



Si4838BDY vs. Si4838DY

Description: N-Channel, 12 V (D-S) MOSFET

Package: SO-8

Pin Out: Identical

Part Number Replacements: Si4838BDY-T1-GE3 replaces Si4838DY-T1-E3
Si4838BDY-T1-GE3 replaces Si4838DY-T1-GE3

| ABSOLUTE MAXIMUM RATINGS $T_A = 25\text{ }^\circ\text{C}$, unless otherwise noted | | | | | |
|---|----------------------------------|-------------|-------------|--------------------|---|
| PARAMETER | SYMBOL | Si4838BDY | Si4838DY | UNIT | |
| Drain-Source Voltage | V_{DS} | 12 | 12 | V | |
| Gate-Source Voltage | V_{GS} | ± 8 | ± 8 | | |
| Continuous Drain Current | $T_A = 25\text{ }^\circ\text{C}$ | I_D | 22.5 | 25 | A |
| | $T_A = 70\text{ }^\circ\text{C}$ | | 18 | 20 | |
| Pulsed Drain Current | I_{DM} | 70 | 60 | | |
| Continuous Source Current (MOSFET Diode Conduction) | I_S | 2.2 | 2.9 | | |
| Power Dissipation | $T_A = 25\text{ }^\circ\text{C}$ | P_D | 2.5 | 3.5 | W |
| | $T_A = 70\text{ }^\circ\text{C}$ | | 1.6 | 2.2 | |
| Operating Junction and Storage Temperature Range | T_J and T_{stg} | - 55 to 150 | - 55 to 150 | $^\circ\text{C}$ | |
| Maximum Junction-to-Ambient | R_{thJA} | 50 | 35 | $^\circ\text{C/W}$ | |

| SPECIFICATIONS $T_J = 25\text{ }^\circ\text{C}$, unless otherwise noted | | | | | | | | | |
|---|--|--------------|------|-----------|----------|------|-----------|---------------|----------|
| PARAMETER | SYMBOL | Si4838BDY | | | Si4838DY | | | UNIT | |
| | | MIN. | TYP. | MAX. | MIN. | TYP. | MAX. | | |
| Static | | | | | | | | | |
| Gate-Threshold Voltage | $V_{GS(th)}$ | 0.4 | | 1.0 | 0.6 | | NS | V | |
| Gate-Body Leakage | I_{GSS} | | | ± 100 | | | ± 100 | nA | |
| Zero Gate Voltage Drain Current | I_{DSS} | | | - 1 | | | - 1 | μA | |
| On-State Drain Current | $V_{GS} = 4.5\text{ V}$ $I_{D(on)}$ | 30 | | | 30 | | | A | |
| Drain-Source On-Resistance | $V_{GS} = 4.5\text{ V}$ | $R_{DS(on)}$ | | 0.0021 | 0.0027 | | 0.0024 | 0.003 | Ω |
| | $V_{GS} = 2.5\text{ V}$ | | | 0.0025 | 0.0032 | | 0.0031 | 0.004 | |
| | $V_{GS} = 1.8\text{ V}$ | | | 0.0031 | 0.0040 | | NS | NS | |
| Forward Transconductance | g_{fs} | | 105 | | | 80 | | S | |
| Diode Forward Voltage | V_{SD} | | 0.6 | 1.1 | | 0.75 | 1.1 | V | |
| Dynamic | | | | | | | | | |
| Total Gate Charge | Q_g | | 56 | 84 | | 40 | 60 | nC | |
| Gate-Source Charge | Q_{gs} | | 5.9 | | | 6.7 | | | |
| Gate-Drain Charge | Q_{gd} | | 12.5 | | | 9.2 | | | |
| Gate Resistance | R_g | 0.2 | 0.65 | 1.3 | 1.0 | 1.7 | 2.9 | Ω | |

Note

NS denotes not specified on original datasheet.

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.