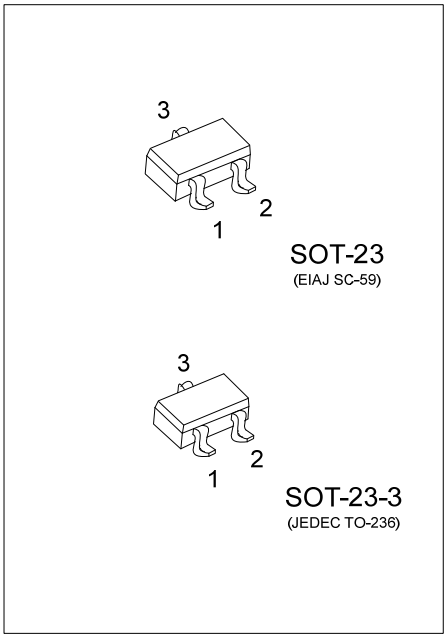
# BSS127

**Power MOSFET**

## 0.021A, 600V ENHANCEMENT N-CHANNEL MOSFET



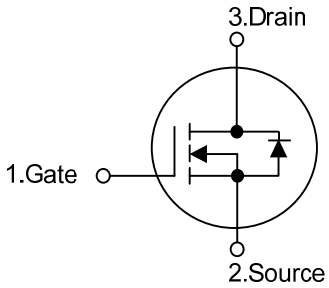

### ■ DESCRIPTION

The UTC **BSS127** is an enhancement N-channel mode Power FET, it uses UTC's advanced technology to provide customers ultra high switching speed and ultra low gate charge.

### ■ FEATURES

* $R_{DS(ON)} \leq 600\ \Omega$ @ $V_{GS}$= 4.5V, $I_D$=0.016A
  $R_{DS(ON)} \leq 500\ \Omega$ @ $V_{GS}$=10V, $I_D$=0.016A
* Ultra Low Gate Charge (Typical 140nC)
* Ultra High Switching Speed

### ■ SYMBOL



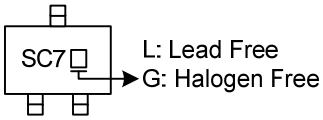

### ■ ORDERING INFORMATION

| Ordering Number | | Package | Pin Assignment | | | Packing |
|---|---|---|---|---|---|---|
| Lead Free | Halogen Free | | 1 | 2 | 3 | |
| BSS127L-AE2-R | BSS127G-AE2-R | SOT-23-3 | G | S | D | Tape Reel |
| BSS127L-AE3-R | BSS127G-AE3-R | SOT-23 | G | S | D | Tape Reel |

Note: Pin Assignment: G: Gate S: Source D: Drain

| | |
|---|---|
| BSS127G-AE2-R<br>(1)Packing Type<br>(2)Package Type<br>(3)Green Package | (1) R: Tape Real<br>(2) AE2: SOT-23-3, AE3: SOT-23<br>(3) G: Halogen Free and Lead Free, L: Lead Free |

### ■ MARKING



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

| PARAMETER | | | SYMBOL | RATINGS | UNIT |
|---|---|---|---|---|---|
| Drain-Source Voltage | | | $V_{DSS}$ | 600 | V |
| Gate-Source Voltage | | | $V_{GSS}$ | ±20 | V |
| Drain Current | Continuous | $T_A$=25°C | $I_D$ | 0.021 | A |
| | | $T_A$=70°C | | 0.017 | A |
| | Pulsed ($T_A$=25°C) | | $I_{DM}$ | 0.09 | A |
| Peak Diode Recovery dv/dt | | | dv/dt | 6 | kV/μs |
| Power Dissipation ($T_A$=25°C) | | | $P_D$ | 0.3 | W |
| Junction Temperature | | | $T_J$ | -55 ~ +150 | °C |
| Storage Temperature Range | | | $T_{STG}$ | -55 ~ +150 | °C |

Note: Absolute maximum ratings are those values beyond which the device could be permanently damaged. Absolute maximum ratings are stress ratings only and functional device operation is not implied.

## ■ THERMAL DATA

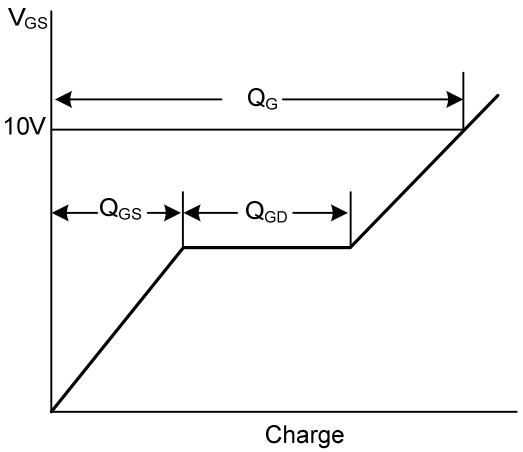
| PARAMETER | SYMBOL | RATINGS | UNIT |
|---|---|---|---|
| Junction to Ambient | $\theta_{JA}$ | 325 | °C/W |

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

| PARAMETER | | SYMBOL | TEST CONDITIONS | MIN | TYP | MAX | UNIT |
|---|---|---|---|---|---|---|---|
| **OFF CHARACTERISTICS** | | | | | | | |
| Drain-Source Breakdown Voltage | | $BV_{DSS}$ | $I_D$=250μA, $V_{GS}$=0V | 600 | | | V |
| Gate-Source Leakage Current | Forward | $I_{GSS}$ | $V_{GS}$=+20V, $V_{DS}$=0V | | +10 | +100 | nA |
| | Reverse | | $V_{GS}$=-20V, $V_{DS}$=0V | | -10 | -100 | nA |
| Drain-Source Leakage Current | | $I_{D(OFF)}$ | $V_{GS}$=0V, $V_{DS}$=600V, $T_J$=25°C | | | 0.1 | μA |
| | | | $V_{GS}$=0V, $V_{DS}$=600V, $T_J$=150°C | | | 10 | μA |
| **ON CHARACTERISTICS** | | | | | | | |
| Gate Threshold Voltage | | $V_{GS(TH)}$ | $V_{DS}$=$V_{GS}$, $I_D$=8μA | 1.4 | 2.0 | 2.6 | V |
| Static Drain-Source On-State Resistance | | $R_{DS(ON)}$ | $V_{GS}$=4.5V, $I_D$=0.016A | | 330 | 600 | Ω |
| | | | $V_{GS}$=10V, $I_D$=0.016A | | 310 | 500 | Ω |
| Forward Transconductance | | $g_{FS}$ | $\|V_{DS}\|>2\|I_D\|R_{DS(ON)MAX}$, $I_D$=0.01A | 0.007 | 0.015 | | S |
| **DYNAMIC PARAMETERS** | | | | | | | |
| Input Capacitance | | $C_{ISS}$ | $V_{GS}$=0V, $V_{DS}$=25V, f=1.0MHz | | 21 | 28 | pF |
| Output Capacitance | | $C_{OSS}$ | | | 2.4 | 3 | pF |
| Reverse Transfer Capacitance | | $C_{RSS}$ | | | 1.0 | 1.5 | pF |
| **SWITCHING PARAMETERS** | | | | | | | |
| Total Gate Charge | | $Q_G$ | $V_{GS}$=0~10V, $V_{DS}$=300V, $I_D$=0.01A | | 0.65 | 1.0 | nC |
| Gate to Source Charge | | $Q_{GS}$ | | | 0.07 | 0.10 | nC |
| Gate to Drain Charge | | $Q_{GD}$ | | | 0.31 | 0.5 | nC |
| Gate Plateau Voltage | | $V_{plateau}$ | | | 3.56 | | V |
| Turn-ON Delay Time | | $t_{D(ON)}$ | $V_{DD}$=300V, $V_{GS}$=10V, $I_D$=0.01A, $R_G$=6Ω | | 6.1 | 19.0 | ns |
| Rise Time | | $t_R$ | | | 9.7 | 14.5 | ns |
| Turn-OFF Delay Time | | $t_{D(OFF)}$ | | | 14 | 21 | ns |
| Fall-Time | | $t_F$ | | | 115 | 170 | ns |
| **SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS** | | | | | | | |
| Maximum Continuous Drain-Source Diode Forward Current | | $I_S$ | $T_A$=25°C | | | 0.016 | A |
| Maximum Pulsed Drain-Source Diode Forward Current | | $I_{SM}$ | $T_A$=25°C | | | 0.09 | A |
| Drain-Source Diode Forward Voltage | | $V_{SD}$ | $I_F$=0.016A, $V_{GS}$=0V, $T_J$=25°C | | 0.82 | 1.2 | V |
| Body Diode Reverse Recovery Time | | $t_{rr}$ | $V_R$=300V, $I_F$=0.016A, $dI_F/dt$=100A/μs | | 160 | 240 | ns |
| Body Diode Reverse Recovery Charge | | $Q_{rr}$ | | | 13.2 | 19.8 | μC |

Notes: 1. The Power Dissipation of the package may result in a lower continuous drain current.
2. Pulse Test: Pulse Width ≤ 300μs, Duty Cycle ≤ 2.0%.

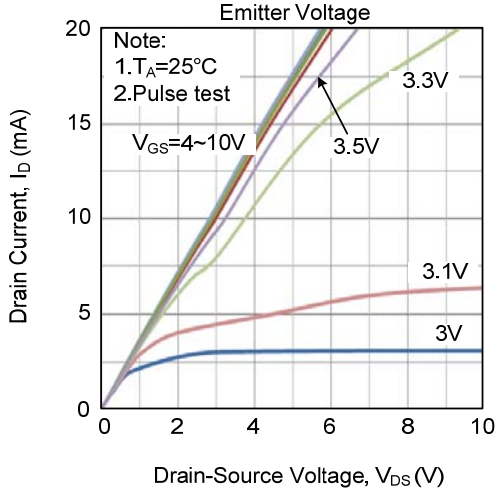
## ■ TEST CIRCUITS AND WAVEFORMS



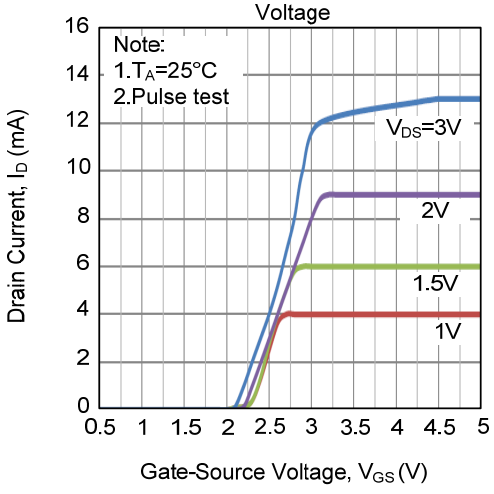

Gate Charge Waveforms

## ■ TYPICAL CHARACTERISTICS

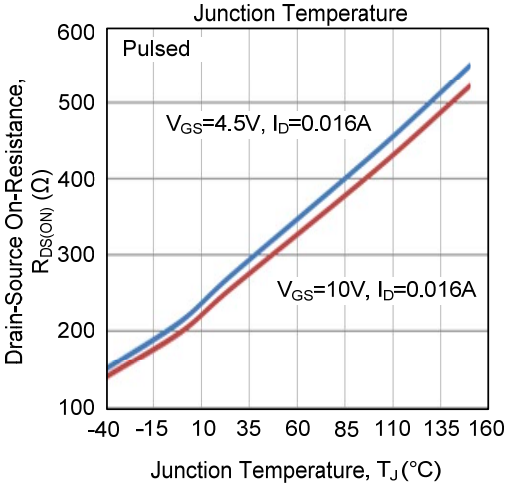
Collector Current vs. Collector-Emitter Voltage



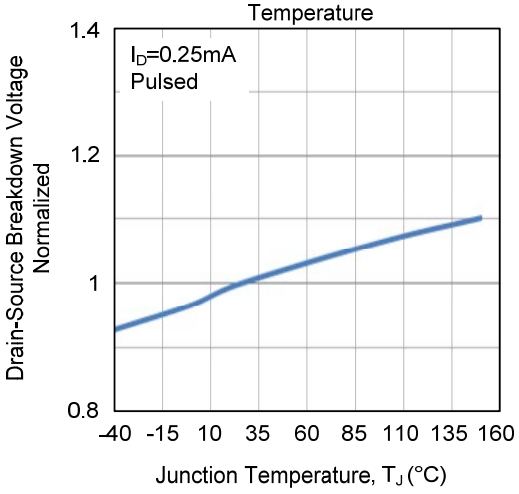

Drain Current vs. Gate-Source Voltage



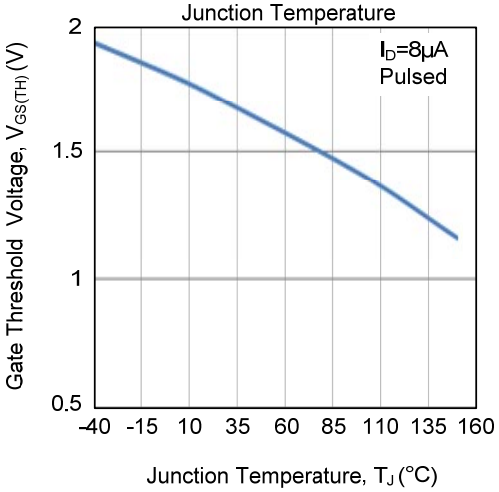

Drain-Source On-Resistance vs. Junction Temperature



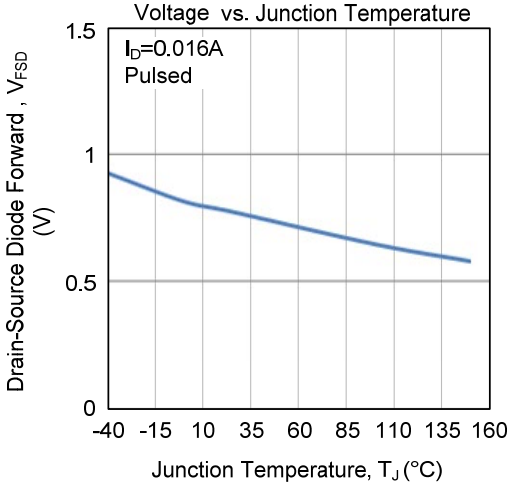

Breakdown Voltage vs. Junction Temperature




Gate Threshold Voltage vs. Junction Temperature




Drain-Source Diode Forward Voltage vs. Junction Temperature



单击下面可查看定价，库存，交付和生命周期等信息

>>UTC(友顺)