

TABLE 1 ELECTRICAL TESTS

TEST	Symbol	CONDITIONS -55 °C ≤ T _A ≤ +125 °C V ₊ =+15V, V ₋ =-15V, GND=0V Unless otherwise specified	Group A Subgroup	Device type	Limits 2/ Min	Limits Max	Units
SWITCH							
Analog-Signal Range	V _{ANALOG}	I _S =10mA, V _{IN} =0.8V or 4.0V	1,2,3	All	-15	15	V
Drain-Source ON Resistance	r _{DS(ON)}	I _S = -10mA, V _D =10V, V _{IN} =4.0V or V _{IN} =0.8V	1 2,3	All		50 75	Ω
Drain-Source ON Resistance	r _{DS(ON)}	I _S = 10mA, V _D =-10V V _{IN} =4.0V or V _{IN} =0.8V	1 2,3	All		50 75	Ω
Source OFF Leakage Current	I _{S(OFF)}	V _S =14V, V _D =-14V V _{IN} =4.0V or V _{IN} =0.8V	1 2,3	All		1 100	nA
Source OFF Leakage Current	I _{S(OFF)}	V _S = -14V, V _D =14V V _{IN} =4.0V or V _{IN} =0.8V	1 2,3	All	-1 -100		nA
Drain OFF Leakage Current	I _{D(OFF)}	V _S = -14V, V _D =14V V _{IN} =4.0V or V _{IN} =0.8V	1 2,3	All		1 100	nA
Drain OFF Leakage Current	I _{D(OFF)}	V _S =14V, V _D =-14V V _{IN} =4.0V or V _{IN} =0.8V	1 2,3	All	-1 -100		nA
Drain ON Leakage Current	I _{D(ON)}	V _D =V _S =14V V _{IN} =4.0V or V _{IN} =0.8V	1 2,3	All		2 200	nA
Drain ON Leakage Current	I _{D(ON)}	V _D =V _S =-14V V _{IN} =4.0V or V _{IN} =0.8V	1 2,3	All	-2 -200		nA
INPUT							
Input Current/Voltage High	I _{INH}	V _{IN} = 5.0V V _{IN} =15V	1,2,3	All	-1	1	μA
Input Current/Voltage Low	I _{INL}	V _{IN} =0V	1,2,3	All	-1		μA
SUPPLY							
Positive Supply Current	I ₊	V _{IN} =4V (One Input) (All others =0)	1 2,3	All		0.5 1.0	mA
Negative Supply Current	I ₋	V _{IN} =4V (One Input) (All others =0)	1 2,3	All	-10 -100		μA
Positive Supply Current	I ₊	V _{IN} =0.8V (All Inputs)	1 2,3	All		10 100	μA
Negative Supply Current	I ₋	V _{IN} =0.8V (All Inputs)	1 2,3	All	-10 -100		μA
DYNAMIC							
Turn ON time	t _{ON}	Figure 3	9 10,11	All		300 500	ns
Turn OFF time	t _{OFF}	Figure 3	9 10,11	All		250 450	ns

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

TABLE 2: **TYPICAL** ELECTRICAL CHARACTERISTICS (**NOTE 3**)

TEST	Symbol	CONDITIONS -55 °C ≤ T _A ≤ +125°C V ₊ =+15V, V ₋ =-15V, GND=0V Unless otherwise specified	Group A Subgroup	Device type	TYPICAL Limits 3/	Units
Break-Before-Make Interval	t _{ON} -t _{OFF}	See Break-Before-Make Time Test Circuit DG301A, DG303A only		02, 04	50	ns
Charge Injection	Q	C _L =10nF, R _{gen} =0Ω, V _{gen} =0V		All	12	pC
Source OFF Capacitance	C _{S(off)}	f=1MHz, V _{IN} =0.8V or 4.0V, V _S and V _D = 0V		All	14	pF
Drain OFF Capacitance	C _{D(off)}	f=1MHz, V _{IN} =0.8V or 4.0V, V _S and V _D = 0V		All	14	pF
Channel ON Capacitance	C _{D(on)} ⁺ C _{S(on)}	f=1MHz, V _{IN} =0.8V or 4.0V, V _S + V _D = 0V		All	40	pF
Input Capacitance	C _{IN}	f=1MHz, V _{IN} =0V		All	6	pF
Input Capacitance	C _{IN}	f=1MHz, V _{IN} =15V		All	7	pF
Off Isolation 4/		V _{IN} =0V, R _L =1kΩ, V _S =1V _{RMS} , f=500kHz		All	62	dB
Crosstalk (Channel to Channel)		V _{IN} =0V, R _L =1kΩ, V _S =1V _{RMS} , f=500kHz		All	74	dB

NOTE 3: Typical values are for DESIGN AID ONLY, not guaranteed nor subject to production testing.

NOTE 4: OFF Isolation=20 log V_S/V_D, V_S= input to OFF switch, V_D= Output.**TERMINAL CONNECTION DEVICE TYPES 01, 02, 03, 04**

TERMINAL NUMBER	DG300A 10 Lead CAN	DG300A 14 Lead CERDIP	DG301A 10 Lead CAN	DG301A 14 Lead CERDIP	DG302A 14 Lead CERDIP	DG302A 20 Pin LCC	DG303A 14 Lead CERDIP	DG303A 20 Pin LCC
1	D ₁	NC	D ₁	NC	NC	NC	NC	NC
2	S ₁	D ₁	S ₁	D ₁	S ₃	NC	S ₃	NC
3	IN	NC	IN	NC	D ₃	S ₃	D ₃	S ₃
4	NC	S ₁	NC	S ₁	D ₁	D ₃	D ₁	D ₃
5	GND	NC	GND	NC	S ₁	NC	S ₁	NC
6	V-	IN ₁	V-	IN	IN ₁	D ₁	IN ₁	D ₁
7	IN ₂	GND	NC	GND	GND	NC	GND	NC
8	S ₂	V-	S ₂	V-	V-	S ₁	V-	S ₁
9	D ₂	IN ₂	D ₂	NC	IN ₂	IN ₁	IN ₂	IN ₁
10		NC		NC	S ₂	GND	S ₂	GND
11		S ₂		S ₂	D ₂	NC	D ₂	NC
12		NC		NC	D ₄	V-	D ₄	V-
13		D ₂		D ₂	S ₄	IN ₂	S ₄	IN ₂
14		V+		V+	V+	S ₂	V+	S ₂
15						NC		NC
16						D ₂		D ₂
17						NC		NC
18						D ₄		D ₄
19						S ₄		S ₄
20						V+		V+

TRUTH TABLES

	DG300/302	DG301	DG301	DG303	DG303
SWITCH		1	2	1,3	2,4
LOGIC					
0	OFF	OFF	ON	OFF	ON
1	ON	ON	OFF	ON	OFF

FIGURE 2: BREAK-BEFORE-MAKE TIME TEST CIRCUIT: See Commercial Data Sheet

FIGURE 3: SWITCHING TIME TEST CIRCUIT: See Commercial Data Sheet

ORDERING INFORMATION.

		PKG.Code
01	DG300AAA/883B	10 TO 100
01	DG300AAK/883B	J14
02	DG301AAA/883B	10 TO 100
02	DG301AAK/883B	J14
02	DG301AAZ/883B	L20
03	DG302AAK/883B	J14
04	DG303AAK/883B	J14
04	DG303AAZ/883B	L20

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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, 9,10,11
Group C and D End-Point Electrical Parameters Method 5005	1

* PDA applies to Subgroup 1 only.

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