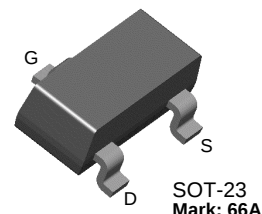


# MMBF5103

MMBF5103

## N-Channel Switch

- This device is designed for low level analog switching, sample and hold circuits and chopper stabilized amplifiers.
- Sourced from Process 51.
- See J111 for characteristics.



1. Drain 2. Source 3. Gate

## Absolute Maximum Ratings\* $T_a=25^\circ\text{C}$ unless otherwise noted

| Symbol         | Parameter                                        | Value      | Units            |
|----------------|--------------------------------------------------|------------|------------------|
| $V_{DG}$       | Drain-Gate Voltage                               | 40         | V                |
| $V_{GS}$       | Gate-Source Voltage                              | -40        | V                |
| $I_{GF}$       | Forward Gate Current                             | 50         | mA               |
| $T_J, T_{STG}$ | Operating and Storage Junction Temperature Range | - 55 ~ 150 | $^\circ\text{C}$ |

\* These ratings are limiting values above which the serviceability of any semiconductor device may be impaired.

### NOTES:

- 1) These ratings are based on a maximum junction temperature of 150 degrees C.
- 2) These are steady state limits. The factory should be consulted on applications involving pulsed or low duty cycle operations

## Electrical Characteristics $T_a=25^\circ\text{C}$ unless otherwise noted

| Symbol                              | Parameter                         | Test Condition                                                                                    | Min. | Max.         | Units    |
|-------------------------------------|-----------------------------------|---------------------------------------------------------------------------------------------------|------|--------------|----------|
| <b>Off Characteristics</b>          |                                   |                                                                                                   |      |              |          |
| $V_{(BR)GSS}$                       | Gate-Source Breakdown Voltage     | $I_G = 1.0\mu\text{A}, V_{DS} = 0$                                                                | -40  |              | V        |
| $I_{GSS}$                           | Gate Reverse Current              | $V_{GS} = -15\text{V}, V_{DS} = 0$<br>$V_{GS} = -15\text{V}, V_{DS} = 0, T_a = 125^\circ\text{C}$ |      | -200<br>-500 | pA<br>nA |
| $V_{GS(off)}$                       | Gate-Source Cutoff Voltage        | $V_{DS} = 20\text{V}, I_D = 1.0\text{nA}$                                                         | -1.2 | -2.7         | V        |
| $V_{GS(f)}$                         | Gate-Source Forward Voltage       | $I_G = 1.0\text{mA}, V_{DS} = 0$                                                                  |      | 1.0          | V        |
| <b>On Characteristics</b>           |                                   |                                                                                                   |      |              |          |
| $I_{DSS}$                           | Zero-Gate Voltage Drain Current * | $V_{DS} = 15\text{V}, V_{GS} = 0$                                                                 | 10   | 40           | mA       |
| <b>Small Signal Characteristics</b> |                                   |                                                                                                   |      |              |          |
| $C_{iss}$                           | Input Capacitance                 | $V_{DS} = 15\text{V}, V_{GS} = 0, f = 1.0\text{MHz}$                                              |      | 16           | pF       |
| $C_{rss}$                           | Reverse Transfer Capacitance      | $V_{GS} = -15\text{V}, f = 1.0\text{MHz}$                                                         |      | 6.0          | pF       |

\* Pulse Test: Pulse Width  $\leq 300\mu\text{s}$ , Duty Cycle  $\leq 1.0\%$

## Thermal Characteristics $T_a=25^\circ\text{C}$ unless otherwise noted

| Symbol          | Parameter                                                   | Max.       | Units                      |
|-----------------|-------------------------------------------------------------|------------|----------------------------|
| $P_D$           | Total Device Dissipation<br>Derate above $25^\circ\text{C}$ | 350<br>2.8 | mW<br>mW/ $^\circ\text{C}$ |
| $R_{\theta JA}$ | Thermal Resistance, Junction to Ambient                     | 556        | $^\circ\text{C/W}$         |

## Package Dimensions

## SOT-23



Dimensions in Millimeters

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### Definition of Terms

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