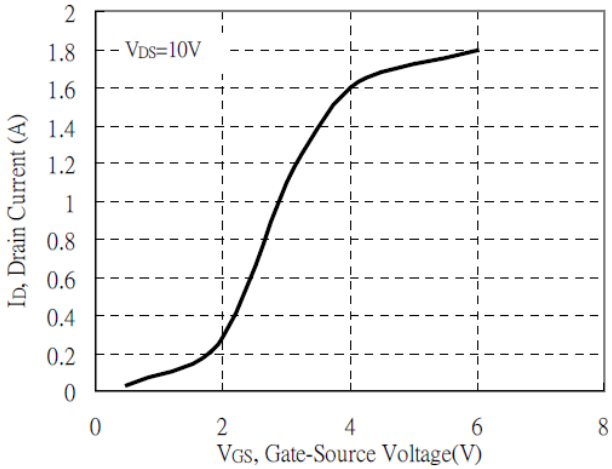
Notes:
1. Surface mounted on FR4 Board using the minimum recommended pad size
2. Pulse width limited by maximum junction temperature., Pw ≤ 300μs, Duty cycle ≤ 2%
3. The data tested by pulsed , pulse width ≦ 300us , duty cycle ≦ 2%

## TYPICAL CHARACTERISTICS

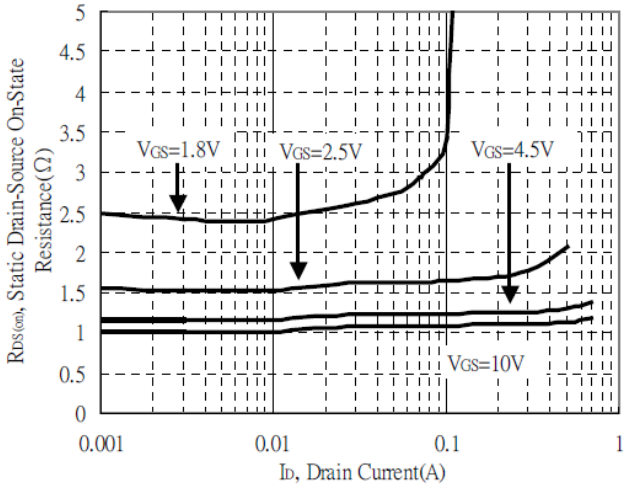
Typical Output Characteristics



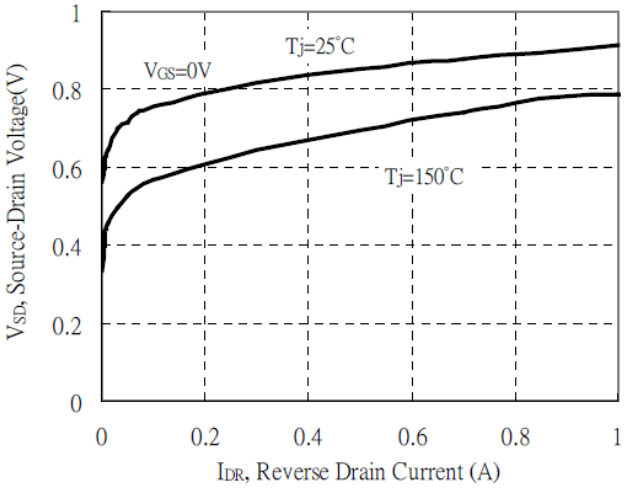

Typical Transfer Characteristics



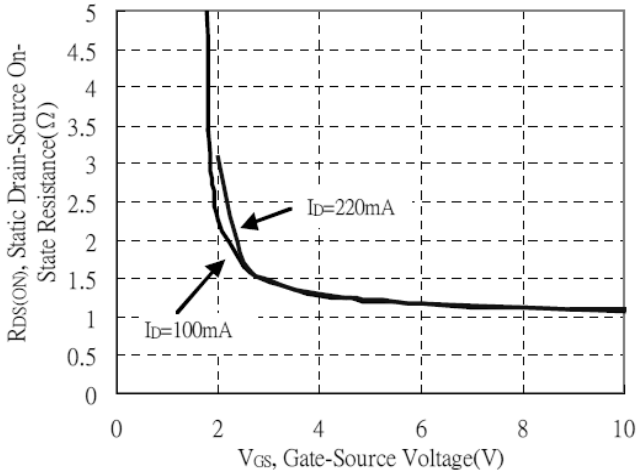

Static Drain-Source On-State resistance vs Drain Current



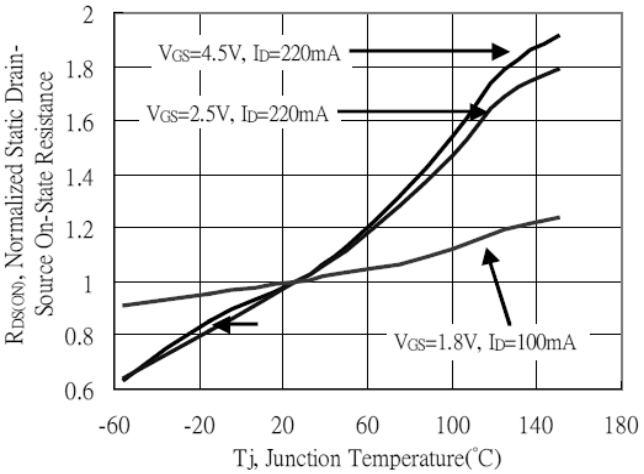

Reverse Drain Current vs Source-Drain Voltage




Static Drain-Source On-State Resistance vs Gate-Source Voltage

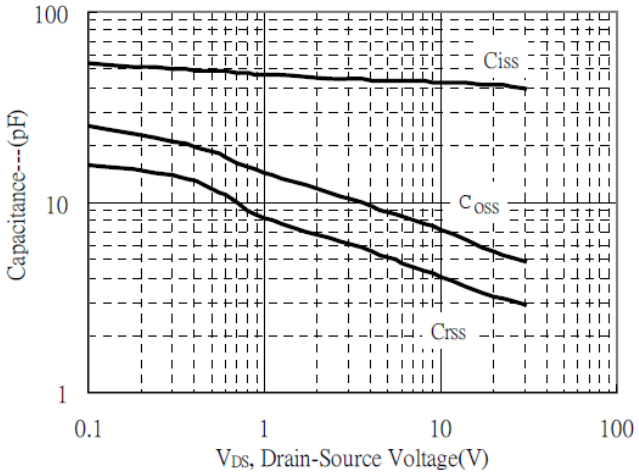



Drain-Source On-State Resistance vs Junction Tempearture

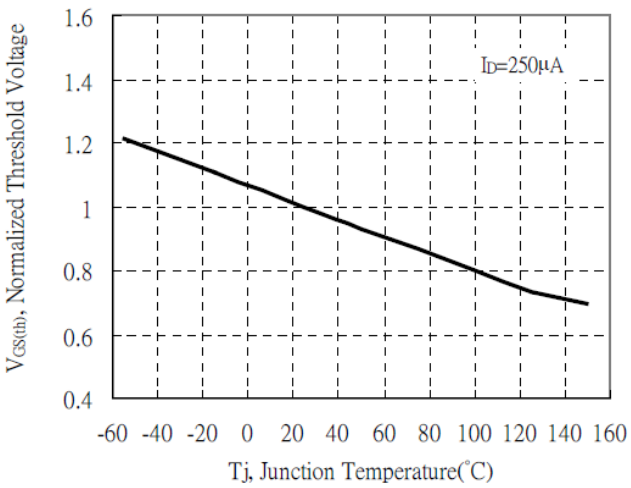


## TYPICAL CHARACTERISTICS

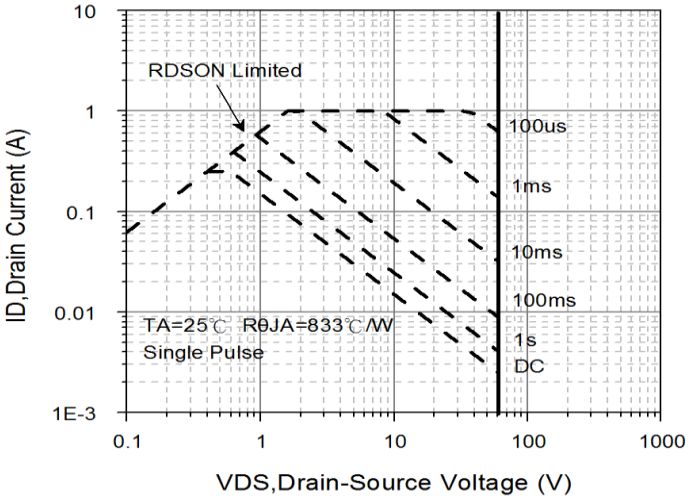
Capacitance vs Drain-to-Source Voltage



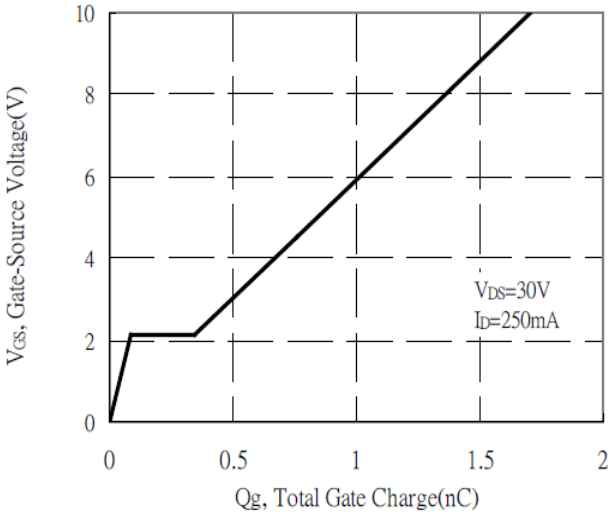

Threshold Voltage vs Junction Tempearture




Maximum Safe Operating Area




Gate Charge Characteristics




Transient Thermal Response Curves