

SCOPE: Dual, SPST, CMOS, TTL-Compatible Analog Switch

Device Type: **Generic Number:**
 -1 DG200AA(x)/883B

Case Outline(s).

| <u>Outline Letter</u> | <u>Mil-Std-1835</u> | <u>Case Outline</u> | <u>Package Code</u> |
|-----------------------|------------------------|---------------------|---------------------|
| K | GDIP1-T14 or CDIP2-T14 | 14 LEAD CERDIP | J14 |
| A | MACY1-X10 | 10 Pin TO-100 | A10 |

Absolute Maximum Ratings

| | |
|--|--|
| V+ to V- | 44V |
| V+ to GND | 25V |
| Digital Input Overvoltage Range | (V ⁻ -2V) to (V ⁺ +2V) |
| Continuous Current, Any terminal | 30mA |
| Current, S or D (Pulsed at 1ms, 10% duty cycle max) | 100mA |
| Lead Temperature (soldering, 10 seconds) | +300°C |
| Storage Temperature | -65°C to +150°C |
| | |
| Continuous Power Dissipation | T _A =+70°C |
| 10 lead Can (derate 6.7mW/°C above +70°C) | 533mW |
| 14 lead CERDIP(derate 10mW/°C above +70°C) | 727mW |
| Junction Temperature T _j | +150°C |
| Thermal Resistance, Junction to Case, Θ _{JC} : | |
| Case Outline 10 lead Can | 45°C/W |
| Case Outline 14 lead CERDIP..... | 55°C/W |
| Thermal Resistance, Junction to Ambient, Θ _{JA} : | |
| Case Outline 10 lead Can | 150°C/W |
| Case Outline 14 lead CERDIP..... | 110°C/W |

Recommended Operating Conditions.

| | |
|---|-----------------|
| Ambient Operating Range (T _A) | -55°C to +125°C |
|---|-----------------|

Stresses beyond those listed under “Absolute Maximum Ratings” may cause permanent damage to the device. These are stress ratings only, and functional operation of the device at these or any other conditions beyond those indicated in the operational sections of the specifications is not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

TABLE 1. ELECTRICAL TESTS:

| TEST | Symbol | CONDITIONS -55°C ≤ T _A ≤ +125°C V ₊ =+15V, V ₋ =-15V, GND=0V, V _{INH} =2.4V, V _{INL} =0.8V Unless otherwise specified | GROUP A Subgroup | Device type | Limits Min | Limits Max | Units |
|---------------------------------|--|--|---------------------|----------------|---------------|---------------|-------|
| Analog-Signal Range | V _{ANALOG} | V _S =±15V | 1,2,3 | All | -15 | 15 | V |
| Drain-Source On Resistance | r _{DS(ON)} | V _{IN} =0.8V, I _S =-1mA, V _D =±10V | 1 2,3 | All | | 70 100 | Ω |
| Source-Off Leakage Current | I _{S(OFF)} | V _{IN} =2.4V, V _S =+/-14V, V _D =-/+14V | 1 2 | All | -2 -100 | 2 100 | nA |
| Drain-Off Leakage Current | I _{D(OFF)} | V _{IN} =2.4V, V _S =+/-14V, V _D =-/+14V | 1 2 | All | -2 -100 | 2 100 | nA |
| Channel-On Leakage Current | I _{D(ON)} + I _{S(ON)} | V _{IN} =0.8V, V _S =V _D =±14V | 1 2 | All | -2 -200 | 2 200 | nA |
| Input Current with Voltage High | I _{INH} | V _{IN} =2.4V | 1 2,3 | All | -0.5 -1.0 | | μA |
| | | V _{IN} =15V | 1 2,3 | | 0.5 1.0 | | |
| Input Current with Voltage Low | I _{INL} | V _{IN} =0V | 1 2,3 | All | -0.5 -1.0 | | μA |
| Positive Supply Current | I ₊ | Both channels on or off | 1,2,3 | All | | 2 | mA |
| Negative Supply Current | I ₋ | Both channels on or off | 1,2,3 | All | -1.0 | | mA |
| DYNAMIC | | | | | | | |
| Turn-On Time | t _{ON} | Figure 1, NOTE 1 | 9 10,11 | All | | 1000 1500 | ns |
| Turn-Off Time | t _{OFF} | Figure 1, NOTE 1 | 9 10,11 | All | | 425 800 | ns |

NOTE 1: Figure 1, See Commercial datasheet.

PIN CONFIGURATIONS:

| | 14-Pin CERDIP | 10 Pin Can | LOGIC | SWITCH |
|----|----------------|-------------------------|----------|------------|
| 1 | IN2 | IN1 | 0 | ON |
| 2 | NC | IN2 | 1 | OFF |
| 3 | GND | GND | | |
| 4 | NC | S2 | | |
| 5 | S2 | D2 | | |
| 6 | D2 | V- | | |
| 7 | V- | NC | | |
| 8 | NC | D1 | | |
| 9 | D1 | S1 | | |
| 10 | S1 | V+ (substrate and case) | | |
| 11 | NC | | | |
| 12 | V+ (substrate) | | | |
| 13 | NC | | | |
| 14 | IN1 | | | |

ORDERING INFORMATION:

| | |
|-------------|---------------|
| 10 Lead Can | DG200AAA/883B |
| 14 CERDIP | DG200AAK/883B |

QUALITY ASSURANCE

Sampling and inspection procedures shall be in accordance with Mil-Prf-38535, Appendix A as Specified in Mil-Std-883.

Screening shall be in accordance with Method 5004 of Mil-Std-883. Burn-in test Method 1015:

1. Test Condition, A, B, C, or D.
2. $T_A = +125^{\circ}\text{C}$, minimum.
3. Interim and final electrical test requirements shall be specified in Table 2.

Quality conformance inspection shall be in accordance with Method 5005 of Mil-Std-883, Including Groups A, B, C, and D inspection.

Group A inspection:

1. Tests as specified in Table 2.
2. Selected subgroups in Table 1, Method 5005 of Mil-Std-883 shall be omitted.

Group C and D inspections:

- a. End-point electrical parameters shall be specified in Table 1.
- b. Steady-state life test, Method 1005 of Mil-Std-883.
 1. Test condition A, B, C, D.
 2. $T_A = +125^{\circ}\text{C}$, minimum.
 3. Test duration, 1000 hours, except as permitted by Method 1005 of Mil-Std-883.

TABLE 2. ELECTRICAL TEST REQUIREMENTS

| Mil-Std-883 Test Requirements | Subgroups Per Method 5005, Table 1 |
|--|---------------------------------------|
| Interim Electric Parameters Method 5004 | 1 |
| Final Electrical Parameters Method 5005 | 1*, 2, 3, 9 |
| Group A Test Requirements Method 5005 | 1, 2, 3, 9, 10**, 11** |
| Group C and D End-Point Electrical Parameters Method 5005 | 1 |

* PDA applies to Subgroup 1 only.

** Subgroups 10 and 11, if not tested, shall be guaranteed to the limits in Table 1.

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|-------|-------------------------------|-----------|--------|
| ----- | Electrical Characteristics of | 19-0053 | Rev. B |
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