**SamHop Microelectronics Corp.**

**STS3426**

Ver 1.1

# N-Channel Enhancement Mode Field Effect Transistor

## PRODUCT SUMMARY

| $V_{DSS}$ | $I_D$ | $R_{DS(ON)}$ (mΩ) Max |
|-----------|-------|------------------------|
| 30V | 4.2A | 31 @ VGS= 10V |
| | | 40 @ VGS= 4.5V |
| | | 52 @ VGS= 2.5V |

## FEATURES

- Super high dense cell design for low $R_{DS(ON)}$.
- Rugged and reliable.
- Suface Mount Package.

SOT 26
Top View

| D | 1 | 6 | D |
| D | 2 | 5 | D |
| G | 3 | 4 | S |

D
G
S
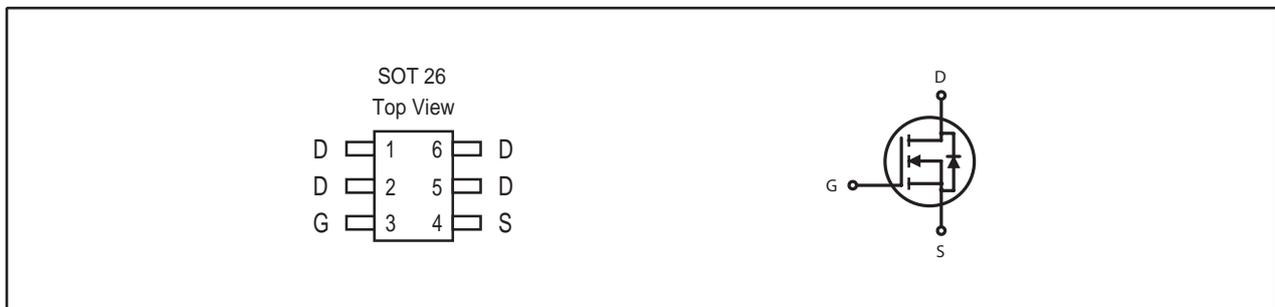
## ABSOLUTE MAXIMUM RATINGS ($T_A$=25°C unless otherwise noted)

| Symbol | Parameter | | Limit | Units |
|--------|-----------|--|-------|-------|
| $V_{DS}$ | Drain-Source Voltage | | 30 | V |
| $V_{GS}$ | Gate-Source Voltage | | ±12 | V |
| $I_D$ | Drain Current-Continuous [a] | $T_A$=25°C | 4.2 | A |
| | | $T_A$=70°C | 3.4 | A |
| $I_{DM}$ | -Pulsed [b] | | 17 | A |
| $P_D$ | Maximum Power Dissipation [a] | $T_A$=25°C | 1.25 | W |
| | | $T_A$=70°C | 0.8 | W |
| $T_J$, $T_{STG}$ | Operating Junction and Storage Temperature Range | | -55 to 150 | °C |

## THERMAL CHARACTERISTICS

| $R_{\theta JA}$ | Thermal Resistance, Junction-to-Ambient [a] | 100 | °C/W |
|------------------|---------------------------------------------|-----|------|

Details are subject to change without notice.

Dec,17,2013

**www.samhop.com.tw**

# STS3426

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

| Symbol | Parameter | Conditions | Min | Typ | Max | Units |
|--------|-----------|-----------|-----|-----|-----|-------|
| **OFF CHARACTERISTICS** | | | | | | |
| $BV_{DSS}$ | Drain-Source Breakdown Voltage | $V_{GS}$=0V , $I_D$=250uA | 30 | | | V |
| $I_{DSS}$ | Zero Gate Voltage Drain Current | $V_{DS}$=24V , $V_{GS}$=0V | | | 1 | uA |
| $I_{GSS}$ | Gate-Body Leakage Current | $V_{GS}$= ±12V , $V_{DS}$=0V | | | ±100 | nA |
| **ON CHARACTERISTICS** | | | | | | |
| $V_{GS(th)}$ | Gate Threshold Voltage | $V_{DS}$=$V_{GS}$ , $I_D$=250uA | 0.5 | 0.8 | 1.5 | V |
| $R_{DS(ON)}$ | Drain-Source On-State Resistance | $V_{GS}$=10V , $I_D$=2.4A | | 25 | 31 | m ohm |
| | | $V_{GS}$=4.5V , $I_D$=2.1A | | 30 | 40 | m ohm |
| | | $V_{GS}$=2.5V , $I_D$=1.9A | | 38 | 52 | m ohm |
| $g_{FS}$ | Forward Transconductance | $V_{DS}$=5V , $I_D$=2.1A | | 14 | | S |
| **DYNAMIC CHARACTERISTICS** [c] | | | | | | |
| $C_{ISS}$ | Input Capacitance | $V_{DS}$=15V,$V_{GS}$=0V f=1.0MHz | | 406 | | pF |
| $C_{OSS}$ | Output Capacitance | | | 73 | | pF |
| $C_{RSS}$ | Reverse Transfer Capacitance | | | 58 | | pF |
| **SWITCHING CHARACTERISTICS** [c] | | | | | | |
| $t_{D(ON)}$ | Turn-On Delay Time | $V_{DD}$=15V $I_D$=1A $V_{GS}$=4.5V $R_{GEN}$= 6 ohm | | 10 | | ns |
| $t_r$ | Rise Time | | | 17.5 | | ns |
| $t_{D(OFF)}$ | Turn-Off Delay Time | | | 18 | | ns |
| $t_f$ | Fall Time | | | 5.3 | | ns |
| $Q_g$ | Total Gate Charge | $V_{DS}$=15V,$I_D$=2.1A,$V_{GS}$=4.5V | | 7.1 | | nC |
| | | $V_{DS}$=15V,$I_D$=2.1A,$V_{GS}$=2.5V | | 5.2 | | nC |
| $Q_{gs}$ | Gate-Source Charge | $V_{DS}$=15V,$I_D$=2.1A, $V_{GS}$=4.5V | | 1.2 | | nC |
| $Q_{gd}$ | Gate-Drain Charge | | | 3 | | nC |
| **DRAIN-SOURCE DIODE CHARACTERISTICS** | | | | | | |
| $V_{SD}$ | Diode Forward Voltage | $V_{GS}$=0V,$I_S$=1A | | 0.785 | 1.2 | V |

Notes

a.Surface Mounted on FR4 Board,t ≤ 10sec.
b.Pulse Test:Pulse Width ≤ 300us, Duty Cycle ≤ 2%.
c.Guaranteed by design, not subject to production testing.
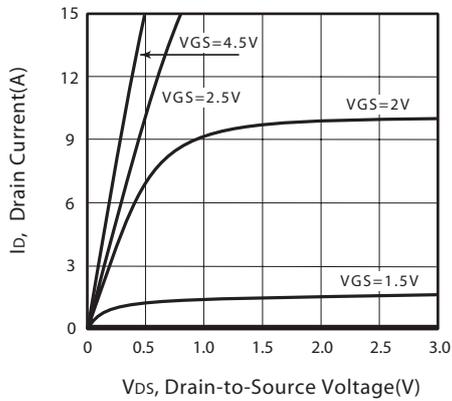
# STS3426
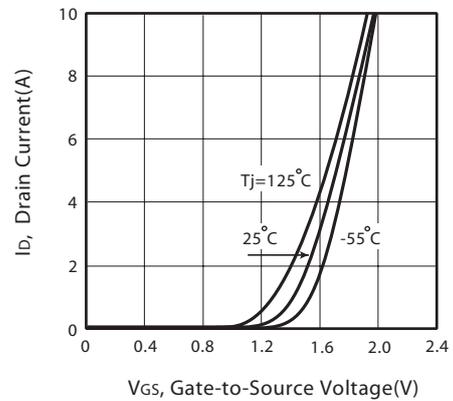
Figure 1. Output Characteristics
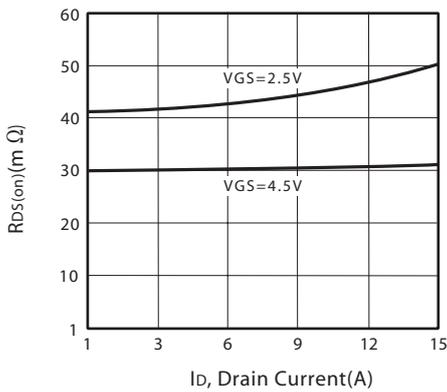


Figure 2. Transfer Characteristics



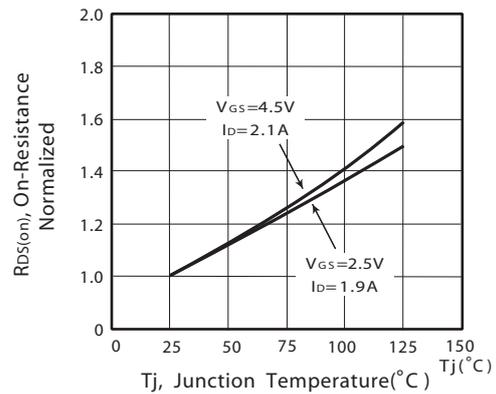Figure 3. On-Resistance vs. Drain Current
and Gate Voltage



Figure 4. On-Resistance Variation with Drain
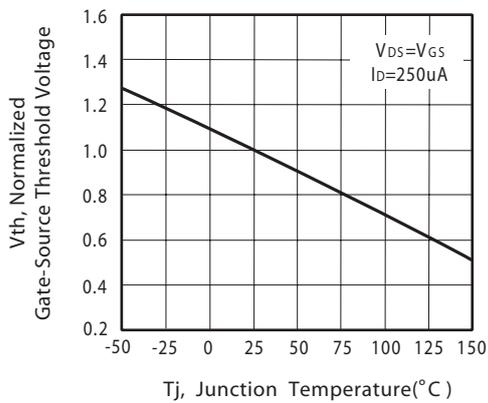Current and Temperature



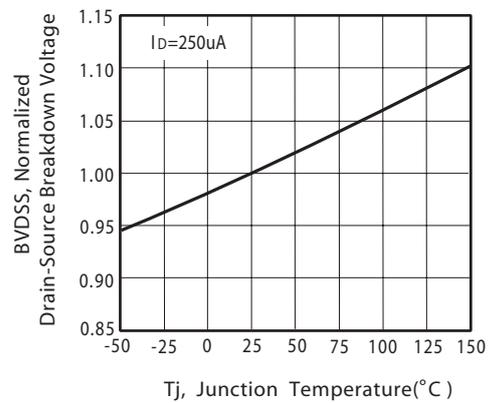Figure 5. Gate Threshold Variation
with Temperature



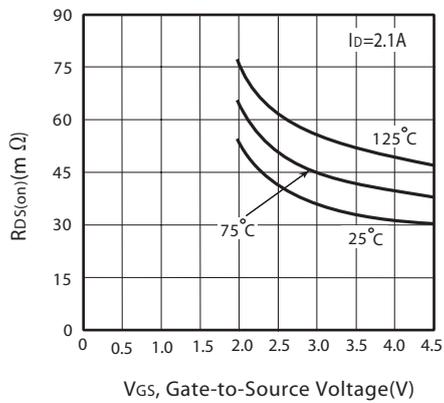Figure 6. Breakdown Voltage Variation
with Temperature

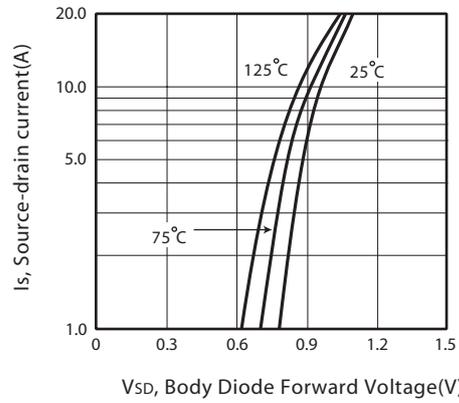Figure 7. On-Resistance vs. Gate-Source Voltage

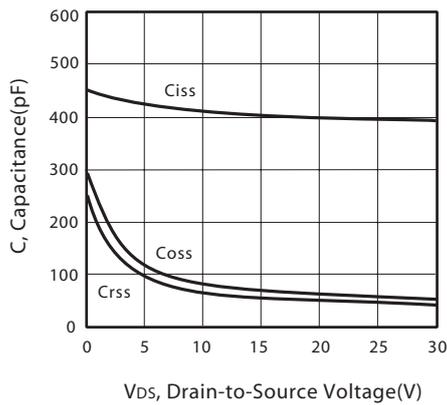Figure 8. Body Diode Forward Voltage Variation with Source Current
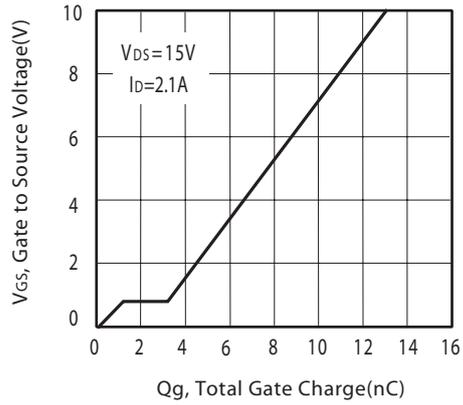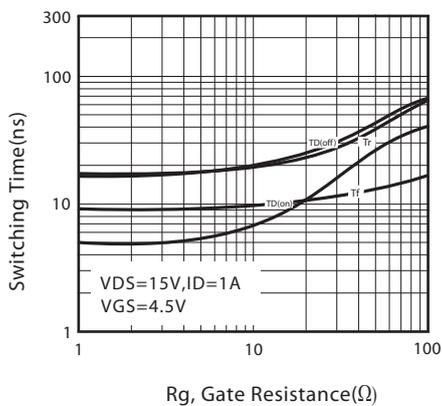
Figure 9. Capacitance

Figure 10. Gate Charge

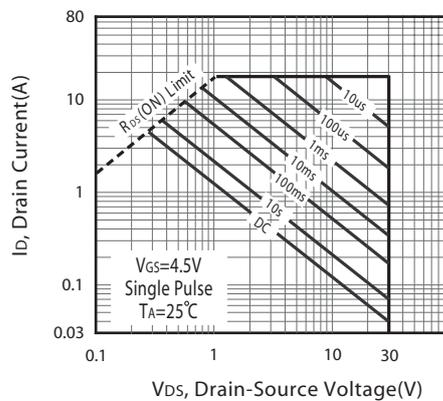Figure 11. switching characteristics

Figure 12. Maximum Safe Operating Area
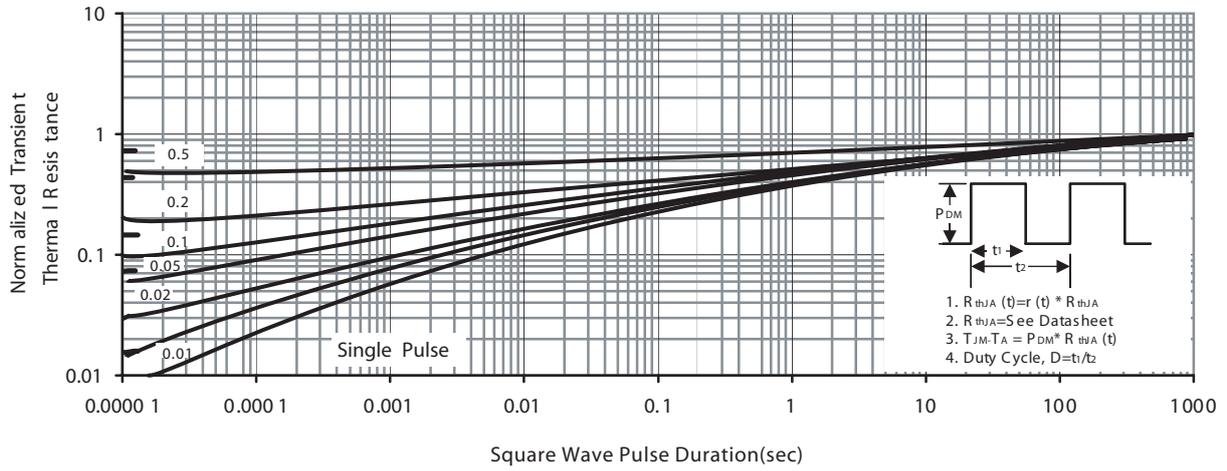
Figure 13. Normalized Thermal Transient Impedance Curve

# STS3426

## PACKAGE OUTLINE DIMENSIONS

### SOT 26

| SYMBOLS | MILLIMETERS | | INCHES | |
|---|---|---|---|---|
| | MIN | MAX | MIN | MAX |
| D | 2.700 | 3.100 | 0.106 | 0.122 |
| E | 2.500 | 3.100 | 0.098 | 0.122 |
| E1 | 1.400 | 1.800 | 0.055 | 0.071 |
| e | 0.950 REF. | | 0.037 REF. | |
| e1 | 1.900 REF. | | 0.075 REF. | |
| b | 0.300 | 0.500 | 0.012 | 0.020 |
| C | 0.090 | 0.200 | 0.004 | 0.008 |
| A | 0.000 | 0.130 | 0.000 | 0.005 |
| A1 | 0.700 | 1.120 | 0.028 | 0.044 |
| L | 0.300 | 0.550 | 0.012 | 0.022 |
| L1 | 0.350 | 0.800 | 0.014 | 0.031 |
| $\theta$ | 0° | 10° | 0° | 10° |

# STS3426

## SOT-26  Tape and Reel Data

### SOT-26 Carrier Tape



SECTION   A-A

SECTION   B-B

### SOT-26 Reel



SCAL E 2 :1

SOT 26

## TOP MARKING DEFINITION

**SOT-26**

SamHop Logo ───────────

Product No. ───────────

⊟3426 XXX

Production Year (2009 = 9, 2010 = A.....) ───────

Production Month (1,2 ~ 9, A,B,C) ───────

SMC internal code No. (A,B,C...Z) ───────