

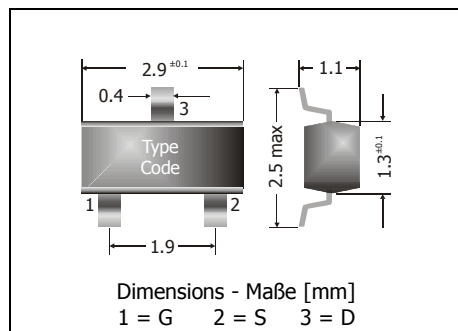
## MMBT7002K

**N**

**N-Channel Enhancement Mode FET with protected Gate**  
**N-Kanal FET mit Gateschutzdiode – Anreicherungstyp**

**N**

Version 2012-01-11



Power dissipation – Verlustleistung

350 mW

Plastic case  
 Kunststoffgehäuse

SOT-23  
 (TO-236)

Weight approx. – Gewicht ca.

0.01 g

Plastic material has UL classification 94V-0  
 Gehäusematerial UL94V-0 klassifiziert

Standard packaging taped and reeled  
 Standard Lieferform gegurtet auf Rolle



### Maximum ratings (T<sub>A</sub> = 25°C)

### Grenzwerte (T<sub>A</sub> = 25°C)

|                                                         |                  |                        | MMBT7002K    |
|---------------------------------------------------------|------------------|------------------------|--------------|
| Drain-Source-voltage – Drain-Source-Spannung            | V <sub>DSS</sub> |                        | 60 V         |
| Gate-Source-voltage – Gate-Source-Spannung              | V <sub>GSS</sub> | dc                     | ± 20 V       |
|                                                         | V <sub>GSS</sub> | ESD                    | ± 2 kV       |
| Power dissipation – Verlustleistung                     | P <sub>tot</sub> |                        | 350 mW       |
| Drain current continuous – Drainstrom (dc)              | I <sub>D</sub>   |                        | 115 mA       |
| Drain current pulsed – Drainstrom gepulst               | I <sub>DM</sub>  | t <sub>p</sub> < 10 μs | 800 mA       |
| Operating Junction temperature – Sperrschichttemperatur | T <sub>j</sub>   |                        | 150°C        |
| Storage temperature – Lagerungstemperatur               | T <sub>S</sub>   |                        | -55...+150°C |

**Characteristics (T<sub>j</sub> = 25°C)**
**Kennwerte (T<sub>j</sub> = 25°C)**

|                                                                                                                              |                              | Min.            | Typ.  | Max.                     |
|------------------------------------------------------------------------------------------------------------------------------|------------------------------|-----------------|-------|--------------------------|
| Drain-Source breakdown voltage – Drain-Source-Durchbruchspannung<br>$I_D = 10 \mu A$                                         |                              | 60 V            |       |                          |
|                                                                                                                              | $BV_{DSS}$                   |                 |       |                          |
| Drain-Source leakage current – Drain-Source Leckstrom<br>$V_{DS} = 60 V$                                                     |                              |                 |       | 1 $\mu A$                |
|                                                                                                                              | G short<br>$I_{DSS}$         |                 |       |                          |
| Gate-Source leakage current – Gate-Source Leckstrom<br>$V_{GS} = 20 V$                                                       |                              |                 |       | 10 $\mu A$               |
|                                                                                                                              | $\pm I_{GSS}$                |                 |       |                          |
| Gate-Threshold voltage – Gate-Source Schwellspannung<br>$V_{GS} = V_{DS}, I_D = 250 \mu A$                                   |                              | 1 V             |       | 2.5 V                    |
|                                                                                                                              | $V_{GS(th)}$                 |                 |       |                          |
| Drain-Source on-state resistance – Drain-Source Einschaltwiderstand                                                          |                              |                 |       | 3 $\Omega$<br>4 $\Omega$ |
| $V_{GS} = 10 V, I_D = 500 mA$<br>$V_{GS} = 4.5 V, I_D = 200 mA$                                                              | $R_{DS(on)}$<br>$R_{DS(on)}$ |                 |       |                          |
| Forward Transconductance – Übertragungssteilheit<br>$V_{DS} \geq 10 V_{DS(on)}, I_D = 200 mA$                                |                              | 80 mS           |       |                          |
| Input Capacitance – Eingangskapazität<br>$V_{DS} = 25 V, f = 1 MHz$                                                          |                              |                 | 50 pF |                          |
| Output Capacitance – Ausgangskapazität<br>$V_{DS} = 25 V, f = 1 MHz$                                                         |                              |                 | 25 pF |                          |
| Reverse Transfer Capacitance – Rückwirkungskapazität<br>$V_{DS} = 25 V, f = 1 MHz$                                           |                              |                 | 5 pF  |                          |
| Turn-On Time – Einschaltzeit<br>$V_{DD} = 30 V, R_L = 150 \Omega, I_D = 0.2 A, V_{GS} = 10 V, R_G = 25 \Omega$               |                              |                 | 20 ns |                          |
| Turn-Off Delay Time – Ausschaltverzögerung<br>$V_{DD} = 30 V, R_L = 150 \Omega, I_D = 0.2 A, V_{GS} = 10 V, R_G = 25 \Omega$ |                              |                 | 20 ns |                          |
| Marking<br>Stempelung                                                                                                        |                              | MMBT7002K = K72 |       |                          |