

# SOT23 N-CHANNEL ENHANCEMENT MODE VERTICAL DMOS FET

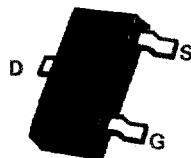
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## BSS123

PARTMARKING DETAIL

– SA



SOT23

### 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           |
| Peak Gate-Source Voltage                          | $V_{GSM}$      | $\pm 20$    | 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. | MIN. | MAX. | UNIT     | CONDITIONS.                                 |
|---------------------------------------------|--------------|------|------|------|----------|---------------------------------------------|
| Drain-Source Breakdown Voltage              | $BV_{DSS}$   | 100  |      |      | V        | $I_D=0.25mA, V_{GS}=0V$                     |
| Gate-Source Threshold Voltage               | $V_{GS(th)}$ | 0.8  | 2.2  | 2.8  | V        | $I_D=1mA, V_{DS}=V_{GS}$                    |
| Gate-Body Leakage                           | $I_{GSS}$    |      | 10   | 50   | nA       | $V_{GS}=\pm 20V, V_{DS}=0V$                 |
| Zero Gate Voltage Drain Current             | $I_{DSS}$    |      | 1    | 15   | $\mu A$  | $V_{DS}=100V, V_{GS}=0V$                    |
|                                             |              |      | 2    | 60   | $\mu A$  | $V_{DS}=100V, V_{GS}=0V, T=125^{\circ}C(2)$ |
|                                             |              |      |      | 10   | nA       | $V_{DS}=20V, V_{GS}=0V$                     |
| Static Drain-Source On-State Resistance (1) | $R_{DS(on)}$ |      | 5    | 6    | $\Omega$ | $V_{GS}=10V, I_D=100mA$                     |
| Forward Transconductance(1)(2)              | $g_{fs}$     | 80   | 120  |      | mS       | $V_{DS}=25V, I_D=100mA$                     |
| Input Capacitance (2)                       | $C_{iss}$    |      |      | 20   | 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  
For typical characteristics graphs see ZVN3310F datasheet.