



ORDERING INFORMATION		
Temp Range	Package	Part Number
-40 to 85°C	16-Pin Plastic DIP	DG441DJ
		DG442DJ
	16-Pin Narrow SOIC	DG441DY
		DG442DY
-55 to 125°C	16-Pin CerDIP	DG441AK
		DG441AK/883
		5962-9204101MEA
		DG442AK
		DG442AK/883
		5962-9204102MEA
	LCC-20	5962-9204101M2A
		5962-9204102M2A

ABSOLUTE MAXIMUM RATINGS

V+ to V-	44 V
GND to V-	25 V
Digital Inputs ^a V _S , V _D	(V-) -2 V to (V+) +2 V or 30 mA, whichever occurs first
Continuous Current (Any Terminal)	30 mA
Current, S or D (Pulsed 1 ms, 10% duty cycle)	100 mA
Storage Temperature (AK Suffix)	-65 to 150°C
(DJ, DY Suffix)	-65 to 125°C

Power Dissipation (Package) ^b	
16-Pin Plastic DIP ^c	450 mW
16-Pin CerDIP ^d	900 mW
16-Pin Narrow Body SOIC ^d	900 mW
LCC-20 ^d	1200 mW

- Notes:
- a. Signals on S_X, D_X, or I_{NX} exceeding V+ or V- will be clamped by internal diodes. Limit forward diode current to maximum current ratings.
 - b. All leads welded or soldered to PC Board.
 - c. Derate 6 mW/°C above 75°C
 - d. Derate 12 mW/°C above 25°C

SCHEMATIC DIAGRAM (TYPICAL CHANNEL)

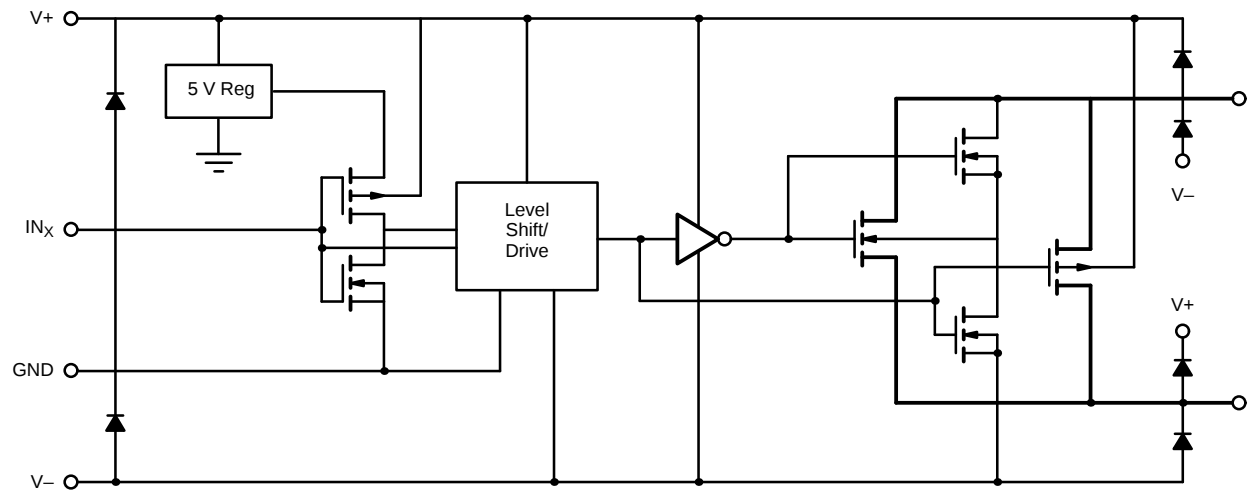


FIGURE 1.



SPECIFICATIONS ^a FOR DUAL SUPPLIES									
Parameter	Symbol	Test Conditions Unless Otherwise Specified V+ = 15 V, V– = –15 V, VIN = 2.4 V, 0.8 V ^f	Temp ^b	Typ ^c	A Suffix –55 to 125°C		D Suffix –40 to 85°C		Unit
					Min ^d	Max ^d	Min ^d	Max ^d	
Analog Switch									
Analog Signal Range ^e	VANALOG		Full		–15	15	–15	15	V
Drain-Source On-Resistance	rDS(on)	IS = –10 mA, VD = ±8.5 V V+ = 13.5 V, V– = –13.5 V	Room Full	50		85 100		85 100	Ω
On-Resistance Match Between Channels ^e	ΔrDS(on)	IS = –10 mA, VD = ±10 V V+ = 15 V, V– = –15 V	Room Full			4 5		4 5	
Switch Off Leakage Current	IS(off)	V+ = 16.5, V– = –16.5 V VD = ±15.5 V, VS = ∓15.5 V	Room Full	±0.01	–0.5 –20	0.5 20	–0.5 –5	0.5 5	nA
	ID(off)		Room Full	±0.01	–0.5 –20	0.5 20	–0.5 –5	0.5 5	
Channel On Leakage Current	ID(on)	V+ = 16.5 V, V– = –16.5 V VS = VD = ±15.5 V	Room Full	±0.08	–0.5 –40	0.5 40	–0.5 –10	0.5 10	
Digital Control									
Input Current VIN Low	IL	VIN under test = 0.8 V, All Other = 2.4 V	Full	–0.01	–500	500	–500	500	nA
Input Current VIN High	IHI	VIN under test = 2.4 V, All Other = 0.8 V	Full	0.01	–500	500	–500	500	
Dynamic Characteristics									
Turn-On Time	tON	RL = 1 kΩ, CL = 35 pF VS = ±10 V, See Figure 2	Room	150		250		250	ns
Turn-Off Time	DG441		Room	90		120		120	
	DG442		Room	110		210		210	
Charge Injection ^e	Q	CL = 1 nF, VS = 0 V Vgen = 0 V, Rgen = 0 Ω	Room	–1					pC
Off Isolation ^e	OIRR	RL = 50 Ω, CL = 5 pF f = 1 MHz	Room	60					dB
Crosstalk (Channel-to-Channel)	XTALK		Room	100					
Source Off Capacitance ^e	CS(off)	f = 1 MHz	Room	4					pF
Drain Off Capacitance ^e	CD(off)		Room	4					
Channel On Capacitance ^e	CD(on)	VANALOG = 0 V	Room	16					
Power Supplies									
Positive Supply Current	I+	V+ = 16.5 V, V– = –16.5 V VIN = 0 or 5 V	Full	15		100		100	μA
Negative Supply Current	I–		Room Full	–0.000 1	–1 –5		–1 –5		
Ground Current	IGND		Full	–15	–100		–100		

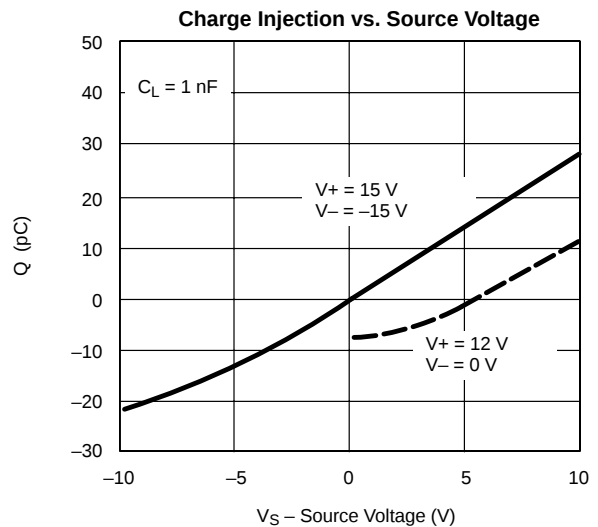
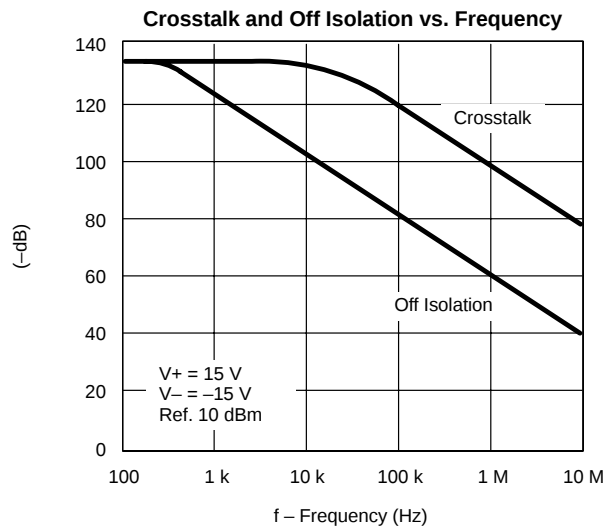
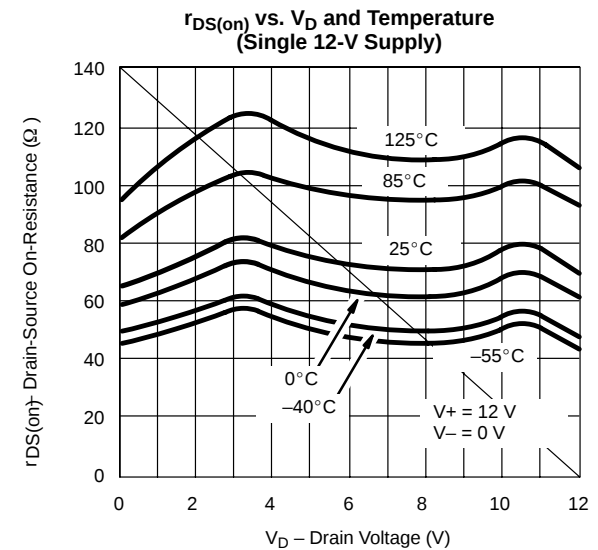
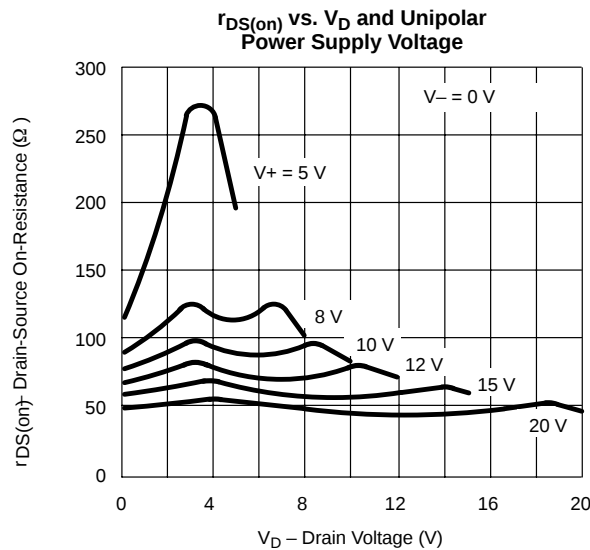
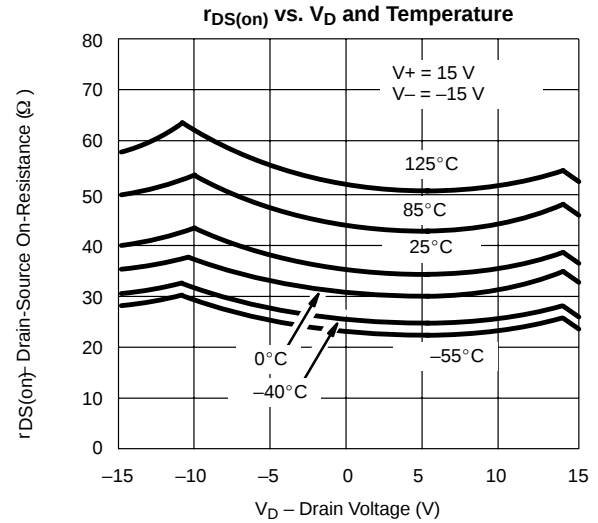
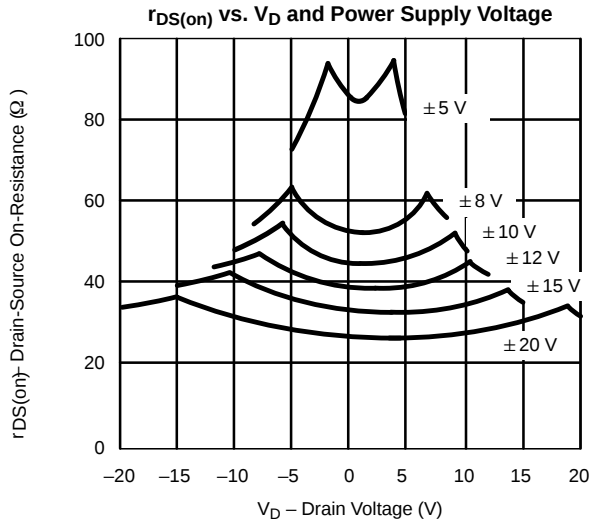
SPECIFICATIONS^a FOR SINGLE SUPPLY

Parameter	Symbol	Test Conditions Otherwise Unless Specified V+ = 12 V, V− = 0 V, VIN = 2.4 V, 0.8 V ^f	Temp ^b	Typ ^c	A Suffix −55 to 125°C		D Suffix −40 to 85°C		Unit
					Min ^d	Max ^d	Min ^d	Max ^d	
Analog Switch									
Analog Signal Range ^e	VANALOG		Full		0	12	0	12	V
Drain-Source On-Resistance	rDS(on)	IS = −10 mA, VD = 3 V, 8 V V+ = 10.8 V	Room Full	100		160 200		160 200	Ω
Dynamic Characteristics									
Turn-On Time	tON	RL = 1 kΩ, CL = 35 pF VS = 8 V, See Figure 2	Room	300		450		450	ns
Turn-Off Time	tOFF		Room	60		200		200	
Charge Injection	Q	CL = 1 nF Vgen = 6 V, Rgen = 0 Ω	Room	2					pC
Power Supplies									
Positive Supply Current	I+	V+ = 13.2 V, V− = 0 V VIN = 0 or 5 V	Full	15		100		100	μA
Negative Supply Current	I−		Room Full	−0.0001	−1 −100		−1 −100		
Ground Current	IGND		Full	−15	−100		−100		

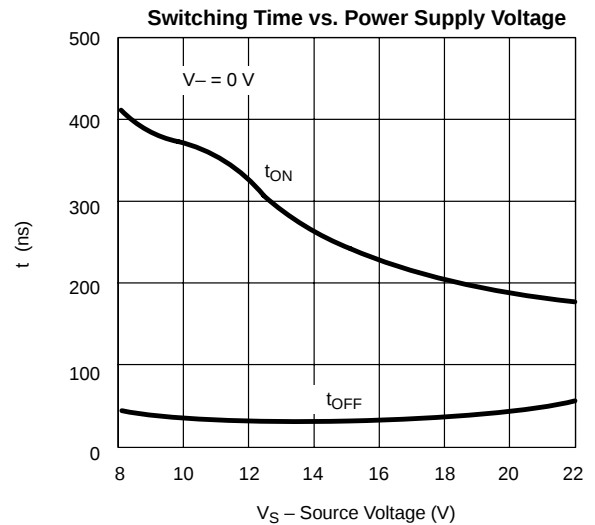
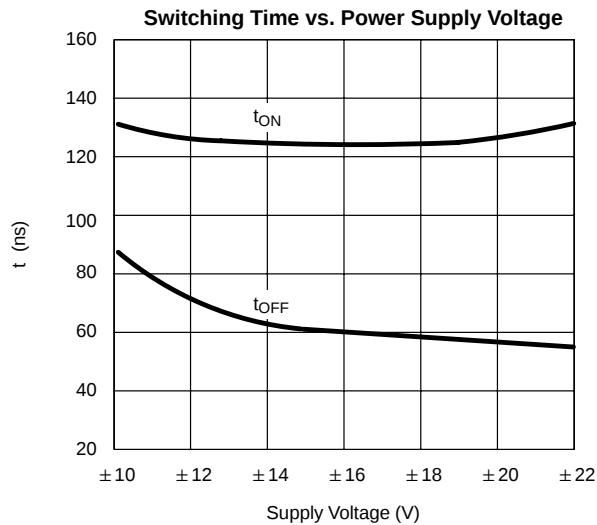
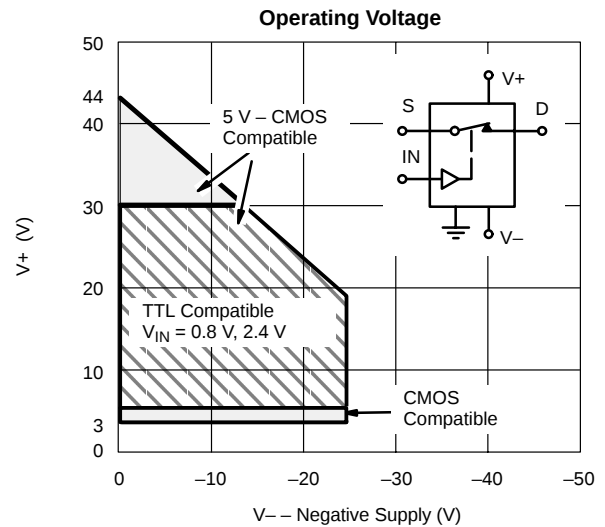
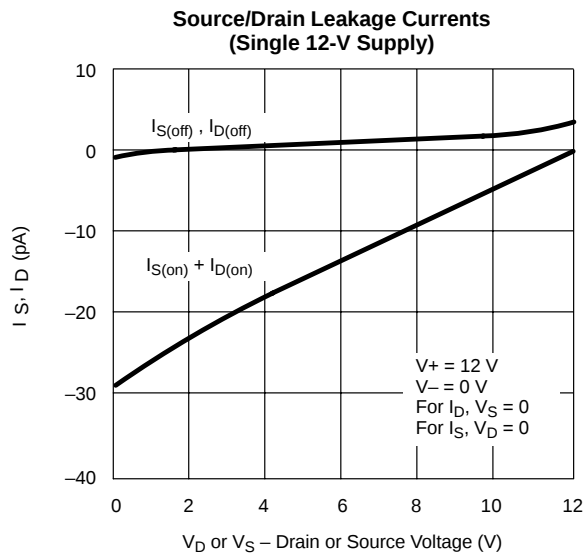
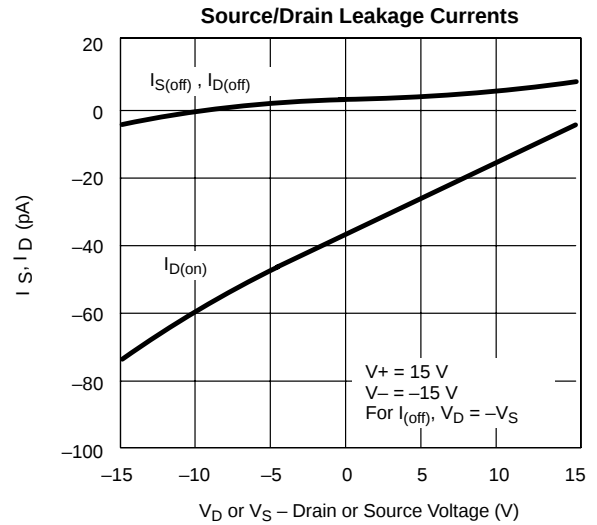
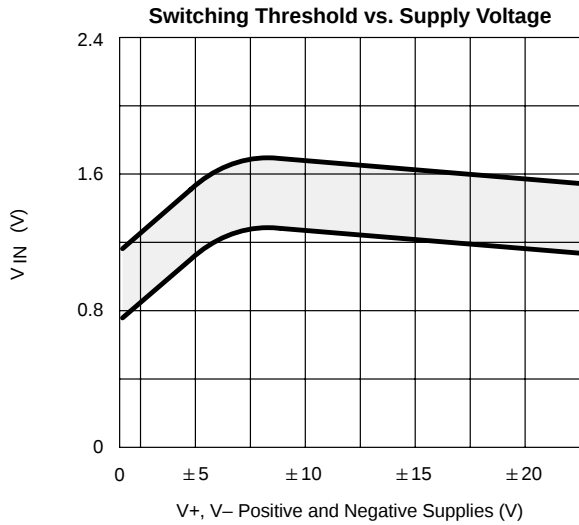
Notes:

- Refer to PROCESS OPTION FLOWCHART.
- Room = 25°C, Full = as determined by the operating temperature suffix.
- Typical values are for DESIGN AID ONLY, not guaranteed nor subject to production testing.
- The algebraic convention whereby the most negative value is a minimum and the most positive a maximum, is used in this data sheet.
- Guaranteed by design, not subject to production test.
- V_{IN} = input voltage to perform proper function.

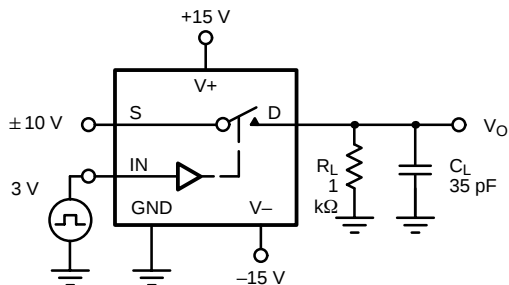
TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)



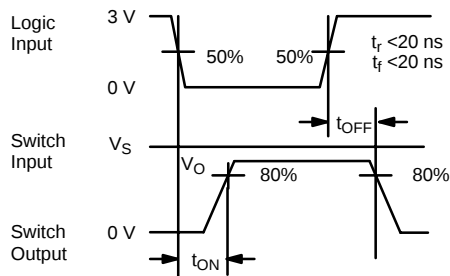
TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)



TEST CIRCUITS



C_L (includes fixture and stray capacitance)



Note: Logic input waveform is inverted for DG442.

FIGURE 2. Switching Time

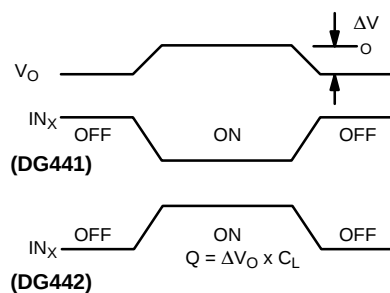
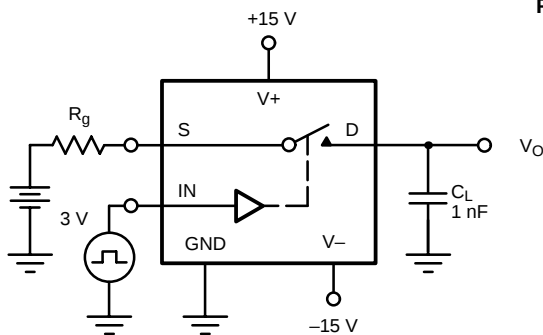


FIGURE 3. Charge Injection

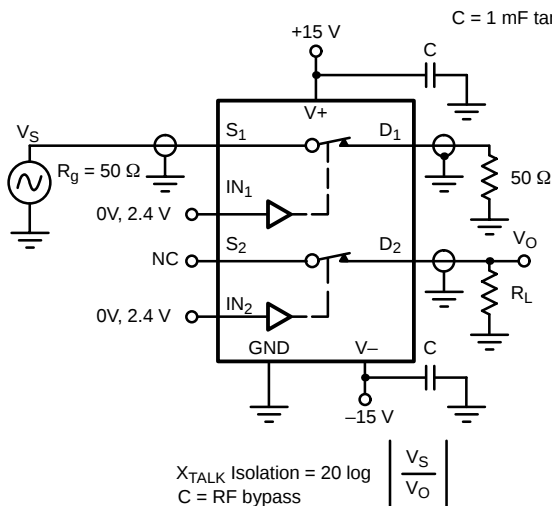


FIGURE 4. Crosstalk

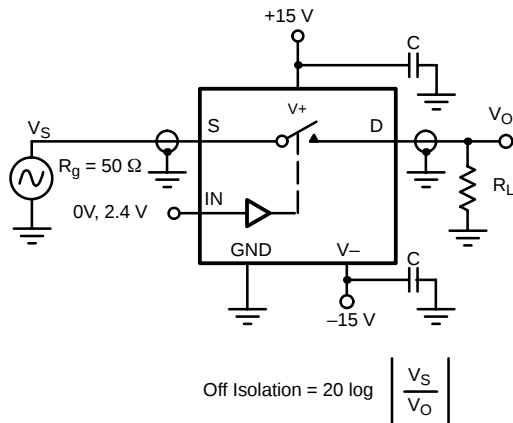


FIGURE 5. Off Isolation

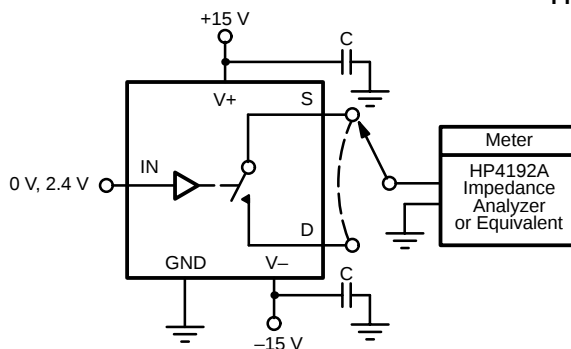


FIGURE 6. Source/Drain Capacitances

APPLICATIONS

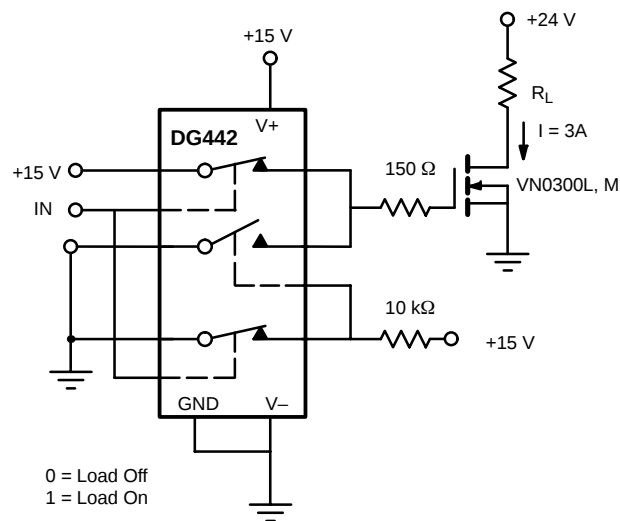


FIGURE 7. Power MOSFET Driver

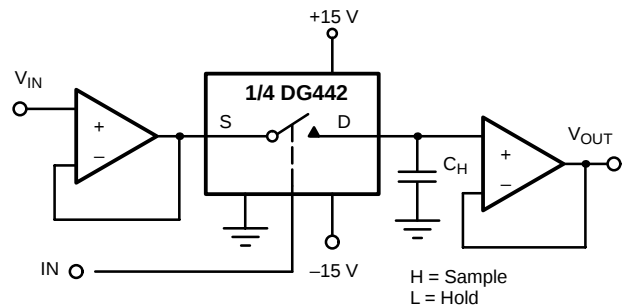


FIGURE 8. Open Loop Sample-and-Hold

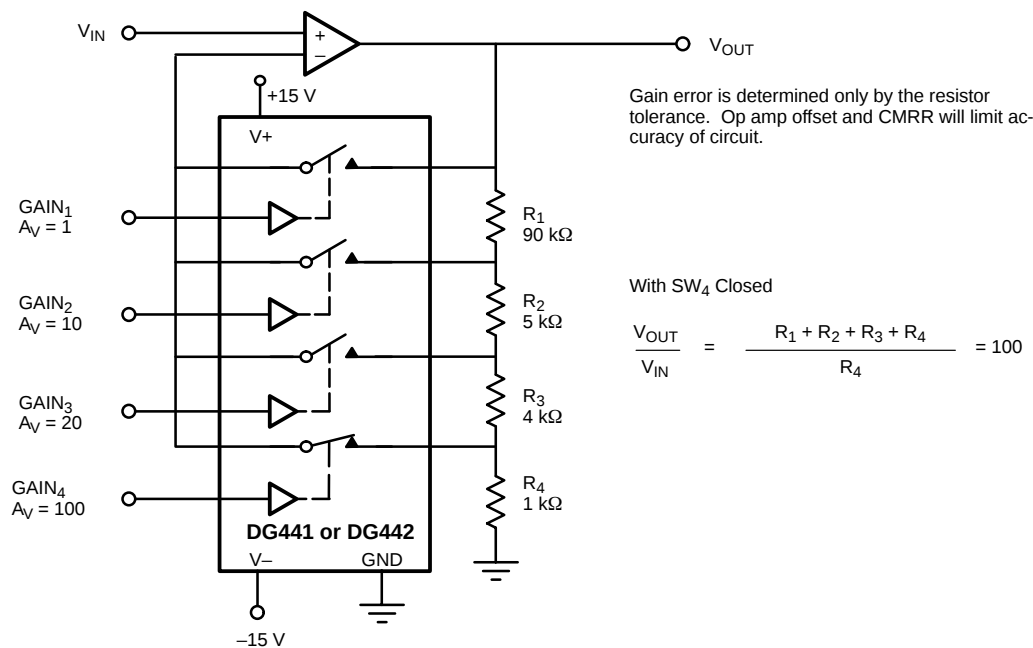


FIGURE 9. Precision-Weighted Resistor Programmable-Gain Amplifier