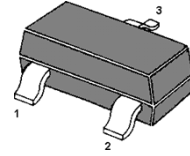
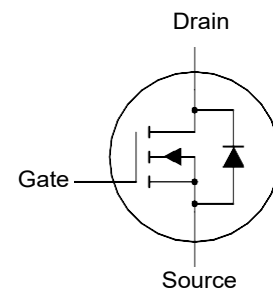


# MMFTN123 N-Channel Logic Level Enhancement Mode Field Effect Transistor



1. Gate 2. Source 3. Drain  
SOT-23 Plastic Package



### Absolute Maximum Ratings ( $T_a = 25\text{ }^\circ\text{C}$ unless otherwise specified)

| Parameter                 | Symbol    | Value       | Unit             |
|---------------------------|-----------|-------------|------------------|
| Drain-Source Voltage      | $V_{DSS}$ | 100         | V                |
| Gate-Source Voltage       | $V_{GSS}$ | $\pm 20$    | V                |
| Drain Current             | $I_D$     | 170         | mA               |
| Peak Drain Current        | $I_{DM}$  | 680         | mA               |
| Total Power Dissipation   | $P_{tot}$ | 360         | mW               |
| Junction Temperature      | $T_j$     | 150         | $^\circ\text{C}$ |
| Storage Temperature Range | $T_{stg}$ | -65 to +150 | $^\circ\text{C}$ |

### Thermal Characteristics

| Parameter                                   | Symbol      | Value | Unit |
|---|-------------|-------|------|
| Thermal Resistance from Junction to Ambient | $R_{thj-a}$ | 347   | K/W  |

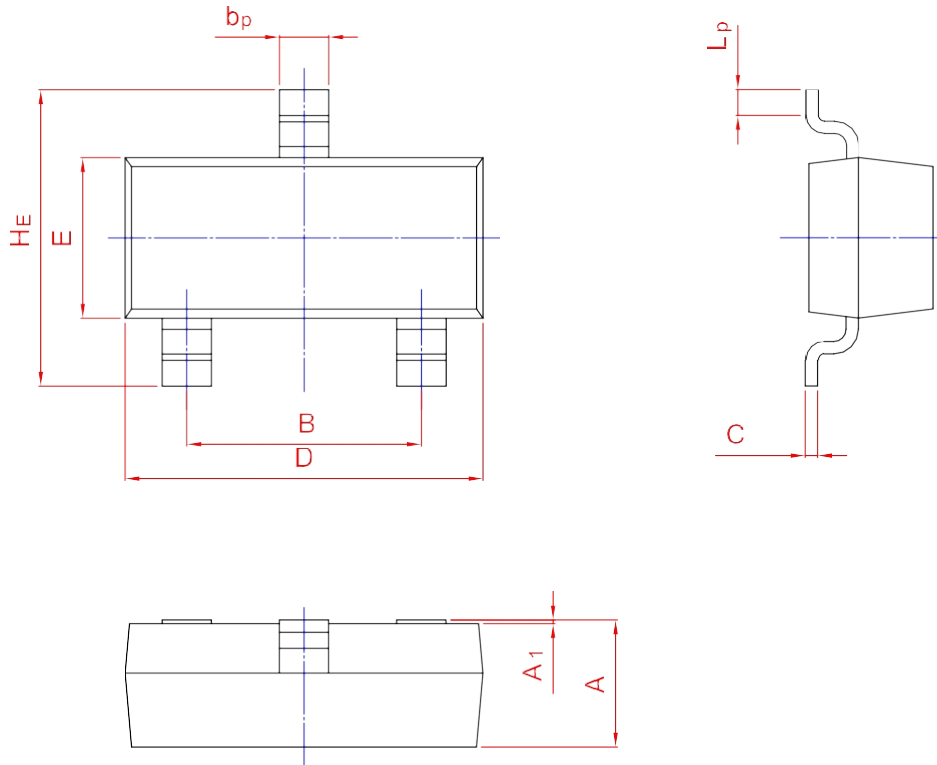
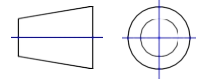
**Characteristics at  $T_a = 25^\circ\text{C}$  unless otherwise specified**

| Parameter   | Symbol        | Min.   | Typ.   | Max.     | Unit                |
|---|---------------|--------|--------|----------|---------------------|
| Drain-Source Breakdown Voltage<br>at $I_D = 250\ \mu\text{A}$   | $V_{(BR)DSS}$ | 100    | -      | -        | V                   |
| Gate-Source Threshold Voltage<br>at $V_{GS} = V_{DS}$ , $I_D = 1\ \text{mA}$  | $V_{GSth}$    | 0.8    | -      | 2        | V                   |
| Drain-Source Leakage Current<br>at $V_{DS} = 100\ \text{V}$<br>at $V_{DS} = 20\ \text{V}$   | $I_{DSS}$     | -<br>- | -<br>- | 1<br>10  | $\mu\text{A}$<br>nA |
| Gate-Source Leakage Current<br>at $V_{GS} = \pm 20\ \text{V}$   | $I_{GSS}$     | -      | -      | $\pm 50$ | nA                  |
| Drain-Source On-State Resistance<br>at $V_{GS} = 10\ \text{V}$ , $I_D = 170\ \text{mA}$<br>at $V_{GS} = 4.5\ \text{V}$ , $I_D = 170\ \text{mA}$ | $R_{DS(ON)}$  | -<br>- | -<br>- | 6<br>10  | $\Omega$            |
| Input Capacitance<br>at $V_{DS} = 25\ \text{V}$ , $f = 1\ \text{MHz}$   | $C_{ISS}$     | -      | 73     | -        | pF                  |
| Output Capacitance<br>at $V_{DS} = 25\ \text{V}$ , $f = 1\ \text{MHz}$  | $C_{OSS}$     | -      | 7      | -        | pF                  |
| Reverse Transfer Capacitance<br>at $V_{DS} = 25\ \text{V}$ , $f = 1\ \text{MHz}$  | $C_{RSS}$     | -      | 3.4    | -        | pF                  |
| Turn-On Delay Time<br>at $V_{DD} = 30\ \text{V}$ , $I_D = 280\ \text{mA}$ , $V_{GS} = 10\ \text{V}$ , $R_G = 6\ \Omega$                         | $t_{d(on)}$   | -      | -      | 3.4      | ns                  |
| Turn-On Rise Time<br>at $V_{DD} = 30\ \text{V}$ , $I_D = 280\ \text{mA}$ , $V_{GS} = 10\ \text{V}$ , $R_G = 6\ \Omega$                          | $t_r$         | -      | -      | 18       | ns                  |
| Turn-Off Delay Time<br>at $V_{DD} = 30\ \text{V}$ , $I_D = 280\ \text{mA}$ , $V_{GS} = 10\ \text{V}$ , $R_G = 6\ \Omega$                        | $t_{d(off)}$  | -      | -      | 31       | ns                  |
| Turn-Off Fall Time<br>at $V_{DD} = 30\ \text{V}$ , $I_D = 280\ \text{mA}$ , $V_{GS} = 10\ \text{V}$ , $R_G = 6\ \Omega$                         | $t_f$         | -      | -      | 5        | ns                  |

PACKAGE OUTLINE

Plastic surface mounted package; 3 leads

SOT-23



| UNIT | A    | B    | b <sub>p</sub> | C    | D    | E    | H <sub>E</sub> | A <sub>1</sub> | L <sub>p</sub> |
|------|------|------|----------------|------|------|------|----------------|----------------|----------------|
| mm   | 1.40 | 2.04 | 0.50           | 0.19 | 3.10 | 1.65 | 3.00           | 0.100          | 0.50           |
|      | 0.95 | 1.78 | 0.35           | 0.08 | 2.70 | 1.20 | 2.20           | 0.013          | 0.20           |