

SOT23 N-CHANNEL ENHANCEMENT  
MODE VERTICAL DMOS FET

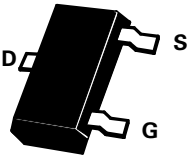
BSS123A

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FEATURES

- \*  $BV_{DSS} = 100V$
- \* Low Threshold

PARTMARKING DETAIL – SAA



ABSOLUTE MAXIMUM RATINGS.

| PARAMETER                                         | SYMBOL        | VALUE       | UNIT        |
|---------------------------------------------------|---------------|-------------|-------------|
| Drain-Source Voltage                              | $V_{DS}$      | 100         | V           |
| Drain-Gate Voltage                                | $V_{DGR}$     | 100         | V           |
| Continuous Drain Current at $T_{amb}=25^{\circ}C$ | $I_D$         | 170         | mA          |
| Pulsed Drain Current                              | $I_{DM}$      | 680         | mA          |
| Gate-Source Voltage                               | $V_{GS}$      | $\pm 20$    | V           |
| Power Dissipation at $T_{amb}=25^{\circ}C$        | $P_{tot}$     | 360         | mW          |
| Operating and Storage Temperature Range           | $T_j:T_{stg}$ | -55 to +150 | $^{\circ}C$ |

ELECTRICAL CHARACTERISTICS (at  $T_{amb} = 25^{\circ}C$  unless otherwise stated).

| PARAMETER                                   | SYMBOL       | MIN. | TYP. | MAX.    | UNIT                 | CONDITIONS.                                         |
|---------------------------------------------|--------------|------|------|---------|----------------------|-----------------------------------------------------|
| Drain-Source Breakdown Voltage              | $BV_{DSS}$   | 100  |      |         | V                    | $I_D=0.25mA, V_{GS}=0V$                             |
| Gate-Source Threshold Voltage               | $V_{GS(th)}$ | 0.5  |      | 2.0     | V                    | $I_D=1mA, V_{DS}=V_{GS}$                            |
| Gate-Body Leakage                           | $I_{GSS}$    |      |      | 50      | nA                   | $V_{GS}=\pm 20V, V_{DS}=0V$                         |
| Zero Gate Voltage Drain Current             | $I_{DSS}$    |      |      | 500     | nA                   | $V_{DS}=100V, V_{GS}=0V$                            |
| Static Drain-Source On-State Resistance (1) | $R_{DS(on)}$ |      |      | 6<br>10 | $\Omega$<br>$\Omega$ | $V_{GS}=10V, I_D=170mA$<br>$V_{GS}=4.5V, I_D=170mA$ |
| Forward Transconductance(1)(2)              | $g_{fs}$     | 80   |      |         | mS                   | $V_{DS}=25V, I_D=100mA$                             |
| Input Capacitance (2)                       | $C_{iss}$    |      | 25   |         | pF                   | $V_{DS}=25V, V_{GS}=0V, f=1MHz$                     |
| Common Source Output Capacitance (2)        | $C_{oss}$    |      | 9    |         | pF                   |                                                     |
| Reverse Transfer Capacitance (2)            | $C_{rss}$    |      | 4    |         | pF                   |                                                     |
| Turn-On Delay Time (2)(3)                   | $t_{d(on)}$  |      | 10   |         | ns                   | $V_{DD}=30V, I_D=280mA$                             |
| Rise Time (2)(3)                            | $t_r$        |      | 10   |         | ns                   |                                                     |
| Turn-Off Delay Time (2)(3)                  | $t_{d(off)}$ |      | 15   |         | ns                   |                                                     |
| Fall Time (2)(3)                            | $t_f$        |      | 25   |         | ns                   |                                                     |

- (1) Measured under pulsed conditions. Width=300 $\mu$ s. Duty cycle  $\leq 2\%$  (2) Sample test.  
(3) Switching times measured with 50 $\Omega$  source impedance and  $<5ns$  rise time on a pulse generator