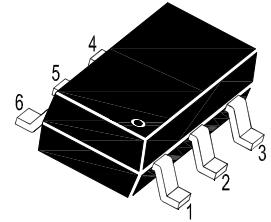
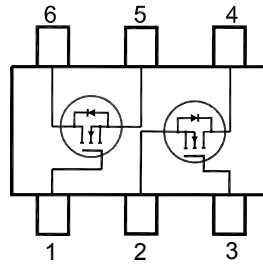


MMBT7002D

N-Channel Enhancement Mode Field Effect Transistor

Features

- Low on resistance $R_{DS(ON)}$
- Low gate threshold voltage



1. Gate 2. Source 3. Gate
4. Drain 5. Source 6. Drain
SOT-26 Plastic Package

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

| Parameter | Symbol | Value | Unit |
|---|----------------|--|------------------|
| Drain Source Voltage | V_{DSS} | 50 | V |
| Gate Source Voltage | V_{GSS} | 20 | V |
| Maximum Drain Current | I_D | 0.51 1.5 | A |
| | | -Continuous -Pulsed | |
| Total Power Dissipation | P_{tot} | 0.96 ¹⁾ 0.9 ²⁾ 0.7 ³⁾ | W |
| Operating and Storage Temperature Range | T_J, T_{stg} | - 55 to + 150 | $^\circ\text{C}$ |

¹⁾ Mounted on a 0.125 in² pad of 2oz copper.

²⁾ Mounted on a 0.005 in² pad of 2oz copper.

³⁾ Mounted on a 0.0015 in² pad of 2oz copper.

MMBT7002D

Characteristics at $T_a = 25^\circ\text{C}$

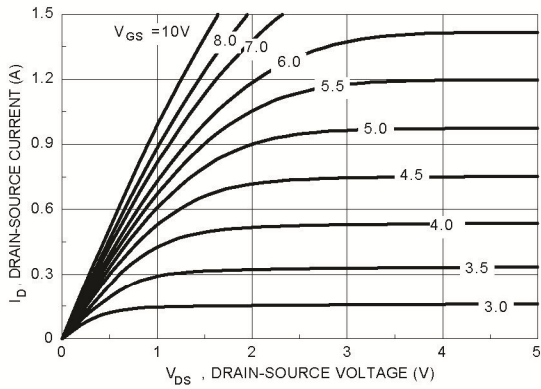
| Parameter | Symbol | Min. | Typ. | Max. | Unit |
|--|--------------|--------|--------|-----------|---------------|
| Drain Source Breakdown Voltage at $I_D = 250 \mu\text{A}$ | BV_{DSS} | 50 | - | - | V |
| Zero Gate Voltage Drain Current at $V_{DS} = 40 \text{ V}$ | I_{DSS} | - | - | 1 | μA |
| Gate Source Leakage Current at $V_{GS} = \pm 20 \text{ V}$ | I_{GSS} | - | - | ± 100 | nA |
| Gate Threshold Voltage at $V_{DS} = V_{GS}, I_D = 250 \mu\text{A}$ | $V_{GS(th)}$ | 1 | - | 2.5 | V |
| Static Drain Source On-Resistance at $V_{GS} = 10 \text{ V}, I_D = 0.51 \text{ A}$ at $V_{GS} = 4.5 \text{ V}, I_D = 0.35 \text{ A}$ | $R_{DS(ON)}$ | - - | - - | 2 4 | Ω |
| Forward Transconductance at $V_{DS} = 10 \text{ V}, I_D = 0.51 \text{ A}$ | g_{fs} | - | 400 | - | mS |
| Input Capacitance at $V_{DS} = 25 \text{ V}, f = 1 \text{ MHz}$ | C_{iss} | - | 20 | - | pF |
| Output Capacitance at $V_{DS} = 25 \text{ V}, f = 1 \text{ MHz}$ | C_{oss} | - | 13 | - | pF |
| Reverse Transfer Capacitance at $V_{DS} = 25 \text{ V}, f = 1 \text{ MHz}$ | C_{rss} | - | 5 | - | pF |
| Turn-On Delay Time at $V_{DD} = 25 \text{ V}, I_D = 0.25 \text{ A}, V_{GS} = 10 \text{ V}, R_{GEN} = 25 \Omega$ | t_{on} | - | - | 20 | ns |
| Turn-Off Delay Time at $V_{DD} = 25 \text{ V}, I_D = 0.25 \text{ A}, V_{GS} = 10 \text{ V}, R_{GEN} = 25 \Omega$ | t_{off} | - | - | 20 | ns |
| Turn-On Rise Time at $V_{DD} = 25 \text{ V}, I_D = 0.25 \text{ A}, V_{GS} = 10 \text{ V}, R_{GEN} = 25 \Omega$ | t_r | - | - | 20 | ns |
| Turn-On Fall Time at $V_{DD} = 25 \text{ V}, I_D = 0.25 \text{ A}, V_{GS} = 10 \text{ V}, R_{GEN} = 25 \Omega$ | t_f | - | - | 20 | ns |

TOP DYNAMIC

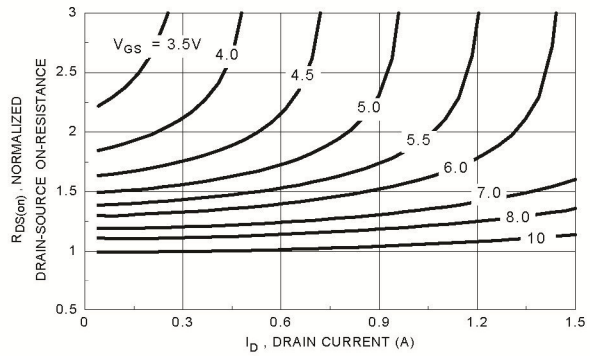


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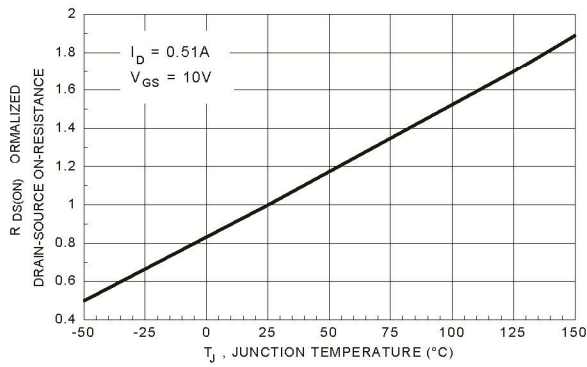
MMBT7002D



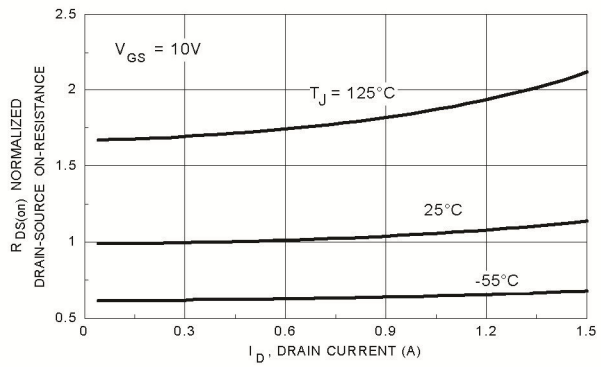
On-Region Characteristics.



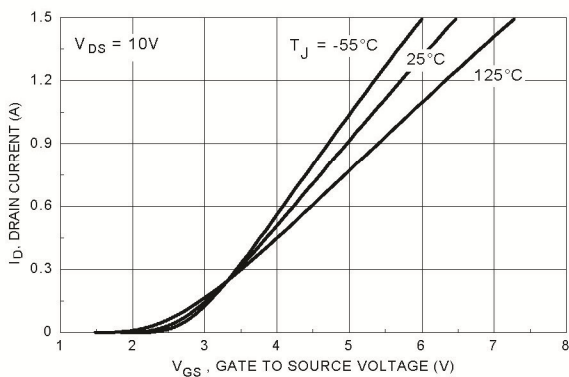
On-Resistance Variation with Gate Voltage and Drain Current.



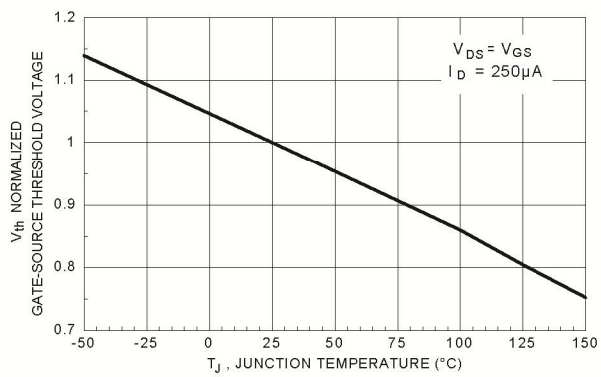
On-Resistance Variation with Temperature.



On-Resistance Variation with Drain Current and Temperature.



Transfer Characteristics.



Gate Threshold Variation with Temperature.

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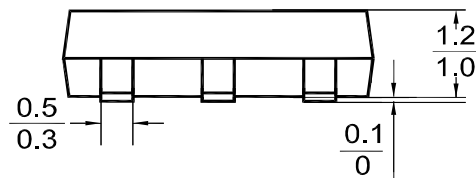
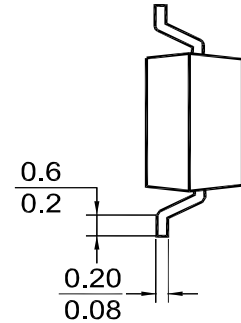
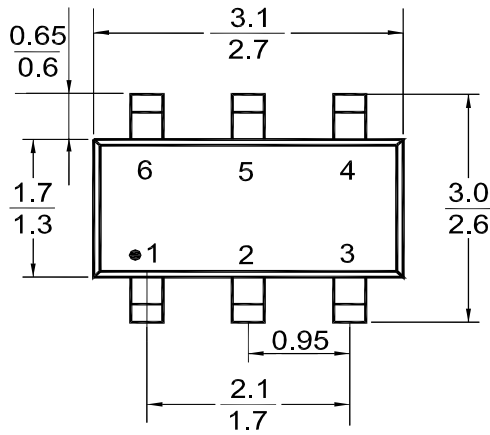


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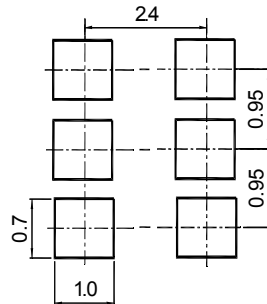
MMBT7002D

Package Outline Dimensions (Units: mm)

SOT-26



RECOMMENDED SOLDERING FOOTPRINT



Packing information

| Package | Tape Width (mm) | Pitch | | Reel Size | | Per Reel Packing Quantity |
|---------|-----------------|---------|---------------|-----------|------|---------------------------|
| | | mm | inch | mm | inch | |
| SOT-26 | 8 | 4 ± 0.1 | 0.157 ± 0.004 | 178 | 7 | 3,000 |

TOP DYNAMIC



ISO14001 : 2004 Certificate No. 121505007
 ISO 9001 : 2008 Certificate No. 60114012
 OHSAS 18001 : 2007 Certificate No. 06151508008
 IECQ QC 080000 Certificate No. 624#18007#14M22

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