# Si5402BDC vs. Si5402DC

**Description:** **N-Channel, 30-V (D-S) MOSFET**
**Package:** **1206-8 ChipFET®**
**Pin Out:** **Identical**

**Part Number Replacements:**

Si5402BDC-T1-E3 Replaces Si5402DC-T1-E3
Si5402BDC-T1-E3 Replaces Si5402DC-T1



**Summary of Performance:**

The Si5402BDC is the replacement to the original Si5402DC; both parts perform identically, including limits to the parametric tables below.

| ABSOLUTE MAXIMUM RATINGS ($T_A$ = 25°C UNLESS OTHERWISE NOTED) | | | | | |
|---|---|---|---|---|---|
| **Parameter** | | **Symbol** | **Si5402BDC** | **Si5402DC** | **Unit** |
| Drain-Source Voltage | | $V_{DS}$ | 30 | 30 | V |
| Gate-Source Voltage | | $V_{GS}$ | ±20 | ±20 | |
| Continuous Drain Current | $T_A$ = 25°C | $I_D$ | 6.7 | 6.7 | A |
| | $T_A$ = 70°C | | 4.8 | 4.8 | |
| Pulsed Drain Current | | $I_{DM}$ | 20 | 20 | |
| Continuous Source Current (MOSFET Diode Conduction) | | $I_S$ | 2.1 | 2.1 | |
| Power Dissipation | $T_A$ = 25°C | $P_D$ | 2.5 | 2.5 | W |
| | $T_A$ = 70°C | | 1.3 | 1.3 | |
| Operating Junction & Storage Temperature Range | | $T_j$ & $T_{stg}$ | -55 to 150 | -55 to 150 | °C |
| Maximum Junction-to-Ambient | | $R_{thJA}$ | 50 | 50 | °C/W |

| SPECIFICATIONS ($T_J$ = 25°C UNLESS OTHERWISE NOTED) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Parameter** | | **Symbol** | **Si5402BDC** | | | **Si5402DC** | | | **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 | $I_{D(on)}$ | 20 | | | 20 | | | A |
| Drain-Source On-Resistance | $V_{GS}$= 10 V | $r_{DS(on)}$ | | 0.029 | 0.035 | | 0.030 | 0.035 | Ω |
| | $V_{GS}$ = 4.5 V | | | 0.035 | 0.042 | | 0.045 | 0.055 | |
| Forward Transconductance | | $g_{fs}$ | | 19 | | | 15 | | S |
| Diode Forward Voltage | | $V_{SD}$ | | 0.8 | 1.2 | | 0.8 | 1.2 | V |
| **Dynamic** | | | | | | | | | |
| Total Gate Charge | | Qg | | 10 | 20 | | 13 | 20 | nC |
| Gate-Source Charge | | Qgs | | 1.9 | | | 1.3 | | |
| Gate-Drain Charge | | Qgd | | 1.6 | | | 3.1 | | |
| Gate Resistance | | Rg | | 14 | | | NS | | Ω |
| **Switching** | | | | | | | | | |
| Turn-On Time | | $t_{d(on)}$ | | 10 | 15 | | 10 | 15 | ns |
| | | $t_r$ | | 10 | 15 | | 10 | 15 | |
| Turn-Off Time | | $t_{d(off)}$ | | 27 | 40 | | 25 | 40 | |
| | | $t_f$ | | 10 | 15 | | 10 | 15 | |
| Source-Drain Reverse Recovery Time | | $t_{rr}$ | | 20 | 60 | | 30 | 60 | |