



**THE DATASHEET OF  
DMN2004DMK-7**

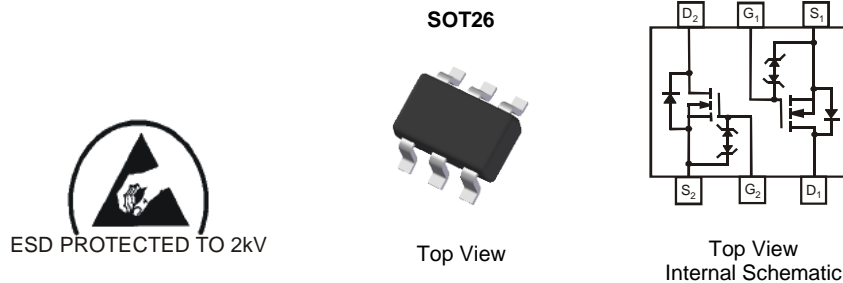


## Features

- Dual N-Channel MOSFET
- Low On-Resistance
- Low Gate Threshold Voltage
- Low Input Capacitance
- Fast Switching Speed
- Low Input/Output Leakage
- Ultra-Small Surface Mount Package
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **Qualified to AEC-Q101 Standards for High Reliability**

## Mechanical Data

- Case: SOT26
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminal Connections: See Diagram
- Terminals: Finish – Matte Tin annealed over Copper leadframe. Solderable per MIL-STD-202, Method 208 (E3)
- Weight: 0.015 grams (Approximate)



## Ordering Information (Note 4)

| Part Number  | Case  | Packaging         |
|--------------|-------|-------------------|
| DMN2004DMK-7 | SOT26 | 3,000/Tape & Reel |

- Notes:
1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant.
  2. See [http://www.diodes.com/quality/lead\\_free.html](http://www.diodes.com/quality/lead_free.html) for more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "Green" and Lead-free.
  3. Halogen- and Antimony-free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
  4. For packaging details, go to our website at <http://www.diodes.com/products/packages.html>.

## Marking Information



NAB = Marking Code  
 YM = Date Code Marking  
 Y = Year (ex: T = 2006)  
 M = Month (ex: 9 = September)

### Date Code Key

| Year | 2006 | ~ | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 |
|------|------|---|------|------|------|------|------|------|------|------|------|------|
| Code | T    | ~ | D    | E    | F    | G    | H    | I    | J    | K    | L    | M    |

| Month | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|-------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Code  | 1   | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | O   | N   | D   |

**Maximum Ratings** (@T<sub>A</sub> = +25°C, unless otherwise specified.)

| Characteristic                |              | Symbol           | Value                  | Units |    |
|-------------------------------|--------------|------------------|------------------------|-------|----|
| Drain-Source Voltage          |              | V <sub>DSS</sub> | 20                     | V     |    |
| Gate-Source Voltage           |              | V <sub>GSS</sub> | ±8                     | V     |    |
| Drain Current (Note 5)        | Steady State | I <sub>D</sub>   | T <sub>A</sub> = +25°C | 540   | mA |
|                               |              |                  | T <sub>A</sub> = +85°C | 390   |    |
| Pulsed Drain Current (Note 6) |              | I <sub>DM</sub>  | 1.5                    | A     |    |

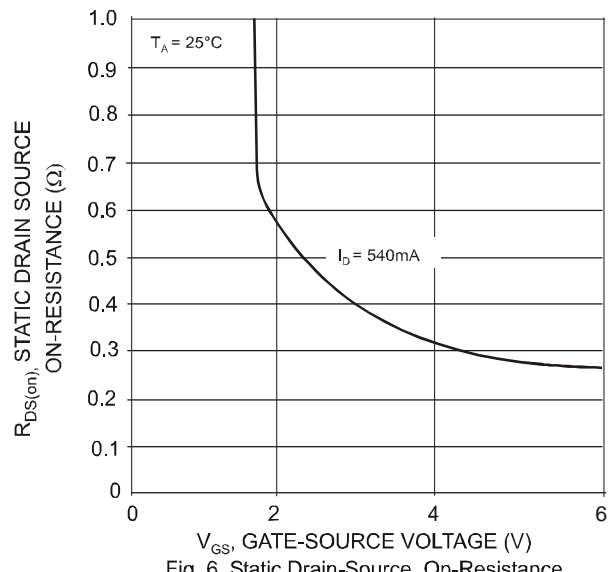
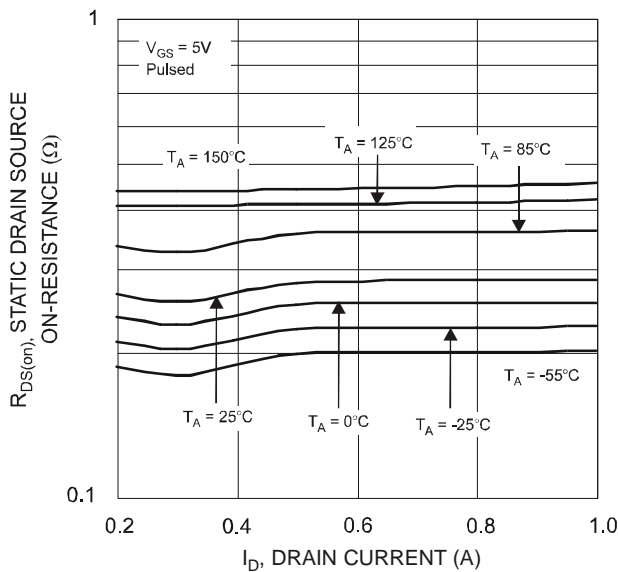
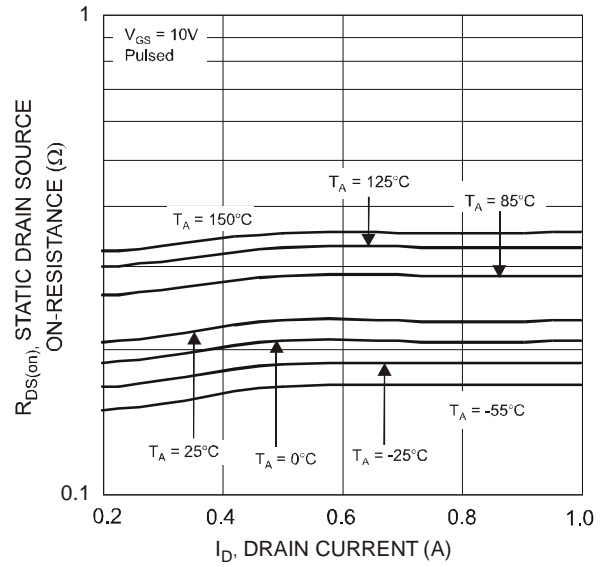
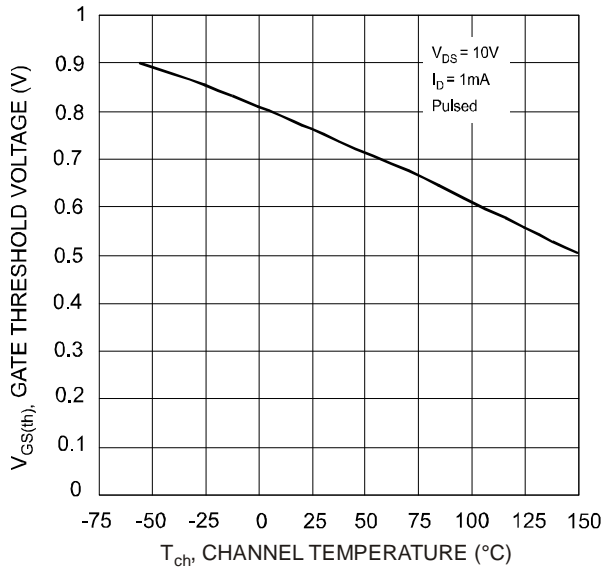
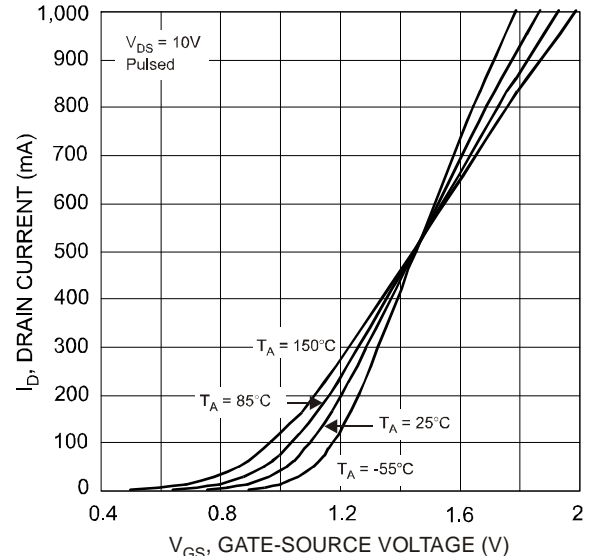
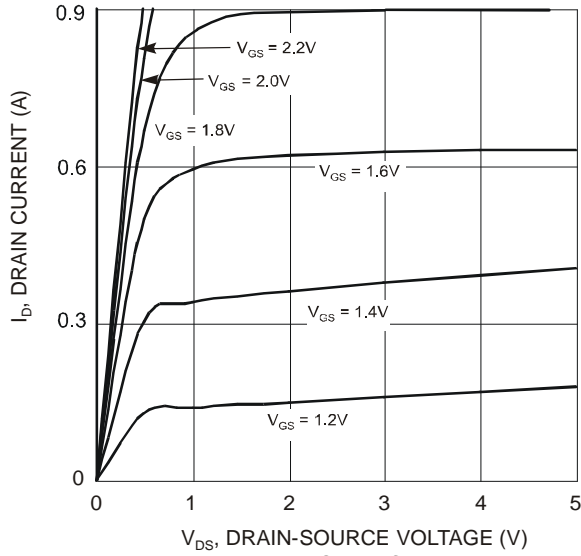
**Thermal Characteristics** (@T<sub>A</sub> = +25°C, unless otherwise specified.)

| Characteristic                          | Symbol                            | Value       | Units |
|---|-----------------------------------|-------------|-------|
| Total Power Dissipation (Note 5)        | P <sub>D</sub>                    | 225         | mW    |
| Thermal Resistance, Junction to Ambient | R <sub>θJA</sub>                  | 556         | °C/W  |
| Operating and Storage Temperature Range | T <sub>J</sub> , T <sub>STG</sub> | -65 to +150 | °C    |

**Electrical Characteristics** (@T<sub>A</sub> = +25°C, unless otherwise specified.)

| Characteristic                          | Symbol              | Min | Typ | Max  | Unit | Test Condition   |
|---|---------------------|-----|-----|------|------|--|
| <b>OFF CHARACTERISTICS</b> (Note 7)     |                     |     |     |      |      |  |
| Drain-Source Breakdown Voltage          | BV <sub>DSS</sub>   | 20  | —   | —    | V    | V <sub>GS</sub> = 0V, I <sub>D</sub> = 10μA                |
| Zero Gate Voltage Drain Current         | I <sub>DSS</sub>    | —   | —   | 1    | μA   | V <sub>DS</sub> = 16V, V <sub>GS</sub> = 0V                |
| Gate-Source Leakage                     | I <sub>GSS</sub>    | —   | —   | ±1   | μA   | V <sub>GS</sub> = ±4.5V, V <sub>DS</sub> = 0V              |
| <b>ON CHARACTERISTICS</b> (Note 7)      |                     |     |     |      |      |  |
| Gate Threshold Voltage                  | V <sub>GS(TH)</sub> | 0.5 | —   | 1.0  | V    | V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = 250μA |
| Static Drain-Source On-Resistance       | R <sub>DS(ON)</sub> | —   | 0.4 | 0.55 | Ω    | V <sub>GS</sub> = 4.5V, I <sub>D</sub> = 540mA             |
|   |                     |     | 0.5 | 0.70 |      | V <sub>GS</sub> = 2.5V, I <sub>D</sub> = 500mA             |
|   |                     |     | 0.7 | 0.9  |      | V <sub>GS</sub> = 1.8V, I <sub>D</sub> = 350mA             |
| Forward Transfer Admittance             | Y <sub>FS</sub>     | 200 | —   | —    | ms   | V <sub>DS</sub> = 10V, I <sub>D</sub> = 0.2A               |
| Diode Forward Voltage (Note 7)          | V <sub>SD</sub>     | 0.5 | —   | 1.4  | V    | V <sub>GS</sub> = 0V, I <sub>S</sub> = 115mA               |
| <b>DYNAMIC CHARACTERISTICS</b> (Note 8) |                     |     |     |      |      |  |
| Input Capacitance                       | C <sub>ISS</sub>    | —   | —   | 150  | pF   | V <sub>DS</sub> = 16V, V <sub>GS</sub> = 0V<br>f = 1.0MHz  |
| Output Capacitance                      | C <sub>OSS</sub>    | —   | —   | 25   | pF   |  |
| Reverse Transfer Capacitance            | C <sub>RSS</sub>    | —   | —   | 20   | pF   |  |

- Notes:
5. Device mounted on FR-4 PCB.
  6. Pulse width ≤10μs, Duty Cycle ≤1%.
  7. Short duration pulse test used to minimize self-heating effect.
  8. Guaranteed by design. Not subject to product testing.



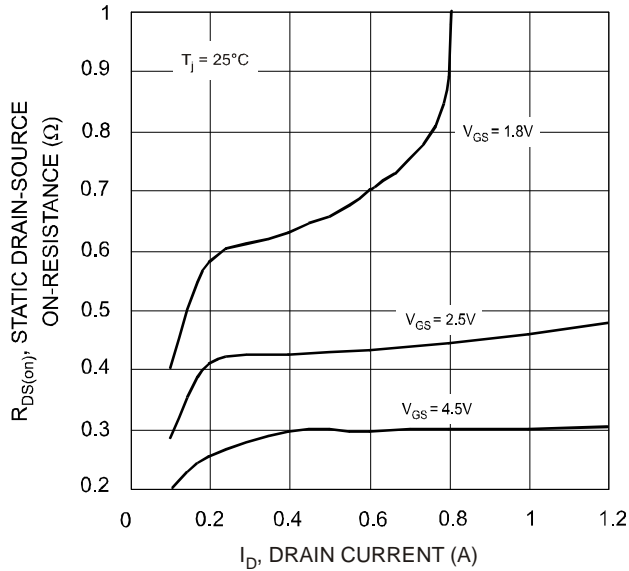


Fig. 7 On-Resistance vs. Drain Current and Gate Voltage

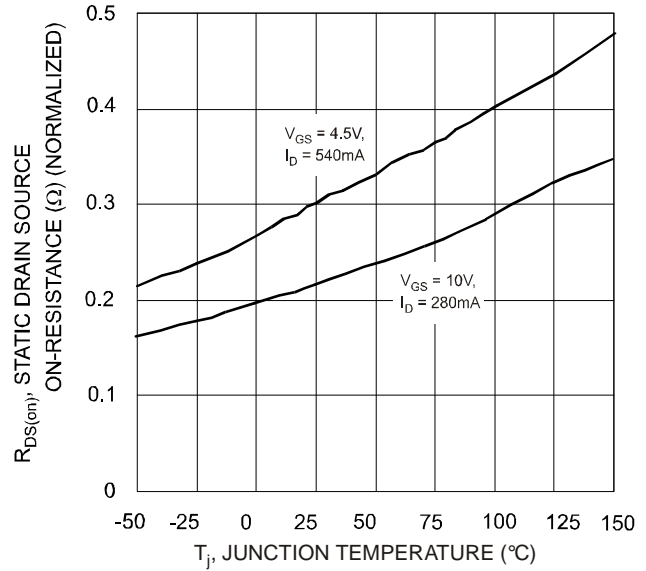


Fig. 8 Static Drain-Source, On-Resistance vs. Temperature

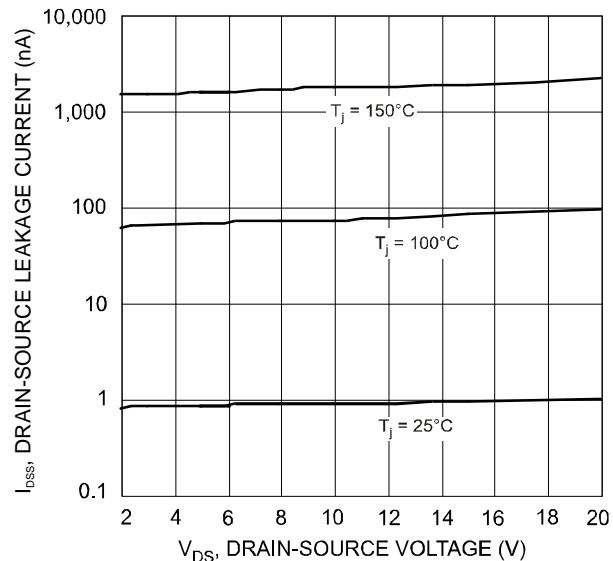


Fig. 9 Drain Source Leakage Current vs. Voltage

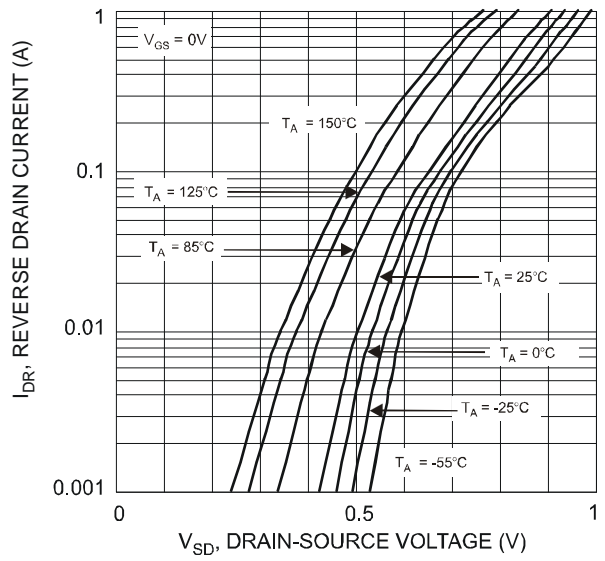


Fig. 10 Reverse Drain Current vs. Source-Drain Voltage

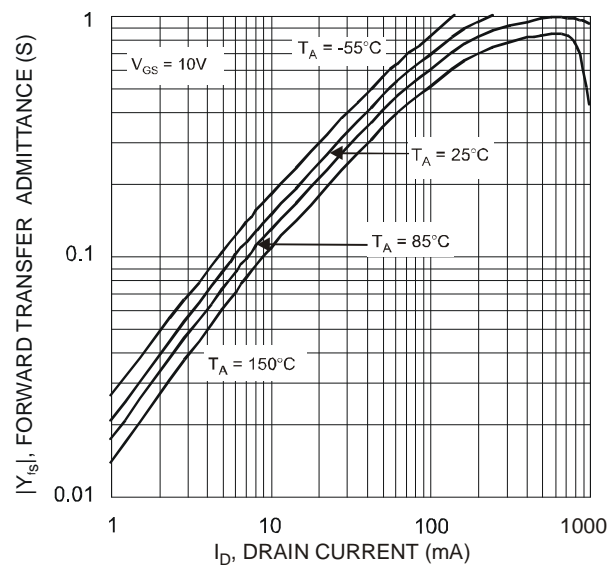


Fig. 11 Forward Transfer Admittance vs. Drain Current

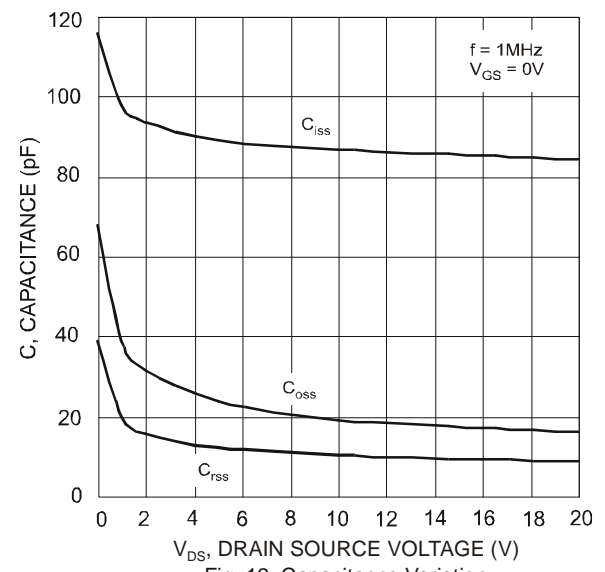
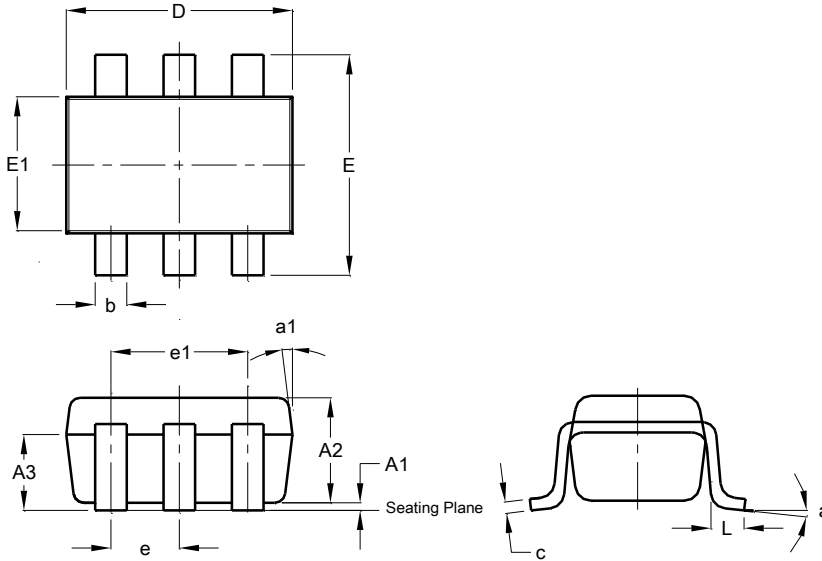


Fig. 12 Capacitance Variation

**Package Outline Dimensions**

Please see AP02001 at [http://www.diodes.com/\\_files/datasheets/ap02001.pdf](http://www.diodes.com/_files/datasheets/ap02001.pdf) for the latest version.

**SOT26**

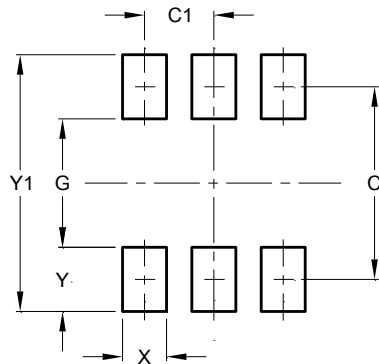


| SOT26                |       |      |      |
|----------------------|-------|------|------|
| Dim                  | Min   | Max  | Typ  |
| A1                   | 0.013 | 0.10 | 0.05 |
| A2                   | 1.00  | 1.30 | 1.10 |
| A3                   | 0.70  | 0.80 | 0.75 |
| b                    | 0.35  | 0.50 | 0.38 |
| c                    | 0.10  | 0.20 | 0.15 |
| D                    | 2.90  | 3.10 | 3.00 |
| e                    | -     | -    | 0.95 |
| e1                   | -     | -    | 1.90 |
| E                    | 2.70  | 3.00 | 2.80 |
| E1                   | 1.50  | 1.70 | 1.60 |
| L                    | 0.35  | 0.55 | 0.40 |
| a                    | -     | -    | 8°   |
| a1                   | -     | -    | 7°   |
| All Dimensions in mm |       |      |      |

**Suggested Pad Layout**

Please see AP02001 at [http://www.diodes.com/\\_files/datasheets/ap02001.pdf](http://www.diodes.com/_files/datasheets/ap02001.pdf) for the latest version.

**SOT26**



| Dimensions | Value (in mm) |
|------------|---------------|
| C          | 2.40          |
| C1         | 0.95          |
| G          | 1.60          |
| X          | 0.55          |
| Y          | 0.80          |
| Y1         | 3.20          |

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