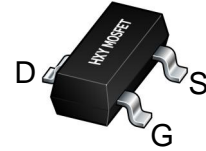




Description

The BSS816NWH6327XTSA1 uses advanced trench technology to provide excellent $R_{DS(ON)}$, low gate charge and operation with gate voltages as low as 2.5V. This device is suitable for use as a Battery protection or in other Switching application.



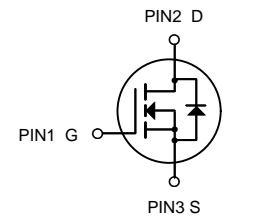
SOT-323

General Features

$V_{DS} = 20V$ $I_D = 2A$

$R_{DS(ON)} < 55m\Omega @ V_{GS}=4.5V$

$R_{DS(ON)} < 85m\Omega @ V_{GS}=2.5V$



N-Channel MOSFET

Application

Battery protection

Load switch

Uninterruptible power supply

Package Marking and Ordering Information

| Product ID | Pack | Brand | Qty(PCS) |
|--------------------|---------|------------|----------|
| BSS816NWH6327XTSA1 | SOT-323 | HXY MOSFET | 3000 |

Absolute Maximum Ratings ($T_A=25^\circ C$ unless otherwise noted)

| Symbol | Parameter | Limit | Unit |
|-----------------|---|------------|--------------|
| V_{DS} | Drain-Source Voltage | 20 | V |
| V_{GS} | Gate-Source Voltage | ± 12 | V |
| I_D | Drain Current-Continuous | 2 | A |
| P_D | Maximum Power Dissipation | 0.3 | W |
| T_J, T_{STG} | Operating Junction and Storage Temperature Range | -55 To 150 | $^\circ C$ |
| $R_{\theta JA}$ | Thermal Resistance, Junction-to-Ambient ^(Note 2) | 125 | $^\circ C/W$ |



Electrical Characteristics (T_A=25°C unless otherwise noted)

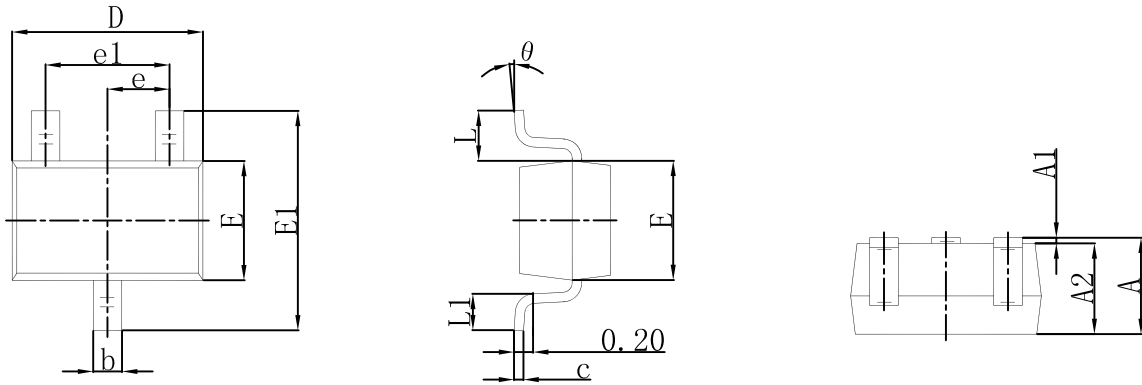
| Parameter | Symbol | Test conditions | Min | Typ | Max | Unit | |
|--|----------------------|--|-----|-----|------|------|----|
| STATIC CHARACTERISTIC | | | | | | | |
| Drain-source breakdown voltage | V _{(BR)DSS} | V _{GS} = 0V, I _D =250μA | 20 | | | V | |
| Zero gate voltage drain current | I _{DSS} | V _{DS} =18V, V _{GS} = 0V | | | 1 | μA | |
| Gate-body leakage current | I _{GSS} | V _{GS} =±12V, V _{DS} = 0V | | | ±100 | nA | |
| Gate threshold voltage (note2) | V _{GS(th)} | V _{DS} =V _{GS} , I _D =250μA | 0.4 | 0.7 | 1.0 | V | |
| Drain-source on-resistance (note2) | R _{DS(on)} | V _{GS} =4.5V, I _D =2.0A | | | 55 | mΩ | |
| | | V _{GS} =2.5V, I _D =0.3A | | | 85 | mΩ | |
| Maximum Continuous Drain to Source Diode Forward Current | I _S | -- | | | 1.0 | A | |
| Diode forward voltage | V _{SD} | I _S =1.0A, V _{GS} =0V | | | 1.2 | V | |
| DYNAMIC CHARACTERISTICS (note3) | | | | | | | |
| Input capacitance | C _{iss} | V _{DS} =10V, V _{GS} =0V, f =1MHz | | 300 | | pF | |
| Output capacitance | C _{oss} | | | | 120 | | pF |
| Reverse transfer capacitance | C _{rss} | | | | 80 | | pF |
| SWITCHING CHARACTERISTICS (note3) | | | | | | | |
| Turn-on delay time | t _{d(on)} | V _{GS} =4.5V, V _{DS} =10V, R _L =5.1Ω, R _G =5.1Ω | | | 15 | nS | |
| Turn-on rise time | t _r | | | | 85 | nS | |
| Turn-off delay time | t _{d(off)} | | | | 65 | nS | |
| Turn-off fall time | t _f | | | | 27 | nS | |

Notes:

1. Surface mounted on FR4 board using the minimum recommended pad size.
2. Pulse Test : Pulse Width=300μs, Duty Cycle=2%.
3. These parameters have no way to verify.



SOT-323 Package Outline Dimensions



| Symbol | Dimensions In Millimeters | | Dimensions In Inches | |
|--------|---------------------------|-------|----------------------|-------|
| | Min | Max | Min | Max |
| A | 0.900 | 1.100 | 0.035 | 0.043 |
| A1 | 0.000 | 0.100 | 0.000 | 0.004 |
| A2 | 0.900 | 1.000 | 0.035 | 0.039 |
| b | 0.200 | 0.400 | 0.008 | 0.016 |
| c | 0.080 | 0.150 | 0.003 | 0.006 |
| D | 2.000 | 2.200 | 0.079 | 0.087 |
| E | 1.150 | 1.350 | 0.045 | 0.053 |
| E1 | 2.150 | 2.450 | 0.085 | 0.096 |
| e | 0.650 TYP | | 0.026 TYP | |
| e1 | 1.200 | 1.400 | 0.047 | 0.055 |
| L | 0.525 REF | | 0.021 REF | |
| L1 | 0.260 | 0.460 | 0.010 | 0.018 |
| K | 0° | 8° | 0° | 8° |



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