勝 特 力 材 料 886-3-5753170 胜特力电子(上海) 86-21-54151736 胜特力电子(深圳) 86-755-83298787 Http://www.100y.com.tw

Quad SPST CMOS Analog Switches

General Description

The MAX331, DG201A and DG211 are normally closed, quad single-pole-single-throw (SPST) analog switches. These CMOS switches can be continuously operated with power supplies ranging from ±4.5V to ±18V. Maxim guarantees that these switches will not latch-up if the power supplies are disconnected with input signals still connected.

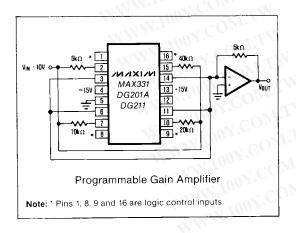
All three devices have guaranteed break-before-make switching. The MAX331 and DG201A differ with the DG211 primarily in switching speeds. The MAX331 and DG201A have a maximum turn-off time of 450ns and a maximum turn-on time of 600ns. The DG211 has a maximum turn-off time of 500ns and a maximum turn-on time of 1000ns.

Compared to the original manufacturer's products, Maxim's DG201A and DG211 consume significantly lower power, making them better suited for portable applications. By specifying the MAX331, the customer is guaranteed low power consumption units. Maxim has also eliminated the need for the third (V_L) power supply that is required for the operation of the original manufacturer's DG211.

Applications

Winchester Disk Drives Test Equipment Communications Systems PBX, PABX Guidance and Control Systems Head up Displays Military Radios

Typical Operating Circuit



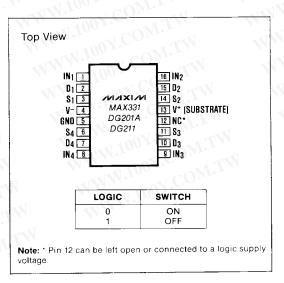
Features

- Improved 2nd Source! (See pages 3 and 5 for "MAXIM Advantage™"
- Guaranteed ±4.5V to ±18V Operation
- No V_I Supply Required
- Non-Latching with Supplies Turned-off and Input Signals Present
- **CMOS and TTL Logic Compatible**
- Monolithic, Low Power CMOS Design

Ordering Information

PART	TEMP. RANGE	PACKAGE
MAX331MJE	-55°C to +125°C	16 Lead CERDIP
DG201AAK	-55°C to +125°C	16 Lead CERDIP
DG201ABK	-25°C to +85°C	16 Lead CERDIP
DG201ACK	0°C to +70°C	16 Lead CERDIP
DG201ACJ	0°C to +70°C	16 Lead Plastic DIP
DG201ACSE	0°C to +70°C	16 Lead Small Outline
DG201C/D	0°C to +70°C	Dice
DG211CJ	0°C to +70°C	16 Lead Plastic DIP
DG211CSE	0°C to +70°C	16 Lead Small Outline
DG211C/D	0°C to +70°C	Dice

Pin Configuration



MIXLN

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ABSOLUTE MAXIMUM RATINGS (DG211)

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ABSOLUTE MAXIMUM RATINGS (DG211	
V+ to V- 2 V _{IN} to Ground V- V _L to Ground -0.3V. V _S or V _D to V+ 0, -4 V _S or V _D to V- 0.4 V+ to Ground -6 Current, Any Terminal Except S or D 30 Continuous Current, S or D 20 Peak Current, S or D 20	Operating Temperature
(Pulsed at 1msec, 10% duty cycle max)	

Stresses listed under "Absolute Maximum Ratings" may be applied (one at a time) to devices without resulting in permanent damage. These are stress ratings only, and functional operation of the device at these or any other conditions above those indicated in the operational sections of the specifications is not implied. Exposure to absolute maximum ratings conditions for extended periods may affect device reliability.

ELECTRICAL CHARACTERISTICS (DG211)

(V⁺ = +15V, V⁻ = -15V, GND = 0V, T_A = +25°C, unless otherwise noted)

M_A	OV.CO			.001.00		001.		
	PARAMETER	SYMBOL	TES	T CONDITIONS	MIN (Note 4)	TYP (Note 5)	MAX	UNITS
	Analog Signal Range	V _{ANALOG}		N. I CON	-15		15	V
	Drain-Source ON Resistance	r _{DS (on)}	V _D = ±10V, V	I _{IN} = 0.8V, I _S = 1mA	17.77	115	175	Ω
	Source OFF Leakage Current		V _{IN} = 2.4V	V _S = 14V, V _D = -14V	W	0.01	5.0	10
픗	Source OFF Leakage Current	I _{S (off)}	VIN - 2.4V	V _S = -14V, V _D = 14V	-5.0	-0.02		$M \cdot r$
SWITCH	D OFF () O	100)/ = 2.4\/	V _S = 14V, V _D = -14V	TIM	0.01	5.0	nA
Š	Drain OFF Leakage Current	D (off)	V _{IN} = 2.4V	V _S = -14V, V _D = 14V	-5.0	-0.02	W.	nA.
	Drain ON Leakage Current	1.3	V _S = V _D = 14	V, V _{IN} = 0.8V	COMP	0.1	5.0	WIXE
	(Note 6)	D (on)		4V, V _{IN} = 0.8V	-5.0	-0.15	V	
	Input Current With Input	141.	V _{IN} = 2.4V	W. P.	-1.0	-0.0004		
5	Voltage High	INH	V _{IN} = 15V	100		0.003	1.0	μА
INPUT	Input Current With Input Voltage Low	I _{INL}	V _{IN} = 0V	WW 100	-1.0	-0.0004		MW
	Turn-ON Time	ton	Se	e Switching Time	OY.C	460	1000	
	T. OFF TOTAL	t _{off1}	-	Test Circuit	-1 CC	360	500	ns
	Turn-OFF Time	t _{off2}	V _S = 2V	$'$, R _L = 1k Ω , C _L = 35pF	$0_{0_{X}}$	450		
⊆	Source OFF Capacitance	C _{S (off)}	V _S - 0V, V _{IN}	= 5V, f = 1MHz	O.V.C	5	11	4
DYNAMIC	Drain OFF Capacitance	C _{D (off)}	V _D = 0V, V _{IN}	= 5V, f = 1MHz	100	5		pF
2	Channel ON Capacitance	C _{D-S(on)}	V _D = V _S = 0'	V , $V_{1N} = 0V$, $f = 1MHz$	1007	16		1
	OFF Isolation (Note 7)	OIRR	V = 5V P	= 1kΩ, C _L = 15pF,	1.1	70		
	Crosstalk (Channel to Channel)	CCRR	V _S = 1VRMS	5, f = 100kHz	W.100	90	V.T.	dB ∐∷
<u>></u>	Positive Supply Current	1001+.			10U	0.35	0.48	
SUPPLY	Negative Supply Current	- AFX.	V _{IN} = 0V an	d 2.4V	1	0.30	0.48	mA
S	Logic Supply Current	V John.	COMP.		MIN.II	0.5	1.2	

The algebraic convention whereby the most negative value is a minimum, and the most positive is a maximum, is used in this Note 4: data sheet

Typical values are for DESIGN AID ONLY, not guaranteed nor subject to production testing Note 5:

I_{D(on)} is leakage from driver into "ON" switch. Note 6:

 $\frac{V_S}{V_L}$, V_S = input to OFF switch, V_D = output. OFF Isolation = 20 log $\frac{\sqrt{S}}{V_D}$

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Quad SPST CMOS Analog Switches

Quad

◆ Significantly Reduced Power Consumption

- ♦ Third (Logic) Supply Not Required
- **♦** Fault Protected

ABSOLUTE MAXIMUM RATINGS (DG211) This device conforms to the Absolute Maximum Ratings on the adjacent page.

ELECTRICAL CHARACTERISTICS (DG211): Specifications below satisfy or exceed all "tested" parameters on adjacent page.

 $(V^+ = +15V, V^- = -15V, GND = 0V, T_A = +25^{\circ}C, unless otherwise noted)$

W.	CONT			CON TO	1	A CY		
	PARAMETER	SYMBOL	TES	ST CONDITIONS	MIN (Note 4)	TYP (Note 5)	MAX	UNITS
	Analog Signal Range	V _{ANALOG}	TAN	100 r. 20M.)	-15		15	V
W	Drain-Source ON Resistance	r _{DS (on)}	V _D = ±10V, \	I _{IN} = 0.8V, I _S = 1mA		115	175	Ω
1	Source OFF Leakage Current		V _{IN} = 2.4V	V _S = 14V, V _D = -14V		0.01	5.0	1
SWITCH	Source Of Leakage Outlett	S (off)	110 2	V _S = -14V, V _D = 14V	-5.0	-0.02		1.100
SW	Drain OFF Leakage Current	N.	V _{IN} = 2.4V	V _S = 14V, V _D = -14V	WT	0.01	5.0	nA
	Drain OFF Leakage Current	D (off)	VIN - 2.4V	V _S = -14V, V _D = 14V	-5.0	-0.02		Willes
	Drain ON Leakage Current	In	V _S = V _D = 14	IV, V _{IN} = 0.8V	MIL	0.1	5.0	XX 10
	(Note 6)	I _{D (on)}	V _S = V _D = -1	4V, V _{IN} = 0.8V	-5.0	-0.15		
	Input Current With Input	I _{INH}	V _{IN} = 2.4V	W.100	-1.0	-0.0004		
INPUT	Voltage High	INH	V _{IN} = 15V	1007.		0.003	1.0	μΑ
Ž	Input Current With Input Voltage Low	I _{INL}	V _{IN} = 0V		-1.0	-0.0004	-	WWW
	Turn-ON Time	t _{on}	Se Se	e Switching Time	CO_{2s}	460	1000	
	Turn-OFF Time	t _{off1}	Test Circuit			360	500	ns
	Idili-OFF Tillie	t _{off2}	V _S = 2V	$I_{\rm L} = 1 \text{k} \Omega$, $C_{\rm L} = 35 \text{pF}$		450		
DYNAMIC	Source OFF Capacitance	C _{S (off)}		= 5V, f = 1MHz	CO	5	<u></u>	
ž	Drain OFF Capacitance	C _{D (off)}	$V_D = 0V, V_{IN}$	= 5V, f = 1MHz	00x.	5		pF
Ó	Channel ON Capacitance	C _{D·S(on)}	$V_D = V_S = 0$	V, V _{IN} = 0V, f = 1MHz	av.C	16		
	OFF Isolation (Note 8)	OIRR	V = 5V B.	= 1kΩ, C _L = 15pF,	300	70	-1	\
	Crosstalk (Channel to Channel)	CCRR	V _S = 1VRMS	S, f = 100kHz	1100X.	90	LM.	dB
	Positive Supply Current	11	WT	Al IV	1007	0.02	0.1	
۲	Negative Supply Current	5.00	V _{IN} = 0V and	d 2.4V	W.r.	0.01	0.1	mA
SUPPLY	Logic Supply Current	100 li	ΔM_{\star}^{T}	N. T.	TAI 100	0.0	0.0	
S	Power Supply Range for Continuous Operation	VOP	M.T	M MN	±4.5	OXICO	±18	v

Note 8: Electrical characteristics, such as ON Resistance, will change when power supplies, other than ±15V, are used.



Quad SPST CMOS Analog Switches

ABSOLUTE MAXIMUM RATINGS (MAX331, DG201A)

Voltages Referenced to V⁻	Storage Temperature65°C to +150°C
V ⁺ 44V	Power Dissipation (Note 2)
GND 25V	16 Pin CERDIP (Note 3) 900mW
Digital Inputs (Note 1), V _S , V _D 2V to (V ⁺ +2V)	16 Pin Plastic DIP (Note 4)
or 20mA, whichever occurs first	16 Pin Small Outline (SE) (Note 5) 400mW
Current, Any Terminal Except S or D	Division of CO
Continuous Current, S or D	Note 1: Signals on S _x , D _x , or IN _x exceeding V ⁺ or V ⁻ on Maxim's
Peak Current, S or D	MAX331 and DG201A will be clamped by internal diodes,
(Pulsed at 1msec, 10% duty cycle max.)	and are also internally current limited to 25mA.
Operating Temperature	Note 2: Device mounted with all leads soldered to PC board.
DG201A (A Suffix)55°C to +125°C	Note 3: Derate 12mW/°C above +75°C.
(B Suffix)25°C to +85°C	Note 4: Derate 6.5mW/°C above +25°C.
(C Suffix) 0°C to +70°C	Note 5: Derate 7mW/°C above +25°C.
MAX331MJE55°C to +125°C	

Stresses listed under "Absolute Maximum Ratings" may be applied (one at a time) to devices without resulting in permanent damage. These are stress ratings only, and functional operation of the device at these or any other conditions above those indicated in the operational sections of the specifications is not implied. Exposure to absolute maximum ratings conditions for extended periods may affect device reliability.

ELECTRICAL CHARACTERISTICS (DG201A)

 $(V^+ = +15V, V^- = -15V, GND = 0V, T_A = +25^{\circ}C, unless otherwise noted)$

4	1001			1	007.	-1	TW	LI	VITS		AT 1	01.	
	PARAMETER	SYMBOL	TEST	CONDIT	TIONS C	ON	DG201A	A	D	G201AB	,C	UNITS	
	CA TOOM	STMBOL	1231	TWW.	IONS		TYP) (Note 7)	MAX	MIN (Note 6	TYP) (Note 7)	MAX	UNITS	
MA.	Analog Signal Range	V _{ANALOG}		- XIX	V.100	-15	M·F	15	-15		15	V	
	Drain-Source ON Resistance	r _{DS (on)}	V _D = ±10V, V	V _{IN} = 0.8V	, I _S = 1mA		115	175		115	200	N OO	
- 1	Source OFF Leakage	TIM	V _{IN} = 2.4V	V _S = 14V, V _D = -14V		Y.	0.01	1.0		0.01	5.0	- 1	
Ď.	Current	S (off)	V _{IN} - 2.4V	V _S = -1	$S = -14V, V_D = 14V$		-0.02		Q -			111.	
SWITCH	Drain OFF Leakage	Time	V _{IN} = 2.4V	V _S = 14	V, V _D = -14V	0 7.	0.01	1.0		0.01	5.0	пA	
U)	Current	D (off)	V _{IN} - 2.40	V _S = -1	4V, V _D = 14V	-5.0	-0.02	- 1				nA	
	Drain ON Leakage	LOW.	$V_S = -14V, V_{IN} = 0.8V$		00	0.1	1.0	-41	0.1	5.0			
	Current (Note 8)	D (on)	V _D = 14V, V _I	N = 0.8V	MAL	-1.0	-0.15	100	-5.0	-0.15			
	Input Current With	4 $^{\circ}$ CO $_{\lambda_{0}}$	V _{IN} = 2.4V		-3111	-1.0	-0.0004	Ob	-1.0	-0.0004		WW	
INPUT	Input Voltage High	INH	V _{IN} = 15V			110	0.003	1.0	1.7	0.003	1.0	μΑ	
Ϋ́	Input Current With Input Voltage Low	V I _{INL}	V _{IN} = 0V	-1.0	-0.0004	<u>~</u>	-1.0	-0.0004					
	Turn-ON Time	ton	See S	Switching Time			480	600	-11	480	600	ns	
	Turn-OFF Time	t _{off1}	OM	Test Circi	uit	M.	370	450	Diam	370	450	113	
	Charge Injection	1000	C _L = 10	000pF, V _G R _{GEN} = 0.	iEN = 0V, Ω	WV	20	¥.	OM	20	Ī	рС	
DYNAMIC	Source OFF Capacitance	C _{S (off)}	V _S = 0V, V _{IN}	= 5V			5		COJ	5			
ž	Drain OFF Capacitance	C _{D (off)}	15 JI, VIN	7	f = 140kHz	14.	5	00 ×		5		ρF	
۵	Channel ON Capacitance	C _{D (on)} + C _{S (on)}	V _D = V _S = 0V	, V _{IN} = 0V		WV	16	100	I.C.	16	LIN		
	OFF Isolation	A MARS	V _{IN} = 5V, Z _L	= 75Ω	N	W	70	400	N.U	70	TV		
	Crosstalk (Channel to Channel)	MMIA	V _S = 2.0V, f	100kHz	V		90	1.10	nY.	90		dB	
ح <u>ا</u>	Positive Supply Current	I [‡]	All Channel	s ON or	OFF		0.9	2	V	0.9	2	mA	
SUP.	Negative Supply Current	l-	1001.0	- 1		-1	-0.3		-1	-0.3		1	

Note 6: The algebraic convention whereby the most negative value is a minimum, and the most positive is a maximum, is used in this data sheet.

Note 7: Typical values are for DESIGN AID ONLY, not guaranteed nor subject to production testing.

Note 8: $I_{D(on)}$ is leakage from driver into "ON" switch.

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- WWW.100Y.COM.TW WWW.100Y.COM.TW ♦ Significantly Reduced Power Consumption
- **♦ Lower Input Current Over Temperature**
- ♦ No Input Current Spike

ABSOLUTE MAXIMUM RATINGS (MAX331, DG201A) This device conforms to the Absolute Maximum Ratings on the adjacent page.

ELECTRICAL CHARACTERISTICS (MAX331, DG201A): Specifications below satisfy or exceed all "tested"

(V⁺ = +15V, V⁻ = -15V, GND = 0V, T_A = +25°C, unless otherwise noted)

W	To COMP.	d .	MAIN. TOOK.		ON CO		V	LI	MITS	11/4	. 00	K.C
	PARAMETER	SYMBOL	TEST	CONDIT	IONS	MAX	331/DG2	201AA	D	G201AB	,C	UNITS
	V 100Y.CO.	W .	MM	-W.1	001.00	MIN (Note 6	TYP (Note 7)	MAX		TYP) (Note 7)	MAX	107
	Analog Signal Range	V _{ANALOG}			100 X.C	-15	TV	15	-15	1	15	V
	Drain-Source ON Resistance (Note 9)	r _{DS (an)}	V _D = ±10V, V	_{IN} = 0.8V,	I _S = 1mA	COF	115	175		115	200	Ω
ᆽ	Source OFF Leakage	le a vil	V _{IN} = 2.4V	V _S = 14	V, V _D = -14V	CU	0.01	1.0		0.01	5.0	- 0
SWITCH	Current	S (off)	VIN - 2.4V	V _S = -14	4V, V _D = 14V	-1.0	-0.02		-5.0	-0.02		1.70
S	Drain OFF Leakage	I _D (off)	V _{IN} = 2.4V		$V_{1}V_{D} = -14V$	N.C.	0.01	1.0		0.01	5.0	-1
	Current	.D (0H)	-1	VS 1	4V, V _D = 14V	-1.0	-0.02		-5.0	-0.02		nA
	Drain ON Leakage	I _D (on)	V _S = -14V, V _{II}		- 41	0 7.	0.1	1.0		0.1	5.0	TV
	Current (Note 8)	(611)	$V_D = 14V, V_{IN}$	= 0.8V	11 11.	-1.0	-0.15		-5.0	-0.15		M. J.
_	Input Current With	TINH	V _{IN} = 2.4V		N.	-1.0	-0.0004	Mr.,	-1.0	-0.0004		W
INPUT	Input Voltage High	Com	V _{IN} = 15V		N Y	400	0.003	1.0	211	0.003	1.0	μА
Z	Input Current With Input Voltage Low	J. CINE	V _{IN} = 0V			-1.0	-0.0004		-1.0	-0.0004		NW
	Turn-ON Time	ton	See S	See Switching Time Test Circuit		10.2	480	600		480	600	ns
	Turn-OFF Time	t _{off1}	Te Te			$\propto 1.1$	370	450	M.r	370	450	ns
	Charge Injection	O O		00pF, V _{GI} R _{GEN} = 01		TXX	20		M	20		рС
DYNAMIC	Source OFF Capacitance	C _{S (off)}	V _S = 0V, V _{IN} =	5V	W	N	5	Y.C	M	5		
Ž	Drain OFF Capacitance	C _{D (off)}	COR		f = 140kHz	MA	5			5		рF
Δ	Channel ON Capacitance	C _{D (on)} + C _{S (on)}	$V_D = V_S = 0V$	V _{IN} = 0V		NW	16	oo Y	CO	16	V	
	OFF Isolation	N.Ing	V _{IN} = 5V, Z _L =	75Ω		-101	70		or CC	70	-XXI	
	Crosstalk (Channel to Channel)	1100	V _S = 2.0V, f =	100kHz	cī	N.	90	100	×1 (90	1	dB
	Positive Supply Current	1:40	All Channels	ON or C	OFF	14	0.02	0.1	03.	0.02	0.1	
SUPPLY	Negative Supply Current	W. A.	All Channels	ON or C	OFF	-0.1	-0.01		-0.1	-0.01		mA
SUF	Power Supply Range for Continuous Operation	V _{OP}	ON CO	M	TV	±4.5	WW	±18	±4.5	_	±18	v

The algebraic convention whereby the most negative value is a minimum, and the most positive is a maximum, is used in

Note 7: Typical values are for DESIGN AID ONLY, not guaranteed nor subject to production testing.

Note 8:

 $I_{D(on)}$ is leakage from driver into "ON" switch. Electrical characteristics, such as ON Resistance, will change when power supplies other than ± 15 V, are used.



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ELECTRICAL CHARACTERISTICS (DG201A)

	W. T. V.	14	1.100	COMP.		7	LIN	IITS	- 0	OM	. 1
	PARAMETER	SYMBOL	TEST	D	G201AA	Na.	DG201AB,C			UNITS	
	COM	WW	W.7020	MIN (Note 6) (MAX	MIN TYP (Note 6) (Note 7)		MAX		
	Analog Signal Range	V _{ANALOG}	1111.12	COM.	-15		15	-15	- 05	15	٧
	Drain-Source ON Resistance	r _{DS (on)}	V _D = ±10V, \	/ _{IN} = 0.8V, I _S = 1mA			250	NW.	100	250	Ω
CH	Source OFF Leakage		V _{IN} = 2.4V	V _S = 14V, V _D = -14V	4		100		1.100	100	Mor
SWITCH	Current	Is (off)	VIN - 2.4V	V _S = -14V, V _D = 14V	-100		V	-100	- 40		
S	Drain OFF Leakage		V _{IN} = 2.4V	V _S = 14V, V _D = -14V	- 1	100		-TXT	100		
	Current	D (off)	VIN - 2.4V	$V_S = -14V, V_D = 14V$	-100			-100	1	00,3	nA
	Drain ON Leakage		V _S = -14V, V	V _S = -14V, V _{IN} = 0.8V			200	W	A Ass.	200	V.C
	Current (Note 10)	D (on)	V _D = 14V, V _{II}	N = 0.8V	-200			-200			- 0
1	Input Current With	N.	V _{IN} = 2.4V	V _{IN} = 2.4V		W		-10		10	01.0
INPUT	Input Voltage High	INH	V _{IN} = 15V	-10			-10			μΑ	
Ž	Input Current With Input Voltage Low	I _{INL}	V _{IN} = 0V	MM.1001.	-10	I A.		-10	-3111	W.1	μη.

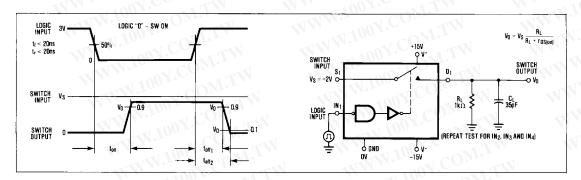
Note 10: ID(on) is leakage from driver into "ON" switch.

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Switching Time Test Circuit

Switch output waveform shown for $V_S = \mbox{constant}$ with logic input waveform as shown. Note that V_S may be +ve or -ve as per switching times test circuit.

Vo is the steady state output with switch on. Feedthrough via gate capacitance may result in spikes at leading and trailing edge of output waveform.



Typical R_{DS(ON)} vs. Power Supplies for Maxim's MAX331, DG201A and DG211

POWER SUPPLIES	R _{DS(ON)} AT ANALOG SIGNAL LEVEL									
FOWER SUPPLIES	-5V	+5V	-10V	+10V	-15V	+15V				
±5V	350Ω	380Ω	(1,7,4)							
=10V		CO.	165Ω	250Ω						
±15V		00	125Ω	160Ω	135Ω	155Ω				

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WWW.100Y.COM.TW WWW.100Y.COM.T **ELECTRICAL CHARACTERISTICS (MAX331, DG201A):**

W	· · · · · · · · · · · · · · · · · · ·		10		LIMITS						
	PARAMETER	SYMBOL	TEST	MAX	331/DG20	1AA	DG201AB,C			UNITS	
	PARAMETER	STMBOL	MBOL TEST CONDITIONS			TYP (Note 7)	MAX	MIN TYP MAX (Note 6) (Note 7)			
1.1	Analog Signal Range	V _{ANALOG}	WINT	'ie COM	-15	II.	15	-15	M°	15	V
	Drain-Source ON Resistance (Note 11)	r _{DS (on)}	V _D = ±10V, \	V _{IN} = 0.8V, I _S = 1mA	I'I'		250	- 17	NW	250	Ω
	Source OFF Leakage	All .	V _{IN} = 2.4V	$V_{S} = 14V, V_{D} = -14V$	1.1	7	100			100	
동	Current	S (off)		V _S = -14V, V _D = 14V	-100			-100			1.1
SWITCH	Drain OFF Leakage	1.7	V = 2.4V	$V_S = 14V, V_D = -14V$ $V_S = -14V, V_D = 14V$	V		100		100		nA
ဟ	Current	D (off)	V _{IN} - 2.4V	$V_S = -14V, V_D = 14V$	-100	TW		-100	<u> </u>	- 1	00,7
	Drain ON Leakage		V _S = -14V, V	1 _{IN} = 0.8V	$O_{D_{i}}$		200		4XI	200	1.00
	Current (Note 10)	D (on)	V _D = 14V, V _I	_N = 0.8V	-200	11.7		-200			700
₹X	Input Current With	Was	V _{IN} = 2.4V				W	-1.0	W	14.	- 10
5	Input Voltage High	INH	V _{IN} = 15V		1.0				1.0	μА	
TUPUT	Input Current With Input Voltage Low	I _{INL}	V _{IN} = 0V	W 100	-1.0	OM.	LA	-1.0		N T	W.1

Note 10: I_{D(on)} is leakage from driver into "ON" switch.

Note 11: Electrical characteristics, such as ON Resistance, will change when power supplies other than ±15V, are used.

Protecting Against Fault Conditions

Fault conditions occur when power supplies are turned off when input signals are still present or when over voltages occur at the inputs during normal operation. In either case, source-to-body diodes can be forward biased and conduct current from the signal source. If this current is required to be kept to low (µA) levels then the addition of external protection diodes is recommended.

To provide protection for over-voltages up to 20V above the supplies, a 1N4001 or 1N914 type diode should be placed in series with the positive and negative supplies as shown in Fig. 1. The addition of these diodes will reduce the analog signal range to 1 volt below the positive supply and 1 volt above the negative supply.

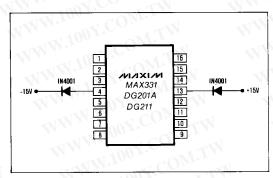
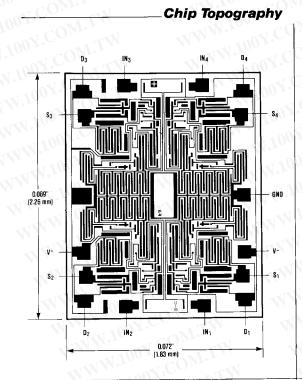
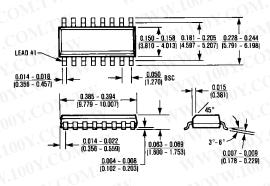


Figure 1. Protection Against Fault Conditions WWW.100Y.COM.TW WWW.100Y.COM.TW

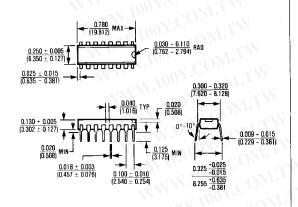
Quad SPST CMOS Analog Switches



Package Information



16 Lead Small Outline (SE) $\theta_{\rm JA}=110^{\circ}{\rm C/W}$ $\theta_{\rm JC}=60^{\circ}{\rm C/W}$



16 Lead Plastic DIP $\theta_{\rm JA} = 135^{\circ} {\rm C/W}$ $\theta_{\rm JC} = 65^{\circ} {\rm C/W}$

