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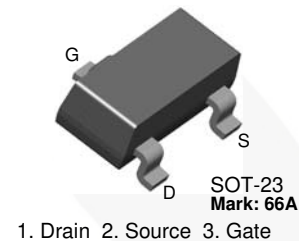


January 2015

# MMBF5103 N-Channel Switch

## Features

- 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



## Ordering Information

Part Number	Top Mark	Package	Packing Method
MMBF5103	66A	SOT-23 3L	Tape and Reel

## Absolute Maximum Ratings<sup>(1), (2)</sup>

Stresses exceeding the absolute maximum ratings may damage the device. The device may not function or be operable above the recommended operating conditions and stressing the parts to these levels is not recommended. In addition, extended exposure to stresses above the recommended operating conditions may affect device reliability. The absolute maximum ratings are stress ratings only. Values are at  $T_A = 25^\circ\text{C}$  unless otherwise noted.

Symbol	Parameter	Value	Unit
$V_{DG}$	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 to 150	$^\circ\text{C}$

### Notes:

1. These ratings are based on a maximum junction temperature of  $150^\circ\text{C}$ .
2. These are steady-state limits. Fairchild Semiconductor should be consulted on applications involving pulsed or low-duty-cycle operations.

**Thermal Characteristics<sup>(3)</sup>**

Values are at  $T_A = 25^\circ\text{C}$  unless otherwise noted.

Symbol	Parameter	Max.	Unit
$P_D$	Total Device Dissipation	350	mW
	Derate Above $25^\circ\text{C}$	2.8	mW/ $^\circ\text{C}$
$R_{\theta JA}$	Thermal Resistance, Junction-to-Ambient	357	$^\circ\text{C}/\text{W}$

**Note:**

3. Device mounted on FR-4 PCB 36mm × 18mm × 1.5mm; mounting pad for the collector lead minimum 6cm<sup>2</sup>.

**Electrical Characteristics**

Values are at  $T_A = 25^\circ\text{C}$  unless otherwise noted.

Symbol	Parameter	Conditions	Min.	Max.	Unit
<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	$V_{GS} = -15 \text{ V}, V_{DS} = 0$		-200	pA
		$V_{GS} = -15 \text{ V}, V_{DS} = 0, T_A = 125^\circ\text{C}$		-500	nA
$V_{GS(off)}$	Gate-Source Cut-Off 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 <sup>(4)</sup>	$V_{DS} = 15 \text{ V}, V_{GS} = 0$	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

**Note:**

4. Pulse test: pulse width  $\leq 300 \mu\text{s}$ , duty cycle  $\leq 2\%$ .

Physical Dimensions

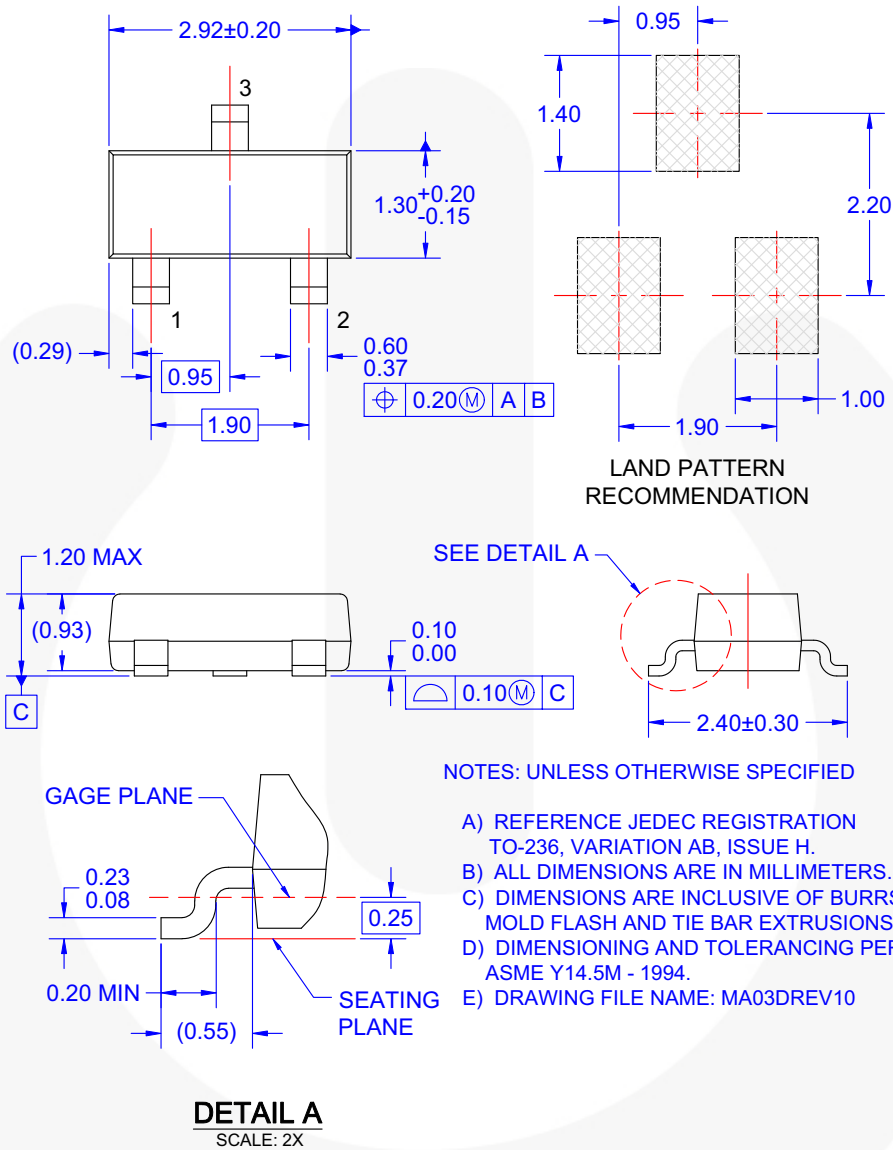



Figure 1. 3-LEAD, SOT23, JEDEC TO-236, LOW PROFILE





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