Elektronische Bauelemente

# STT3458N

**3.4A , 60V , $R_{DS(ON)}$ 92 mΩ**
**N-Channel Enhancement Mode Mos.FET**

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

## DESCRIPTION

These miniature surface mount MOSFETs utilize High Cell Density process. Low $R_{DS(on)}$ assures minimal power loss and conserves energy, making this device ideal for use in power management circuitry.

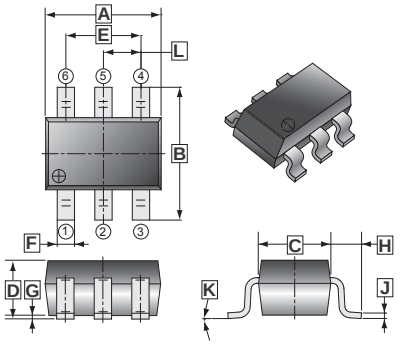
## FEATURES

- Low $R_{DS(on)}$ provides higher efficiency and extends battery life.
- Low gate charge
- Fast switch
- Miniature TSOP-6 surface mount package saves board space

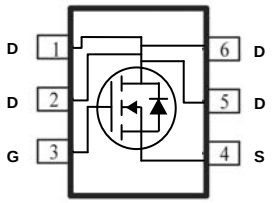
## APPLICATION

Power switch, power management in portable and battery-powered products such as computers, printers, PCMCIA cards, cellular and cordless telephones.

**TSOP-6**




| REF. | Millimeter | | REF. | Millimeter | |
|---|---|---|---|---|---|
| | Min. | Max. | | Min. | Max. |
| A | 2.70 | 3.10 | G | 0 | 0.10 |
| B | 2.60 | 3.00 | H | 0.60 REF. | |
| C | 1.40 | 1.80 | J | 0.12 REF. | |
| D | 1.10 MAX. | | K | 0° | 10° |
| E | 1.90 REF. | | L | 0.95 REF. | |
| F | 0.30 | 0.50 | | | |




## PACKAGE INFORMATION

| Package | MPQ | Leader Size |
|---|---|---|
| TSOP-6 | 3K | 7 inch |

## ABSOLUTE 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 [1] | $T_A$= 25°C | $I_D$ | 3.4 | A |
| | $T_A$= 70°C | | 2.7 | |
| Pulsed Drain Current [2] | | $I_{DM}$ | 20 | A |
| Continuous Source Current (Diode Conduction) [1] | | $I_S$ | 2.5 | A |
| Power Dissipation [1] | $T_A$= 25°C | $P_D$ | 2 | W |
| | $T_A$= 70°C | | 1.3 | |
| Operating Junction and Storage Temperature Range | | $T_J$, $T_{STG}$ | -55 ~ 150 | °C |
| **Thermal Resistance Ratings** | | | | |
| Maximum Junction to Ambient [1] | t≦10 sec | $R_{\theta JA}$ | 62.5 | °C / W |
| | Steady State | | 110 | |

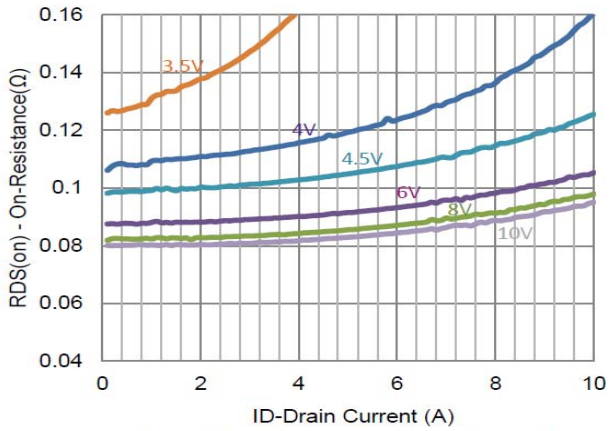
Notes
1. Surface Mounted on 1" x 1" FR4 Board.
2. Pulse width limited by maximum junction temperature.

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

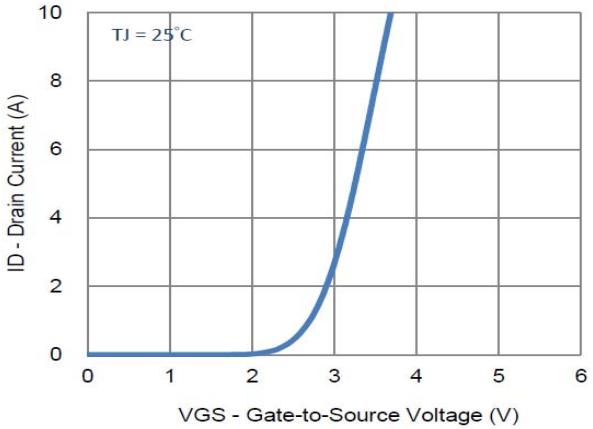
| Parameter | Symbol | Min. | Typ. | Max. | Unit | Test Conditions |
|---|---|---|---|---|---|---|
| Gate-Threshold Voltage | $V_{GS(th)}$ | 1 | - | - | V | $V_{DS}$=$V_{GS}$, $I_D$=250μA |
| Gate-Body Leakage | $I_{GSS}$ | - | - | ±100 | nA | $V_{DS}$=0, $V_{GS}$= ±20V |
| Zero Gate Voltage Drain Current | $I_{DSS}$ | - | - | 1 | μA | $V_{DS}$=48V, $V_{GS}$=0 |
| | | - | - | 25 | | $V_{DS}$=48V, $V_{GS}$=0, $T_J$= 55°C |
| On-State Drain Current [1] | $I_{D(on)}$ | 10 | - | - | A | $V_{DS}$ =5V, $V_{GS}$=10V |
| Drain-Source On-Resistance [1] | $R_{DS(ON)}$ | - | - | 92 | mΩ | $V_{GS}$=10V, $I_D$=2.7A |
| | | - | - | 107 | | $V_{GS}$=4.5V, $I_D$=2.5A |
| Forward Transconductance [1] | $g_{fs}$ | - | 8 | - | S | $V_{DS}$=15V, $I_D$=2.7A |
| Diode Forward Voltage | $V_{SD}$ | - | 0.81 | - | V | $I_S$=1.3A, $V_{GS}$=0 |
| **Dynamic [2]** | | | | | | |
| Input Capacitance | $C_{iss}$ | - | 297 | - | pF | $V_{DS}$=15V, $V_{GS}$=0, f=1MHz |
| Output Capacitance | $C_{oss}$ | - | 40 | - | | |
| Reverse Transfer Capacitance | $C_{rss}$ | - | 28 | - | | |
| Total Gate Charge | $Q_g$ | - | 4 | - | nC | $V_{DS}$=30V, $V_{GS}$=4.5V, $I_D$=2.7A |
| Gate-Source Charge | $Q_{gs}$ | - | 1.2 | - | | |
| Gate-Drain Charge | $Q_{gd}$ | - | 2.1 | - | | |
| Turn-on Delay Time | $T_{d(on)}$ | - | 4 | - | nS | $V_{DS}$=30V, $V_{GEN}$=10V, $R_L$=11.2Ω, $I_D$=2.7A, $R_{GEN}$=6Ω |
| Rise Time | $T_r$ | - | 6 | - | | |
| Turn-off Delay Time | $T_{d(off)}$ | - | 17 | - | | |
| Fall Time | $T_f$ | - | 5 | - | | |

Notes
1. Pulse test：PW≦300μs duty cycle≦2%.
2. Guaranteed by design, not subject to production testing.

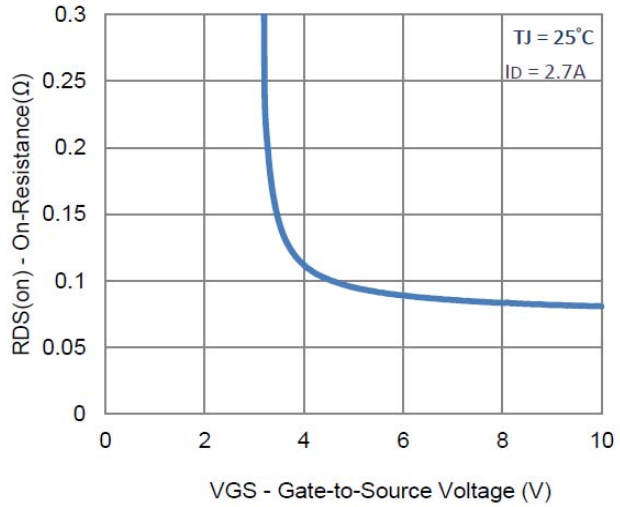
## CHARACTERISTIC CURVES



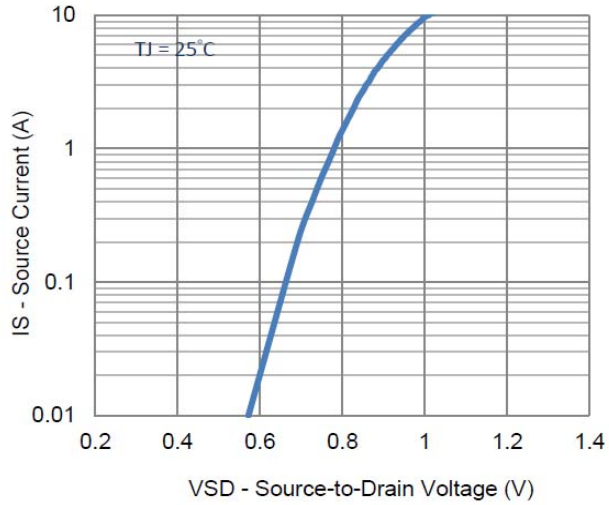

**1. On-Resistance vs. Drain Current**



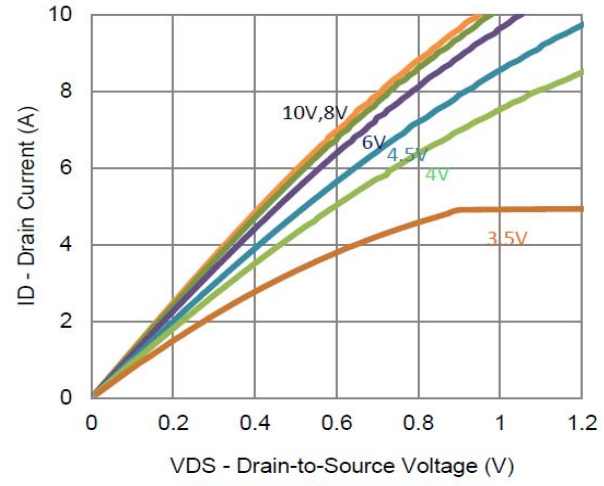

**2. Transfer Characteristics**



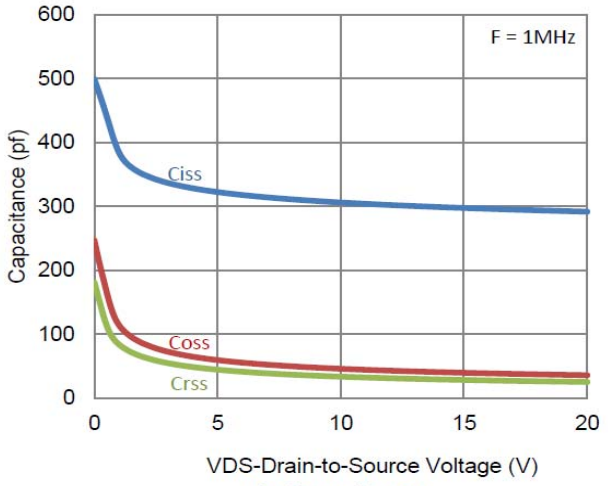

**3. On-Resistance vs. Gate-to-Source Voltage**




**4. Drain-to-Source Forward Voltage**

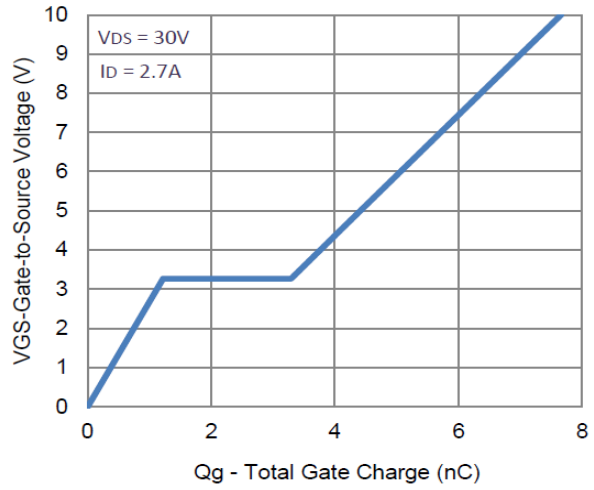



**5. Output Characteristics**

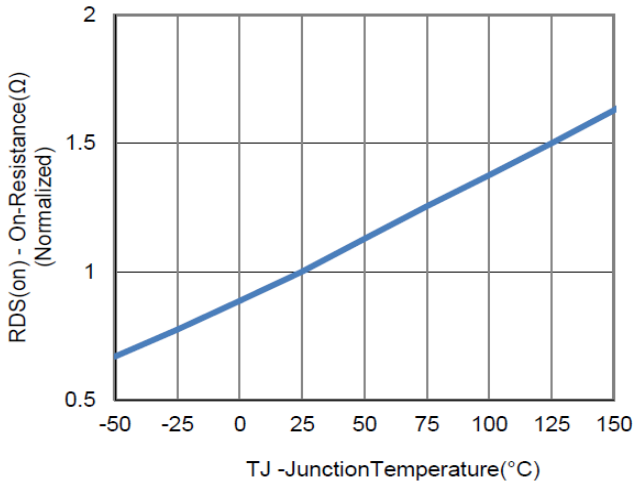



**6. Capacitance**

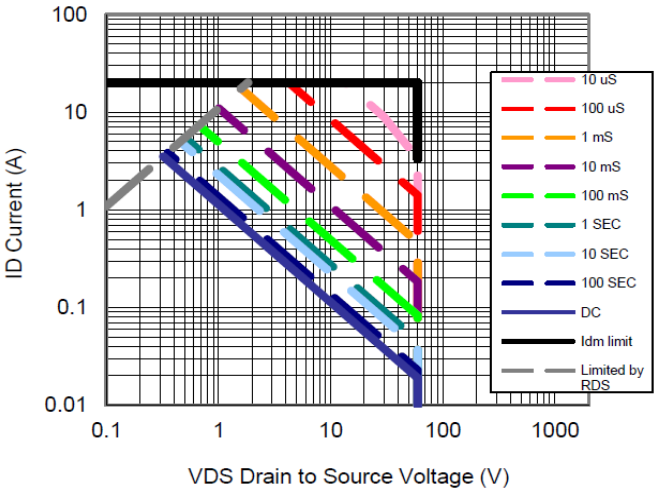
## CHARACTERISTIC CURVES



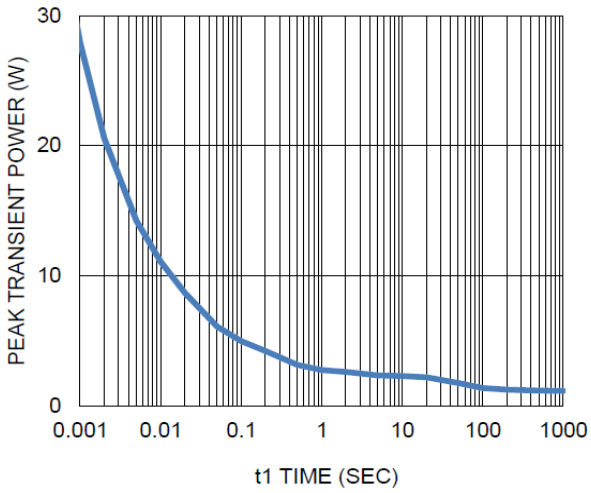

**7. Gate Charge**



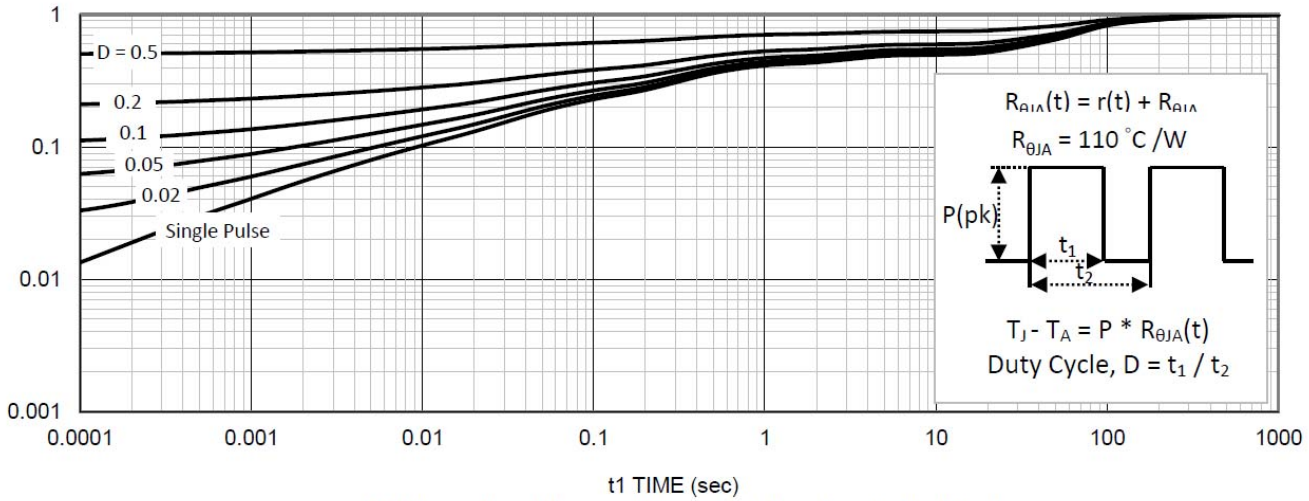

**8. Normalized On-Resistance Vs Junction Temperature**




**9. Safe Operating Area**




**10. Single Pulse Maximum Power Dissipation**




**11. Normalized Thermal Transient Junction to Ambient**