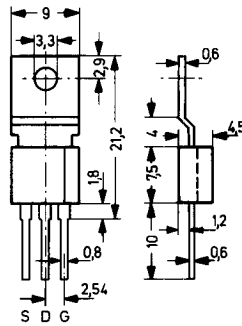


# BD522

**Enhancement Mode N-Channel Power VMOS Transistor**  
for applications needing high input impedance and fast switching times.

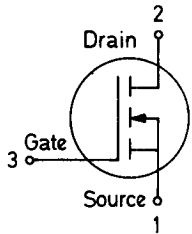
**Features:**

- High input impedance
- High speed switching
- No minority carrier storage time
- CMOS logic compatible input
- No thermal runaway
- No secondary breakdown
- Paralleling is simple
- Heat sink connected to drain



Plastic case TO-202  
(34 A 3, DIN 41 869)

Weight approximately 1.5 g  
Dimensions in mm



**Graphic Symbol**

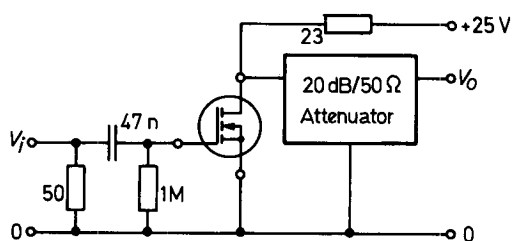
**Absolute Maximum Ratings**

|   | Symbol                 | Value       | Unit   |
|---|------------------------|-------------|--------|
| Drain-Source Voltage  | $V_{DSS}$              | 60          | V      |
| Drain-Gate Voltage  | $V_{DGS}$              | 60          | V      |
| Continuous Drain Current  | $I_D$                  | 1.5         | A      |
| Power Dissipation<br>at 25 °C Case Temperature<br>at 25 °C Free Air Temperature | $P_{tot}$<br>$P_{tot}$ | 10<br>1.75  | W<br>W |
| Temperature (Operating and Storage)   | $T_j, T_s$             | -55 to +150 | °C     |

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

|   | Symbol                 | Min.   | Typ.   | Max.       | Unit          |
|---|------------------------|--------|--------|------------|---------------|
| Drain-Source Breakdown Voltage<br>at $V_{GS} = 0, I_D = 100\text{ }\mu\text{A}$                           | $V_{(BR)DSS}$          | 60     | 90     | —          | V             |
| Gate Threshold Voltage at $V_{GS} = V_{DS}, I_D = 1\text{ mA}$  | $V_{GS(th)}$           | 0.8    | —      | 3.0        | V             |
| Gate-Body Leakage Current at $V_{GS} = 15\text{ V}, V_{DS} = 0$   | $I_{GSS}$              | —      | —      | 100        | nA            |
| Drain Cutoff Current at $V_{GS} = 0, V_{DS} = 25\text{ V}$  | $I_{D(off)}$           | —      | —      | 0.5        | $\mu\text{A}$ |
| Drain-Source On Resistance <sup>1)</sup><br>at $V_{GS} = 10\text{ V}, I_D = 1\text{ A}$                   | $r_{DS(on)}$           | —      | 2.0    | 3.0        | $\Omega$      |
| Thermal Resistance<br>Chip to Heat Sink<br>Chip to Ambient  | $R_{thS}$<br>$R_{thA}$ | —<br>— | —<br>— | 12.5<br>70 | K/W<br>K/W    |
| Forward Transconductance <sup>1)</sup><br>at $V_{DS} = 10\text{ V}, I_D = 0.5\text{ A}, f = 1\text{ MHz}$ | $g_m$                  | —      | 400    | —          | mS            |
| Input Capacitance at $V_{GS} = 0, V_{DS} = 10\text{ V}, f = 1\text{ MHz}$                                 | $C_{iss}$              | —      | 140    | —          | pF            |
| Turn On Time<br>Turn Off Time   | $t_{on}$<br>$t_{off}$  | —<br>— | 4<br>4 | 10<br>10   | ns<br>ns      |

<sup>1)</sup> Pulse Test Width – 80  $\mu\text{s}$ ; Pulse Duty Factor 1%.



Test Circuit for the Switching Times

