## Description

The SX340N08TLG1 uses advanced technology to provide excellent $R_{DS(ON)}$, low gate charge and operation with gate voltages as low as 10V. This device is suitable for use as a Battery protection or in other Switching application.

## General Features

$V_{DS}$ = 85V $I_D$ =340A

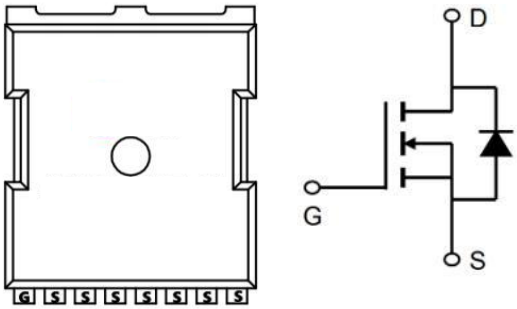
$R_{DS(ON)}$ <1.5mΩ @ $V_{GS}$=10V

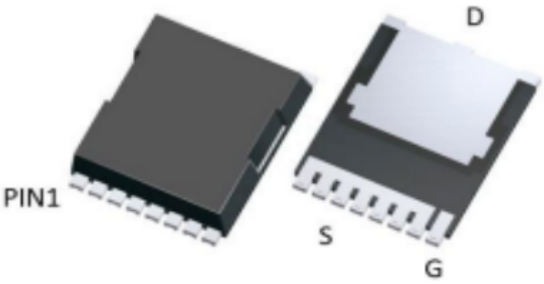
## Application

DC/DC Converter

LED Backlighting

Power Management Switches




## Absolute Maximum Ratings ($T_C$=25℃unless otherwise noted)

| Symbol | Parameter | Rating | Units |
|---|---|---|---|
| VDS | Drain-Source Voltage | 85 | V |
| VGS | Gate-Source Voltage | ±20 | V |
| $I_D$@$T_C$=25℃ | Continuous Drain Current, $V_{GS}$ @ 10V | 340 | A |
| $I_D$@$T_C$=100℃ | Continuous Drain Current, $V_{GS}$ @ 10V | 220 | A |
| IDM | Pulsed Drain Current | 960 | A |
| EAS | Single Pulse Avalanche Energy | 2025 | mJ |
| IAS | Avalanche Current | 53.4 | A |
| $P_D$@$T_C$=25℃ | Total Power Dissipation[4] | 313 | W |
| TSTG | Storage Temperature Range | -55 to 175 | ℃ |
| $T_J$ | Operating Junction Temperature Range | -55 to 175 | ℃ |
| $R_{\theta JA}$ | Thermal Resistance Junction-Ambient | 0.54 | ℃/W |
| $R_{\theta JC}$ | Thermal Resistance Junction-Case | 40 | ℃/W |

## Electrical Characteristics ($T_C$=25℃unless otherwise noted)

| Symbol | Parameter | Test Conditions | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|---|
| V(BR)DSS | Drain-Source Breakdown Voltage | $V_{GS}$ = 0V, $I_D$ = 250μA | 85 | 92 | - | V |
| IGSS | Gate-body Leakage current | $V_{DS}$ = 0V, $V_{GS}$ = ±20V | - | - | ±100 | nA |
| IDSS | Zero Gate Voltage Drain Current $T_J$=25°C | $V_{DS}$ =85V, $V_{GS}$ = 0V | - | - | 1 | μA |
| | Zero Gate Voltage Drain Current $T_J$=100°C | | - | - | 100 | |
| VGS(th) | Gate-Threshold Voltage | $V_{DS}$ = $V_{GS}$, $I_D$ = 250μA | 2.0 | 3.0 | 4.0 | V |
| RDS(on) | Drain-Source on-Resistance[4] | $V_{GS}$ = 10V, $I_D$ = 50A | - | 1.2 | 1.5 | mΩ |
| gfs | Forward Transconductance[4] | $V_{DS}$ = 5V, $I_D$ = 40A | - | 145 | - | S |
| Ciss | Input Capacitance | $V_{DS}$ =20V, $V_{GS}$ =0V, f =1MHz | - | 13590 | - | pF |
| Coss | Output Capacitance | | - | 2099 | - | |
| Crss | Reverse Transfer Capacitance | | - | 269 | - | |
| $R_g$ | Gate Resistance | f =1MHz | - | 2.4 | - | Ω |
| $Q_g$ | Total Gate Charge | $V_{GS}$=10V, $V_{DS}$=20V, $I_D$=20A | - | 230 | - | nC |
| Qgs | Gate-Source Charge | | - | 154 | - | |
| Qgd | Gate-Drain Charge | | - | 56 | - | |
| td(on) | Turn-on Delay Time | $V_{GS}$=10V, $V_{DD}$=20V, $R_G$=3Ω, RI=1.0Ω | - | 40 | - | ns |
| $t_r$ | Rise Time | | - | 67 | - | |
| td(off) | Turn-off Delay Time | | - | 131 | - | |
| $t_f$ | Fall Time | | - | 91 | - | |
| trr | Body Diode Reverse Recovery Time | $I_F$=15A, dI/dt=100A/μs | - | 112 | - | ns |
| $Q_{rr}$ | Body Diode Reverse Recovery Charge | $I_F$=15A, dI/dt=100A/μs | - | 213 | - | nC |
| VSD | Diode Forward Voltage[4] | $I_S$ =50A, $V_{GS}$ = 0V | - | 0.85 | 1.2 | V |
| IS | Continuous Source Current $T_C$=25°C | - | - | - | 300 | A |

**Notes:**

1、The data tested by surface mounted on a 1 inch2 FR-4 board with 2OZ copper.

2、The data tested by pulsed , pulse width ≤ 300us , duty cycle ≤ 2%

3、The EAS data shows Max. rating . The test condition is $V_{DD}$=50V, $V_{GS}$=10V, L=0.5mH, $I_{AS}$=50A

4、The power dissipation is limited by 150°Cjunction temperature

5、The data is theoretically the same as $I_D$ and $I_{DM}$ , in real applications , should be limited by total power dissipation.

## Typical Characteristics

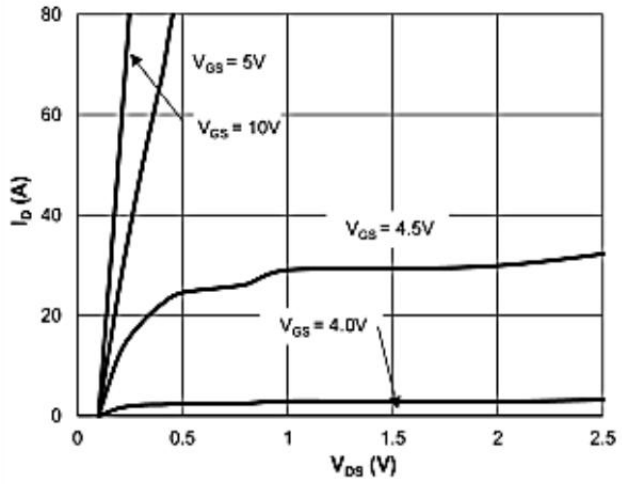



Figure 1: Saturation Characteristics

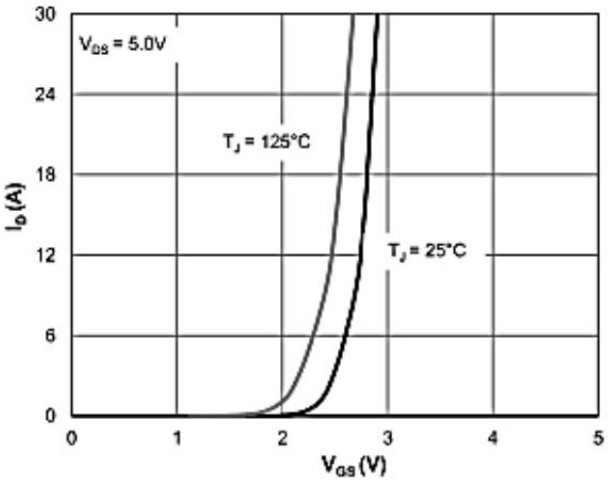



Figure 2: Transfer Characteristics

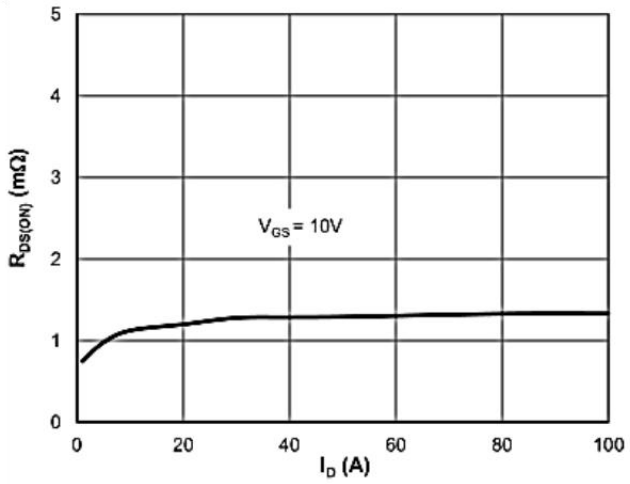



Figure 3: $R_{DS(ON)}$ vs. Drain Current

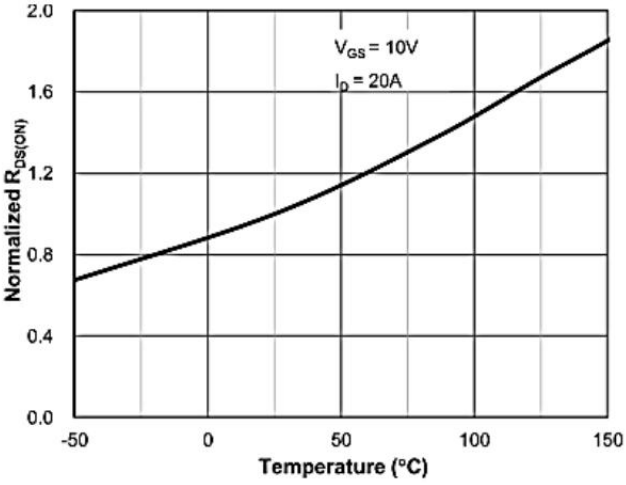



Figure 4: $R_{DS(ON)}$ vs. Junction Temperature

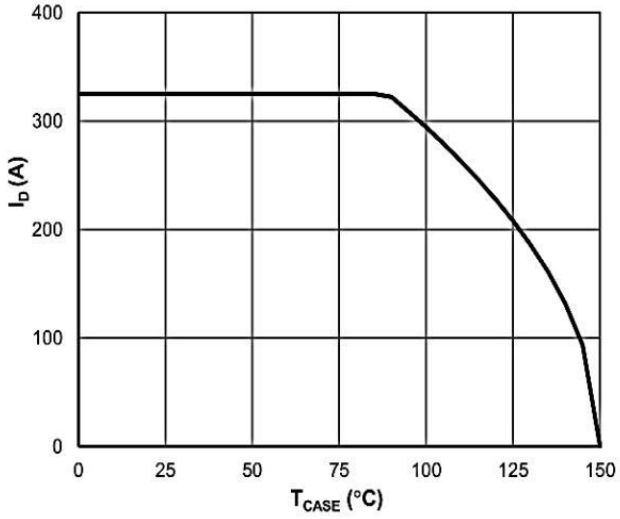



Figure 5: Current De-rating

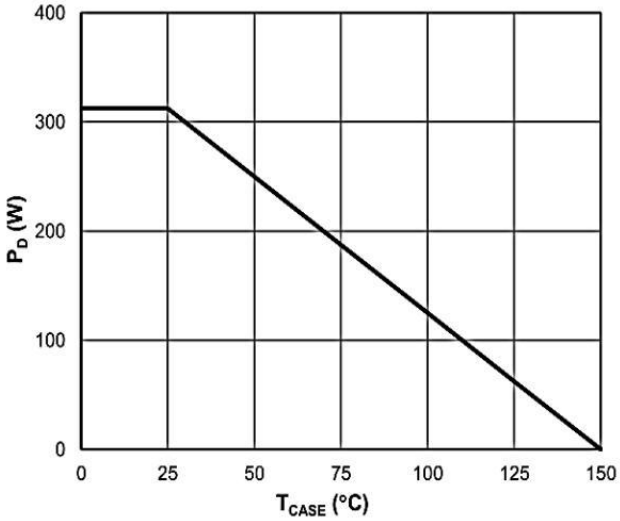



Figure 6: Power De-rating

## Typical Characteristics

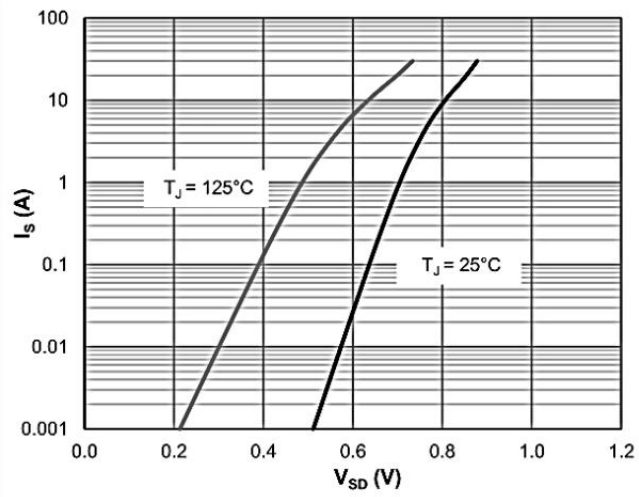



Figure 7: Body-Diode Characteristics

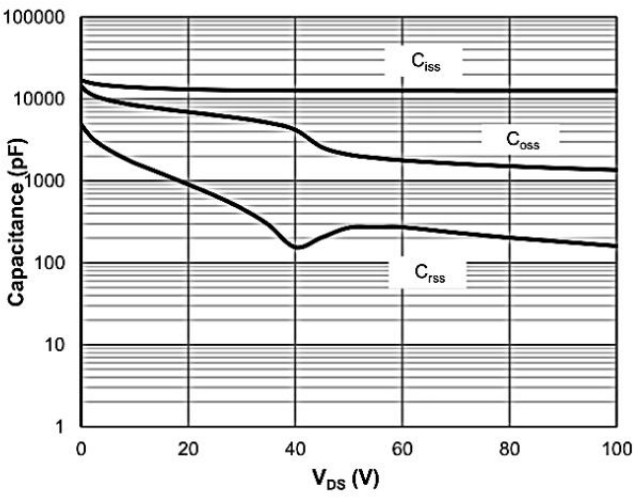



Figure 8: Capacitance Characteristics

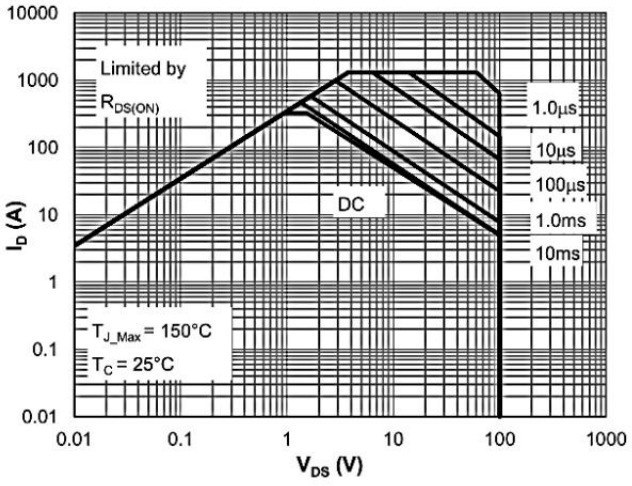



Figure 9: Maximum Safe Operating Area

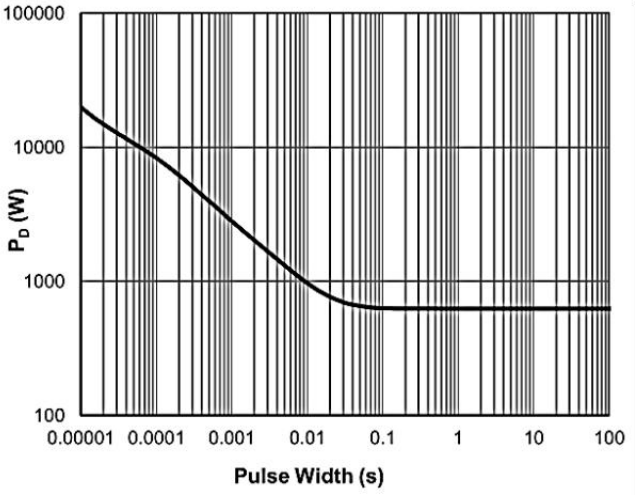



Figure 10: Single Pulse Power Rating, Junction-to-Case

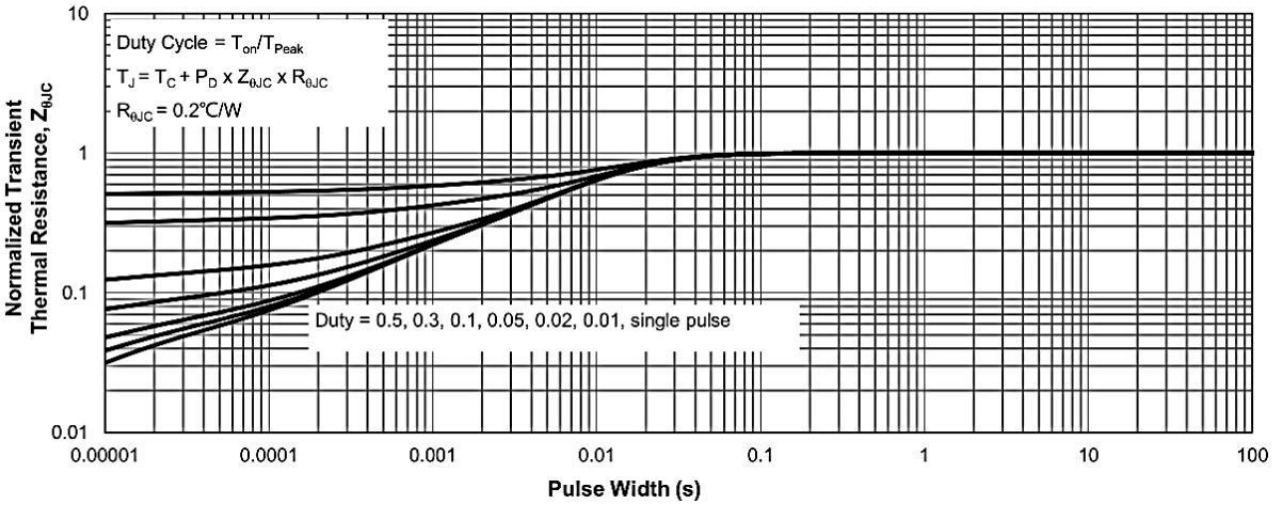
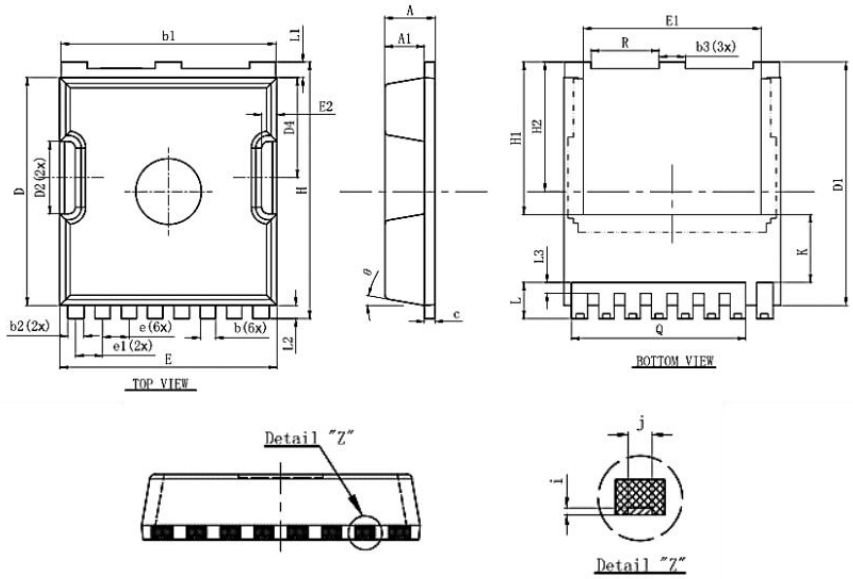



Figure 11: Normalized Transient Thermal Impedance

## Package Mechanical Data-TOLLA-8-XZ Single




| Symbol | Dimensions In Millimeters | | |
|---|---|---|---|
| | Min. | Nom | Max. |
| A | 2.2 | 2.3 | 2.4 |
| A1 | 1.7 | 1.8 | 1.9 |
| b | 0.6 | 0.7 | 0.8 |
| b1 | 9.7 | 9.8 | 9.9 |
| b2 | 0.65 | 0.75 | 0.85 |
| b3 | 1.1 | 1.2 | 1.3 |
| C | 0.4 | 0.5 | 0.6 |
| D | 10.3 | 10.4 | 10.5 |
| D1 | 11.0 | 11.1 | 11.2 |
| D2 | 3.2 | 3.3 | 3.4 |
| D4 | 4.47 | 4.57 | 4.67 |
| E | 9.8 | 9.9 | 10.0 |
| E1 | 8.0 | 8.1 | 8.2 |
| E2 | 0.5 | 0.6 | 0.7 |
| e | 1.200（BSC） | | |
| e1 | 1.225（BSC） | | |
| H | 11.6 | 11.7 | 11.8 |
| H1 | 6.95BSC | | |
| H2 | 5.9BSC | | |
| i | 0.1REF | | |
| j | 0.350REF | | |
| K | 3.100REF | | |
| L | 1.55 | 1.65 | 1.75 |
| L1 | 0.6 | 0.7 | 0.8 |
| L2 | 0.5 | 0.6 | 0.7 |
| L3 | 0.4 | 0.5 | 0.6 |
| Q | 7.95REF | | |
| R | 3.0 | 3.1 | 3.2 |
| θ | 10°REG | | |

### Package Marking and Ordering Information

| Product ID | Pack | Marking | Qty(PCS) |
|---|---|---|---|
| TAPING | TOLLA-8L | | 2000 |