# Si4874BDY vs. Si4874DY

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

**Part Number Replacements:**
Si4874BDY-T1-E3 Replaces Si4874DY-T1-E3
Si4874BDY-T1 Replaces Si4874DY-T1

| **ABSOLUTE MAXIMUM RATINGS** $T_A$ = 25 °C, unless otherwise noted | | | | | |
|---|---|---|---|---|---|
| **Parameter** | | **Symbol** | **Si4874BDY** | **Si4874DY** | **Unit** |
| Drain-Source Voltage | | $V_{DS}$ | 30 | 30 | V |
| Gate-Source Voltage | | $V_{GS}$ | ± 20 | ± 20 | |
| Continuous Drain Current | $T_A$ = 25 °C | $I_D$ | 16 | 15 | A |
| | $T_A$ = 70 °C | | 13 | 13 | |
| Pulsed Drain Current | | $I_{DM}$ | 50 | 50 | |
| Continuous Source Current (MOSFET Diode Conduction) | | $I_S$ | 2.7 | 2.3 | |
| Power Dissipation | $T_A$ = 25 °C | $P_D$ | 3.0 | 3.1 | W |
| | $T_A$ = 70 °C | | 2.0 | 2.0 | |
| Operating Junction and Storage Temperature Range | | $T_j$ and $T_{stg}$ | - 55 to 150 | - 55 to 150 | °C |
| Maximum Junction-to-Ambient | | $R_{thJA}$ | 41 | 40 | °C/W |

| **SPECIFICATIONS** $T_J$ = 25 °C, unless otherwise noted | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Parameter** | | **Symbol** | **Si4874BDY** | | | **Si4874DY** | | | **Unit** |
| | | | **Min** | **Typ** | **Max** | **Min** | **Typ** | **Max** | |
| **Static** | | | | | | | | | |
| Gate-Threshold Voltage | | $V_{GS(th)}$ | 1.0 | | 3.0 | 1.0 | | NS | 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 | $r_{DS(on)}$ | | 0.0057 | 0.007 | | 0.0062 | 0.0075 | Ω |
| | $V_{GS}$ = 4.5 V | | | 0.0068 | 0.0085 | | 0.0083 | 0.010 | |
| Forward Transconductance | | $g_{fs}$ | | 65 | | | 40 | | S |
| Diode Forward Voltage | | $V_{SD}$ | | 0.74 | 1.1 | | 0.73 | 1.1 | V |
| **Dynamic** | | | | | | | | | |
| Total Charge[a] | | $Q_g$ | | 21 | 25 | | 35 | 45 | nC |
| Gate-Source Charge | | $Q_{gs}$ | | 9.5 | | | 12.2 | | |
| Gate-Drain Charge | | $Q_{gd}$ | | 6.5 | | | 11.4 | | |
| Gate Resistance | | $R_g$ | 0.4 | 0.9 | 1.4 | | NS | | Ω |
| **Switching** | | | | | | | | | |
| Turn-On Time[a] | | $t_{d(on)}$ | | 16 | 25 | | 20 | 30 | ns |
| | | $t_r$ | | 10 | 20 | | 16 | 25 | |
| Turn-Off Time[a] | | $t_{d(off)}$ | | 57 | 90 | | 120 | 180 | |
| | | $t_f$ | | 15 | 25 | | 43 | 65 | |
| Source-Drain Reverse Recovery Time | | $t_{rr}$ | | 40 | 60 | | 50 | 80 | |

NS denotes not specified in original datasheet.

Notes:
a. $V_{GS}$ = 5.0 V for the Si4874DY and 4.5 V for the Si4874BDY.