# Si7892BDP vs. Si7892DP

**Description:** **N-Channel, 30 V (D-S) MOSFET**
**Package:** **PowerPAK® SO-8**
**Pin Out:** **Identical**

**Part Number Replacements:**
Si7892BDP-T1-E3 Replaces Si7892DP-T1-E3
Si7892BDP-T1 Replaces Si7892DP-T1

## ABSOLUTE MAXIMUM RATINGS $T_A$ = 25 °C, unless otherwise noted

| Parameter | | Symbol | Si7892BDP | Si7892DP | Unit |
|---|---|---|---|---|---|
| Drain-Source Voltage | | $V_{DS}$ | 30 | 30 | V |
| Gate-Source Voltage | | $V_{GS}$ | ± 20 | ± 20 | |
| Continuous Drain Current | $T_A$ = 25 °C | $I_D$ | 25 | 25 | A |
| | $T_A$ = 70 °C | | 20 | 20 | |
| Pulsed Drain Current | | $I_{DM}$ | 60 | 60 | |
| Continuous Source Current (MOSFET Diode Conduction) | | $I_S$ | 4.1 | 4.5 | |
| Avalanche Current | L = 0.1 mH | $I_{AS}$ | 40 | 50 | |
| Power Dissipation | $T_A$ = 25 °C | $P_D$ | 5 | 5.4 | W |
| | $T_A$ = 70 °C | | 3.2 | 3.4 | |
| Operating Junction and Storage Temperature Range | | $T_j$ and $T_{stg}$ | - 55 to 150 | - 55 to 150 | °C |
| Maximum Junction-to-Ambient | | $R_{thJA}$ | 25 | 23 | °C/W |

## SPECIFICATIONS $T_J$ = 25 °C, unless otherwise noted

| Parameter | | Symbol | Si7892BDP | | | Si7892DP | | | Unit |
|---|---|---|---|---|---|---|---|---|---|
| | | | Min | Typ | Max | Min | Typ | Max | |
| **Static** | | | | | | | | | |
| Gate-Threshold Voltage | | $V_{GS(th)}$ | 1.0 | | 3.0 | 1.0 | | 3.0 | V |
| Gate-Body Leakage | | $I_{GSS}$ | | | ± 100 | | | ± 100 | nA |
| Zero Gate Voltage Drain Current | | $I_{DSS}$ | | | 1 | | | 1 | µA |
| On-State Drain Current | $V_{GS}$ = 10 V | $I_{D(on)}$ | 30 | | | 30 | | | A |
| Drain-Source On-Resistance | $V_{GS}$ = 10 V | $r_{DS(on)}$ | | 0.0034 | 0.0042 | | 0.0037 | 0.0045 | Ω |
| | $V_{GS}$ = 4.5 V | | | 0.0047 | 0.0057 | | 0.0048 | 0.006 | |
| Forward Transconductance | | $g_{fs}$ | | 85 | | | 80 | | S |
| Diode Forward Voltage | | $V_{SD}$ | | 0.75 | 1.2 | | 0.75 | 1.2 | V |
| **Dynamic** | | | | | | | | | |
| Input Capacitance | | $C_{iss}$ | | 3775 | | | NS | | pF |
| Output Capacitance | | $C_{oss}$ | | 630 | | | NS | | |
| Reverse Transfer Capacitance | | $C_{rss}$ | | 295 | | | NS | | |
| Total Gate Charge | | $Q_g$ | | 27 | 40 | | 25 | 35 | nC |
| Gate-Source Charge | | $Q_{gs}$ | | 11.4 | | | 6.7 | | |
| Gate-Drain Charge | | $Q_{gd}$ | | 8.1 | | | 9.7 | | |
| Gate Resistance | | $R_g$ | 0.5 | 1.2 | 2.0 | 0.5 | NS | 2.4 | Ω |
| **Switching** | | | | | | | | | |
| Turn-On Time* | | $t_{d(on)}$ | | 20 | 30 | | 17 | 30 | ns |
| | | $t_r$ | | 13 | 20 | | 10 | 20 | |
| Turn-Off Time* | | $t_{d(off)}$ | | 62 | 100 | | 65 | 130 | |
| | | $t_f$ | | 20 | 35 | | 35 | 60 | |
| Source-Drain Reverse Recovery Time | | $t_{rr}$ | | 40 | 60 | | 50 | 80 | |

Specification comparisons are supplied as a courtesy to compare two devices and do not constitute a commercial product datasheet or any guarantee of identical performance. Designers should refer to the appropriate datasheets of the same number for guaranteed specification limits.