

# MMFTP84KW

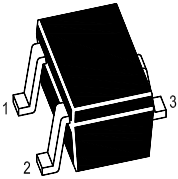
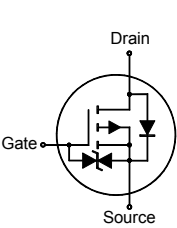
## P-Channel Enhancement Mode MOSFET

### Features

- Logic-level compatible
- Very fast switching

### Applications

- Relay driver
- High-side loadswitch
- Switching circuits

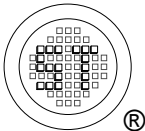


1. Gate 2. Source 3. Drain  
SOT-323 Plastic Package

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

| Parameter                                   | Symbol          | Value         | Unit                        |
|---------------------------------------------|-----------------|---------------|-----------------------------|
| Drain-Source Voltage                        | $-V_{DS}$       | 50            | V                           |
| Gate-Source Voltage                         | $V_{GS}$        | $\pm 20$      | V                           |
| Continuous Drain Current                    | $-I_D$          | 130           | mA                          |
| Peak Drain Current, Pulsed                  | $-I_{DM}$       | 520           | mA                          |
| Power Dissipation <sup>1)</sup>             | $P_D$           | 200           | mW                          |
| Thermal Resistance from Junction to Ambient | $R_{\theta JA}$ | 625           | $^{\circ}\text{C}/\text{W}$ |
| Operating Junction Temperature Range        | $T_J$           | - 55 to + 150 | $^{\circ}\text{C}$          |
| Storage Temperature Range                   | $T_{stg}$       | - 55 to + 150 | $^{\circ}\text{C}$          |

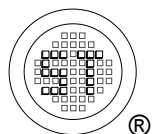
<sup>1)</sup> FR-5 = 1.0 × 0.75 × 0.062 in.



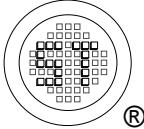
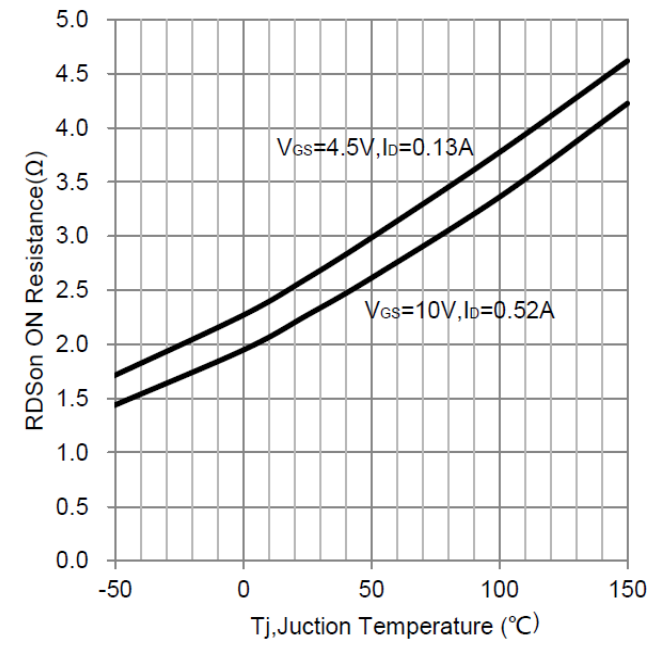
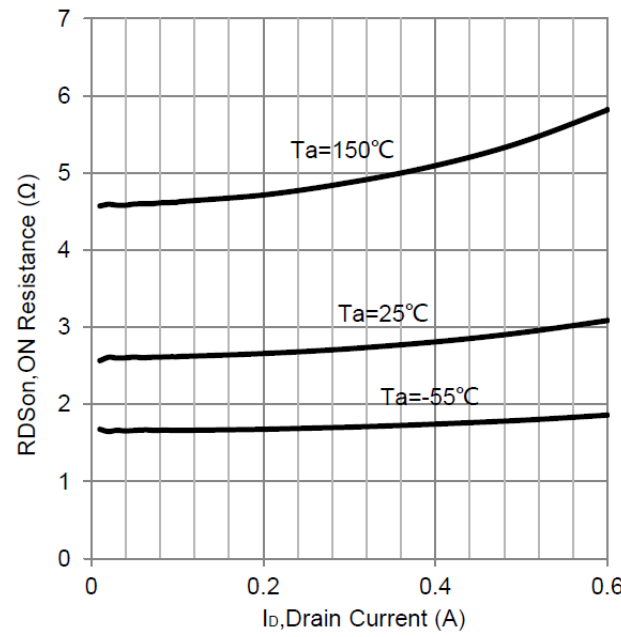
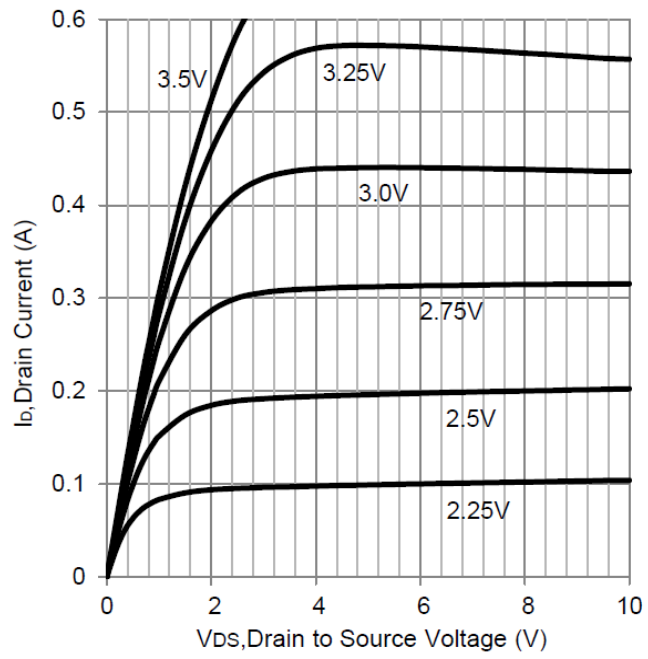
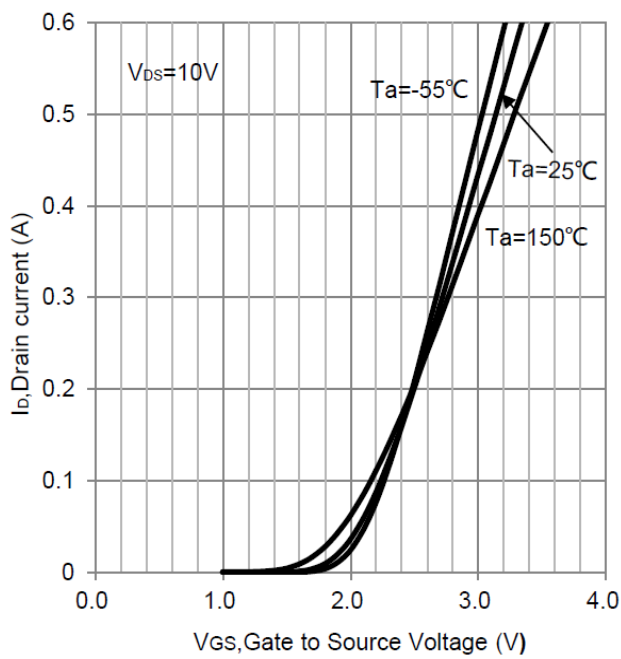
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## Characteristics at $T_a = 25^\circ\text{C}$ unless otherwise specified

| Parameter                                                                                               | Symbol         | Min.   | Typ.   | Max.      | Unit          |
|---------------------------------------------------------------------------------------------------------|----------------|--------|--------|-----------|---------------|
| Drain-Source Breakdown Voltage<br>at $-I_D = 250\ \mu\text{A}$                                          | $-V_{(BR)DSS}$ | 50     | -      | -         | V             |
| Zero Gate Voltage Drain Current<br>at $-V_{DS} = 25\ \text{V}$<br>at $-V_{DS} = 50\ \text{V}$           | $-I_{DSS}$     | -<br>- | -<br>- | 0.1<br>15 | $\mu\text{A}$ |
| Gate-Source Leakage<br>at $V_{GS} = \pm 20\ \text{V}$                                                   | $I_{GSS}$      | -      | -      | $\pm 10$  | $\mu\text{A}$ |
| Gate-Source Threshold Voltage<br>at $V_{DS} = V_{GS}$ , $-I_D = 250\ \mu\text{A}$                       | $-V_{GS(th)}$  | 0.9    | -      | 2         | V             |
| Drain-Source On-State Resistance<br>at $-V_{GS} = 5\ \text{V}$ , $-I_D = 100\ \text{mA}$                | $R_{DS(on)}$   | -      | -      | 10        | $\Omega$      |
| Forward Transconductance<br>at $-V_{DS} = 25\ \text{V}$ , $-I_D = 100\ \text{mA}$ , $f = 1\ \text{KHz}$ | $g_{fs}$       | 50     | -      | -         | $\text{mS}$   |
| Input Capacitance<br>at $-V_{DS} = 5\ \text{V}$                                                         | $C_{iss}$      | -      | 30     | -         | $\text{pF}$   |
| Output Capacitance<br>at $-V_{DS} = 5\ \text{V}$                                                        | $C_{oss}$      | -      | 10     | -         | $\text{pF}$   |
| Reverse Transfer Capacitance<br>at $-V_{DS} = 5\ \text{V}$                                              | $C_{rss}$      | -      | 5      | -         | $\text{pF}$   |
| Turn-On Rise Time<br>at $-V_{DD} = 15\ \text{V}$ , $-I_D = 2.5\ \text{A}$ , $R_L = 50\ \Omega$          | $t_{d(on)}$    | -      | 2.5    | -         | $\text{nS}$   |
| Turn-On Rise Time<br>at $-V_{DD} = 15\ \text{V}$ , $-I_D = 2.5\ \text{A}$ , $R_L = 50\ \Omega$          | $t_r$          | -      | 1      | -         | $\text{nS}$   |
| Turn-Off Delay Time<br>at $-V_{DD} = 15\ \text{V}$ , $-I_D = 2.5\ \text{A}$ , $R_L = 50\ \Omega$        | $t_{d(off)}$   | -      | 16     | -         | $\text{nS}$   |
| Turn-Off Fall Time<br>at $-V_{DD} = 15\ \text{V}$ , $-I_D = 2.5\ \text{A}$ , $R_L = 50\ \Omega$         | $t_f$          | -      | 8      | -         | $\text{nS}$   |

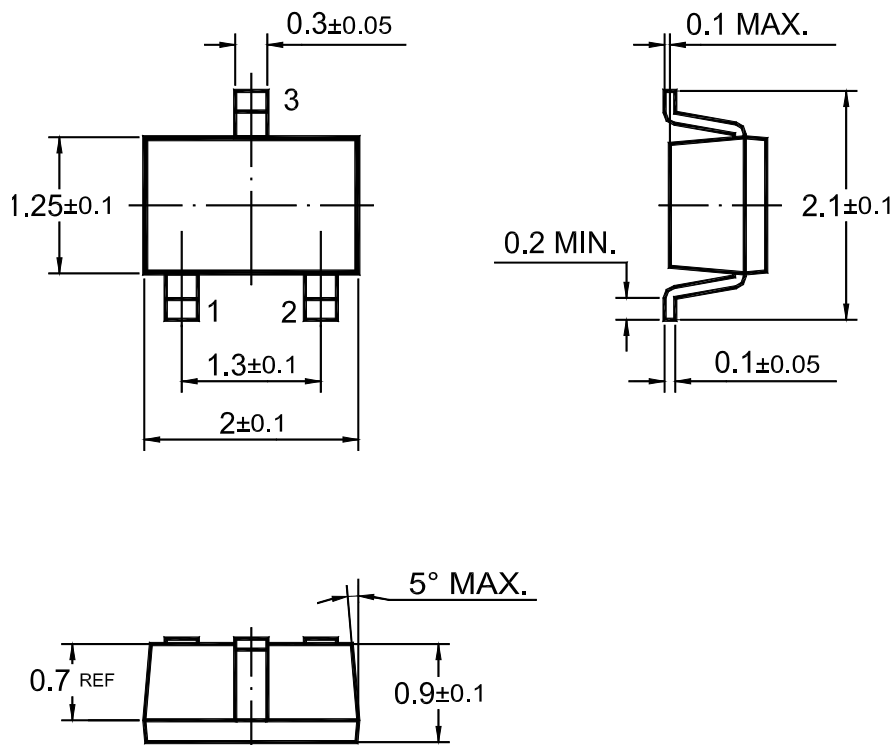


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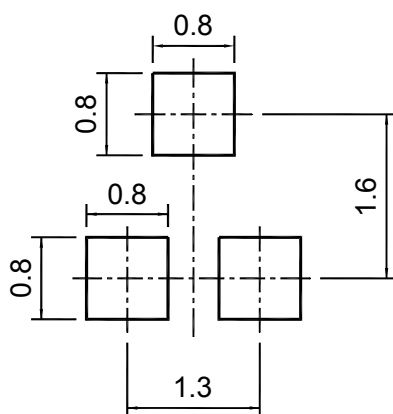


## Package Outline Dimensions(Unit: in mm)

SOT-323



## Recommended Soldering Footprint



## Packing information

| Package | Tape Width (mm) | Pitch       |                   | Reel Size |      | Per Reel Packing Quantity |
|---------|-----------------|-------------|-------------------|-----------|------|---------------------------|
|         |                 | mm          | inch              | mm        | inch |                           |
| SOT-323 | 8               | $4 \pm 0.1$ | $0.157 \pm 0.004$ | 178       | 7    | 3,000                     |

