

TABLE 1. ELECTRICAL TESTS: **DUAL SUPPLY**

TEST	Symbol	CONDITIONS -55 °C ≤ T _A ≤ +125°C V ⁺ =+15V, V ⁻ =-15V, GND=0V V _{AH} =2.4V, V _{AL} =0.8V Unless otherwise specified	Group A Subgroup	Device type	Limits Min 2/	Limits Max 2/	Units
SWITCH							
Analog-Signal Range	V _{ANALOG}	NOTE 3	1,2,3	All	-15	15	V
Drain-Source ON Resistance	r _{DS(ON)}	I _S = -10mA, V _D = ±8.5V, V ⁺ = 13.5V, V ⁻ = -13.5V	1 2,3	All		85 100	Ω
On-Resistance Match Between Channels 4/	Δr _{DS(ON)}	I _S = -10mA, V _D = ±10V, V ⁺ = 15V, V ⁻ = -15V	1 2,3	All		4 5	Ω
On-Resistance Flatness 4/	r _{FLAT(ON)}	I _S = -10mA, V _D = 5V or -5V, V ⁺ = 15V, V ⁻ = -15V	1 2,3	All		9 15	Ω
Source- OFF Leakage Current	I _{S(OFF)}	V ⁺ = 16.5V, V ⁻ = -16.5V, V _{IN} = 2.4V V _S = ±15.5V V _D = ±15.5V	1 2,3	All	-0.5 -20	0.5 20	nA
Drain- OFF Leakage Current	I _{D(OFF)}	V ⁺ = 16.5V, V ⁻ = -16.5V, V _S = ±15.5V V _D = ±15.5V	1 2,3	All	-0.5 -20	0.5 20	nA
Channel-On Leakage Current	I _{D(ON)} + I _{S(ON)}	V ⁺ = 16.5V, V ⁻ = -16.5V, V _S = ±15.5V V _D = ±15.5V	1 2,3	01	-0.5 -20	0.5 20	nA
INPUT							
Input Current/Voltage High	I _{INH}	V _{IN} = 2.4V	1,2,3	All	-500	500	nA
Input Current/Voltage Low	I _{INL}	V _{IN} = 0.8V	1,2,3	All	-500	500	nA
SUPPLY							
Power Supply Range			1,2,3	All	±4.5	±20	V
Positive Supply Current	I ⁺	All channels on or off, V ⁺ = 16.5V, V ⁻ = -16.5V, V _{IN} = 0 or 5V	1,2,3	All		100	μA
Negative Supply Current	I ⁻	All channels on or off, V ⁺ = 16.5V, V ⁻ = -16.5V, V _{IN} = 0 or 5V	1 2,3	All	-1 -5	1 5	μA
Ground Current	I _{GND}	All channels on or off, V ⁺ = 16.5V, V ⁻ = -16.5V, V _{IN} = 0 or 5V	1,2,3	All	-100		μA
DYNAMIC							
Turn-On Time	t _{ON}	V _S = ±10V, R _L = 1kΩ, Figure 2	9	All		250	ns
Turn-Off Time	t _{OFF}	V _D = ±10V, R _L = 1kΩ, Figure 2	9	01 02		120 170	ns
Charge Injection NOTE 2	Q	C _L = 1nF, V _{GEN} = 0V, R _{GEN} = 0Ω, Figure 3	9	All		10	pC

TABLE 1. ELECTRICAL TESTS: SINGLE SUPPLY

TEST	Symbol	CONDITIONS -55 °C ≤ T _A ≤ +125°C V ⁺ =+12V, V ⁻ =0V, GND=0V V _{AH} =2.4V, V _{AL} =0.8V Unless otherwise specified	Group A Subgroup	Device type	Limits Min 2/	Limits Max 2/	Units
SWITCH							
Analog-Signal Range	V _{ANALOG}	NOTE 3	1,2,3	All	0	12	V
Drain-Source ON Resistance	r _{DS(ON)}	I _S =1.0mA, V _D =3V or 8V, V ⁺ =10.8V	1,3 2	All		160 200	Ω
SUPPLY							
Power Supply Range			1,2,3	All	10	30	V
Positive Supply Current	I ⁺	All channels on or off, V _{IN} =0 or 5V	1,2,3	All		100	μA
Negative Supply Current	I ⁻	All channels on or off, V _{IN} =0 or 5V	1 2,3	All	-1 -5	1 5	μA
Ground Current	I _{GND}	All channels on or off, V _{IN} =0 or 5V	1,2,3	All	-100		μA
DYNAMIC							
Turn-On Time	t _{ON}	V _S =8V, Figure 2	9	All		400	ns
Turn-Off Time	t _{OFF}	V _S =8V, Figure 2	9	All		200	ns
Charge Injection	Q	C _L =1nF, V _{GEN} =0V NOTE 3	9	All		10	pC

NOTE 2: The algebraic convention, where the most negative value is a minimum and the most positive value a maximum, is used in this data sheet.

NOTE 3: Guaranteed by design.

NOTE 4: On-resistance match between channels and flatness is guaranteed only with bipolar-supply operation. Flatness is defined as the difference between the maximum and the minimum value of on-resistance as measured at the extremes of the specified analog range.

TRUTH TABLE

TERMINAL CONNECTION

LOGIC	DG441A SWITCH	TERMINAL NUMBER	01 DG441A	01 DG441A	02 DG442A	02 DG442A
0	ON		J16	20LCC	J16	20LCC
1	OFF	1	IN1	NC	IN1	NC
		2	D1	IN1	D1	IN1
		3	S1	D1	S1	D1
LOGIC	DG442A	4	V-	S1	V-	S1
	SWITCH	5	GND	V-	GND	V-
0	OFF	6	S4	NC	S4	NC
1	ON	7	D4	GND	D4	GND
		8	IN4	S4	IN4	S4
		9	IN3	D4	IN3	D4
		10	D3	IN4	D3	IN4
		11	S3	NC	S3	NC
		12	NC	IN3	NC	IN3
		13	V+	D3	V+	D3
		14	S2	S3	S2	S3
		15	D2	NC	D2	NC
		16	IN2	NC	IN2	NC
		17		V+		V+
		18		S2		S2
		19		D2		D2
		20		IN2		IN2

Figure 2. Switching Time: See Commercial Data Sheet.

Figure 3. Charge Injection: See Commercial Data Sheet.

ORDERING INFORMATION:			
DG441AK/883B	16 CDIP	DG442AK/883B	16 CDIP
DG441AZ/883B	20 LCC	DG442AZ/883B	20 LCC

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. TA = +125°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. TA = +125°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
Group C and D End-Point Electrical Parameters Method 5005	1

* PDA applies to Subgroup 1 only.