CA3140 BiMOS Operational Amplifier

Overview

CA3140A is a single-channel integrated operational amplifier circuit.

Combines high voltage PMOS and high voltage bipolar transistors on a single chip

Advantages of transistors.

CA3140A provides two package types: SOP8 and DIP8.

Main application areas :

IV conversion circuit **DC**

inverter welding machine

ÿ ICL7107 digital voltmeter

Main

Features CA3140A has a gate

protection MOSFET (PMOS), thus providing very high

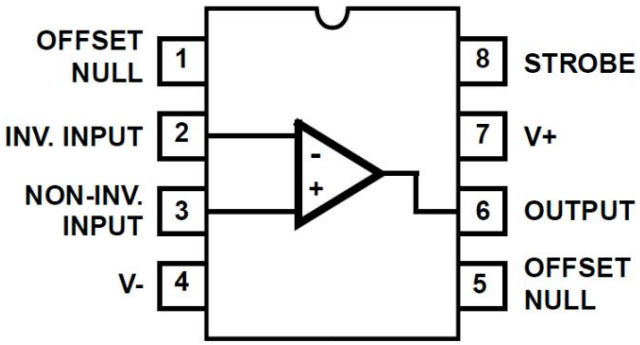
Low input impedance, extremely low input current and high speed

able.

Product Ordering Information

product name	Encapsulation	Print Name	Packaging Packing Quantity
CA3140AN	DIP8	CA3140A	Tube 2000pcs/box
CA3140AM/TR	SOP8	CA3140A	Tape 2500 pcs/reel

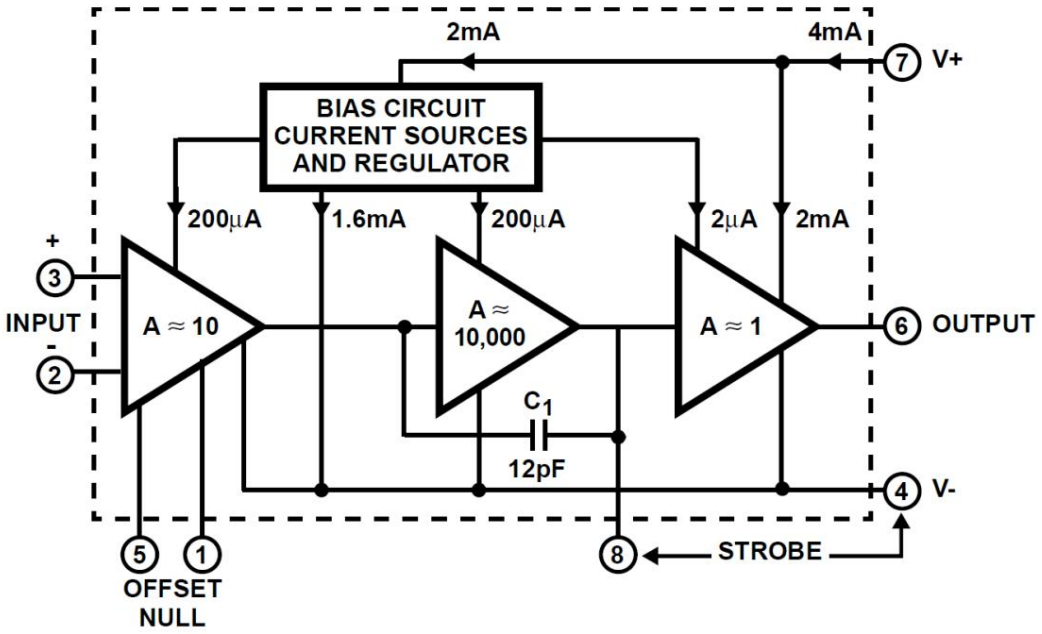
Pin Description



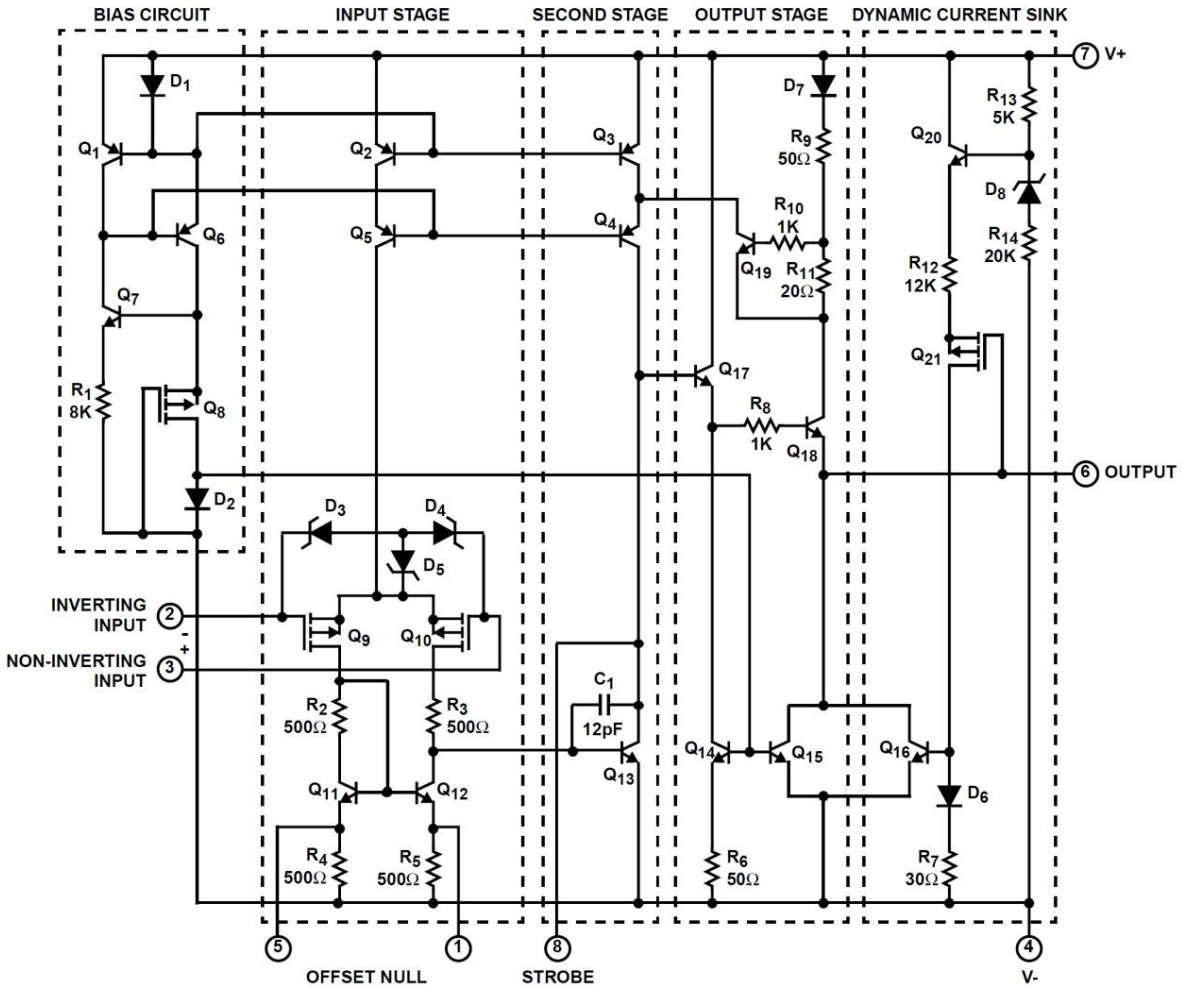
DIP8/SOP8

Pin number	Pin name	I/O Description
1	OFFSET NULL	I Offset (zero adjustment end)
2	INV.INPUT	I Inverting input terminal
3	NON-INV.INPUT	I Same direction input terminal
4	IN-	I Negative power supply
5	OFFSET NULL	I Offset (zero adjustment end)
6	OUTPUT	I Output
7	V+	P Positive power supply
8	STROBE	O Strobe

Functional Block Diagram



Structure diagram



Absolute Maximum Ratings

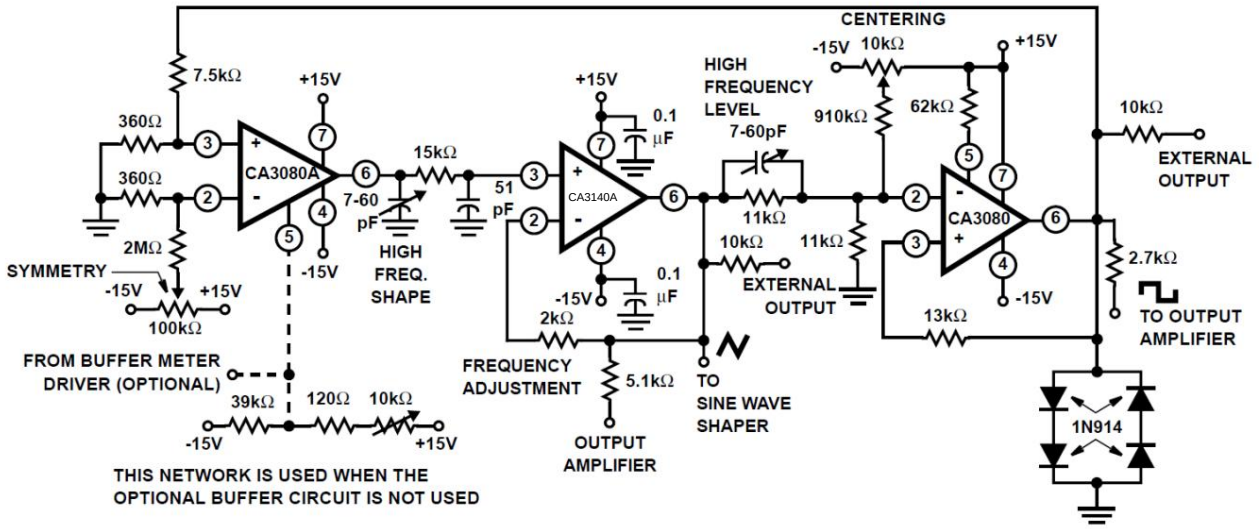
parameter	value
DC power supply voltage (between V+ and V- terminals)	36 V
Differential mode input	±8 V
voltage Common mode DC input voltage	V+ +8 V~V- -0.5 V
Input current minimum	1 mA
and maximum operating temperature	-10~85ÿ
Storage temperature resistance	-55~150ÿ

Electrical

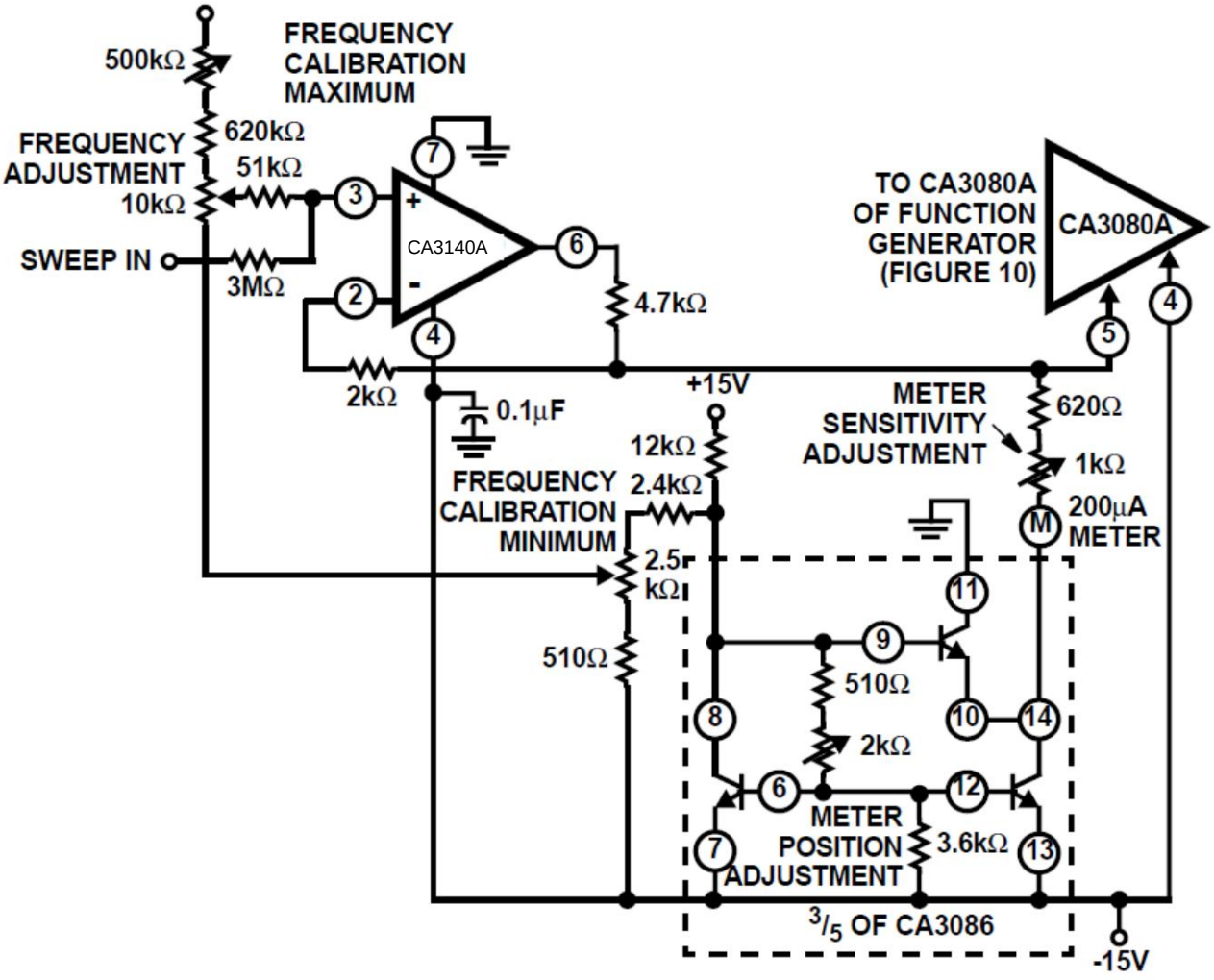
parameter conditions: (VSUPPLY = ±15 V, TA = 25°C)

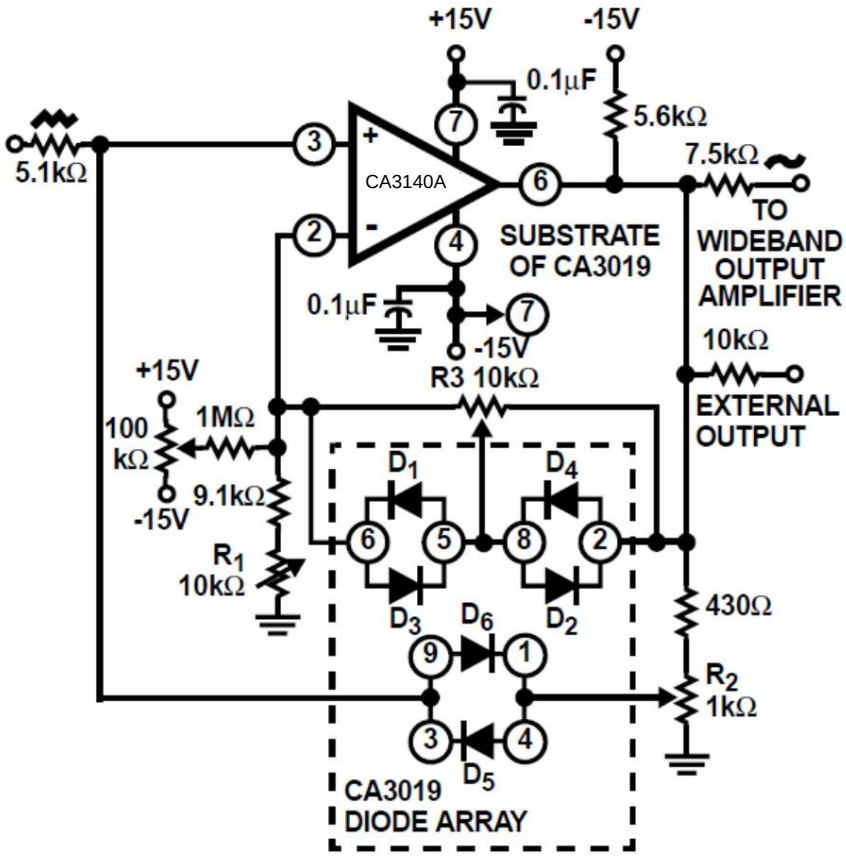
parameter	symbol	Test Conditions		Typical Value CA3140	unit
Input bias voltage adjustment resistor		When the input voltage is adjusted to the maximum, pins 4 and 5 Or the typical value of the resistance between pins 4 and 1		4.7	kÿ
Input resistance	RI			1	Tÿ
Input Capacitance	C1			4	pF
Output Resistance	RO			60	Oh
Equivalent broadband input noise voltage eN		BW=140kHzÿRS=1Mÿ		48	ÿV
Equivalent input noise voltage eN		RS=100ÿ	f=1kHz	40	nV/ÿHz
			f=10kHz	12	nV/ÿHz
The short circuit current is opposite to the supply current.	A LOT+	Source		45	mA
	A LITTLE	Sink		18	mA
Gain bandwidth	fT			4.5	MHz
times slew rate	SR			9	V/ÿs
output goes low when Current sinking from 8 terminals into 4 terminals				220	ÿA
Dynamic Response	tr	RL=2kÿ CL=100pF	Rise Time	0.08	ÿs
	YOU		Overshoot	10	%
The settling time tS at 10VP-P		RL=2kÿ CL=100pF Voltage Follower	To 1mV	4.5	ÿs
			To 10mV	1.4	ÿs

Application Circuit

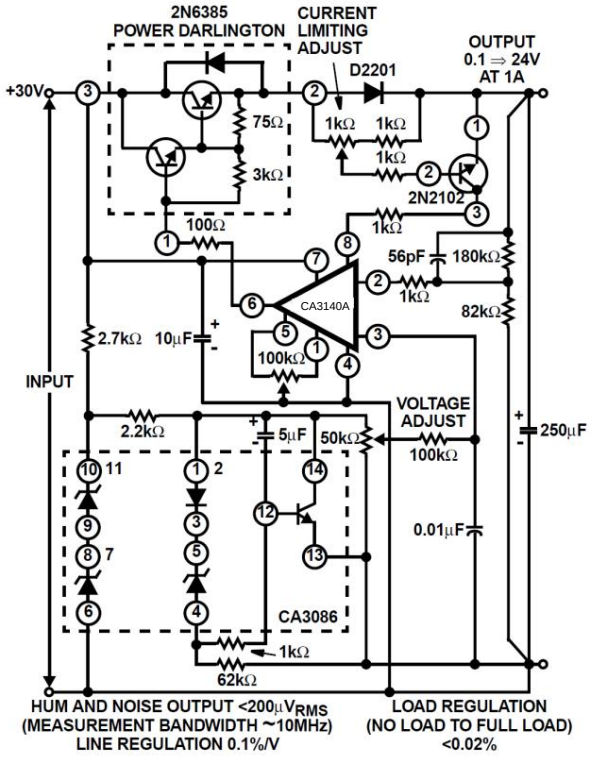


Super Scan Function Generator

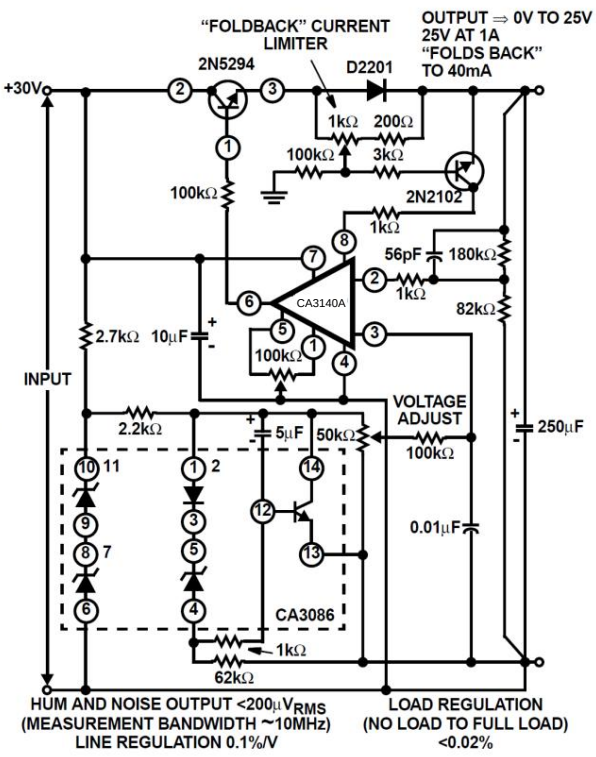




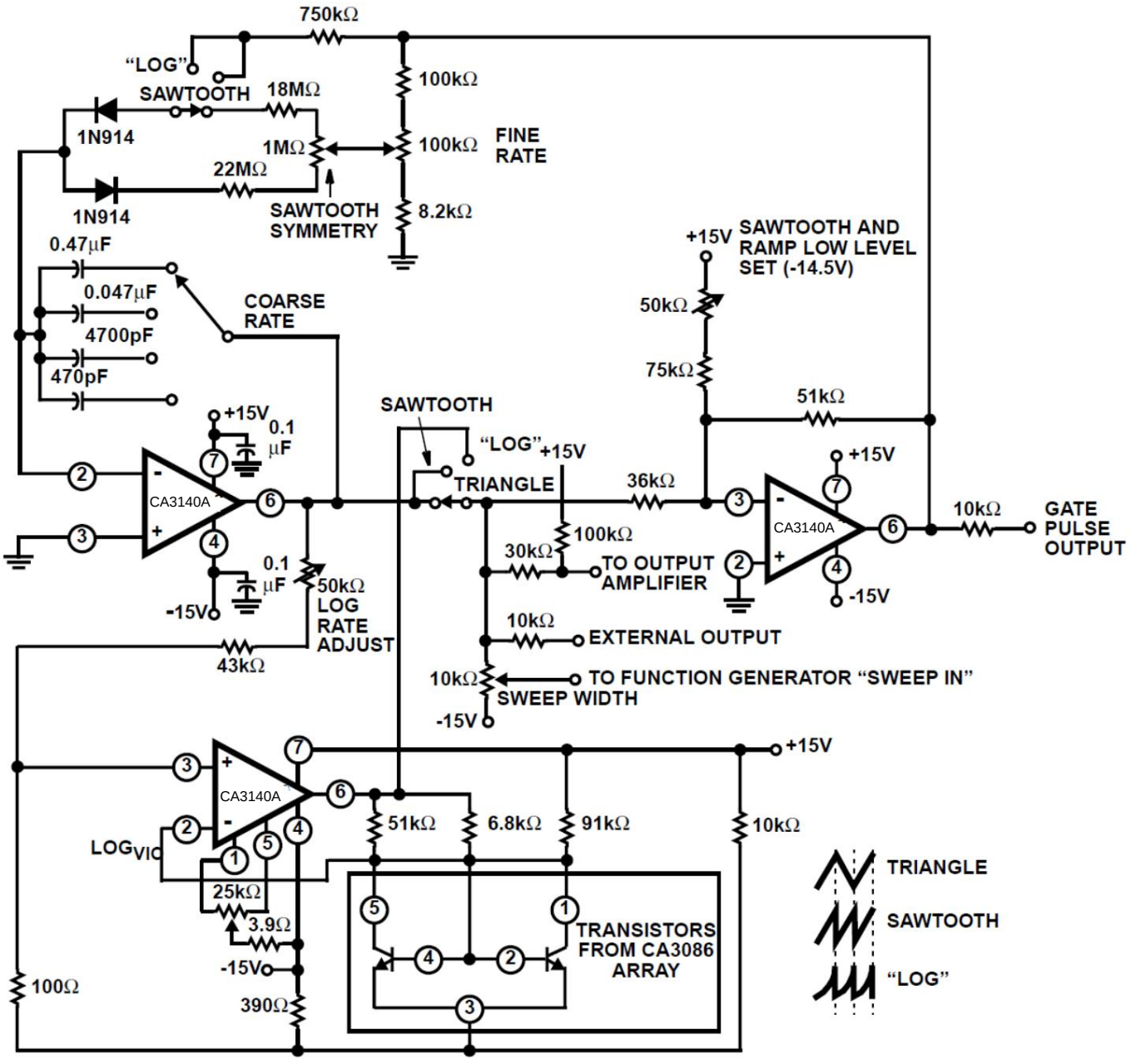
Sine wave shaper



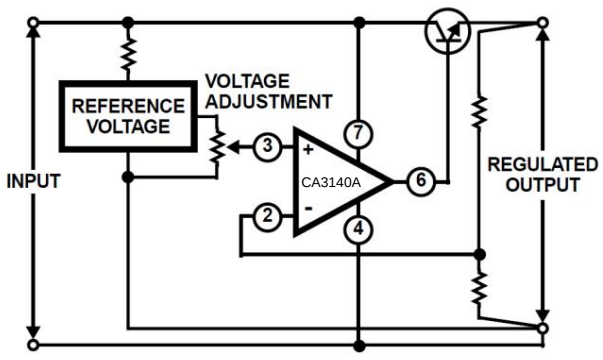
Regulated power supply circuit



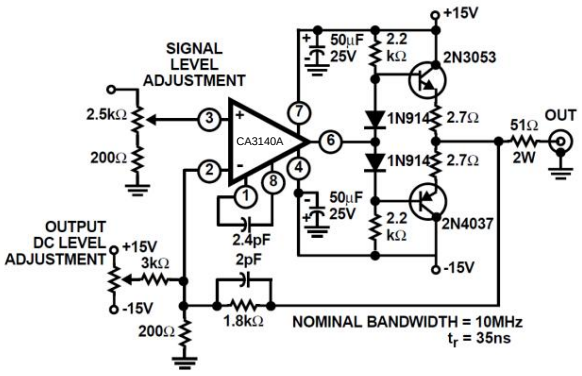
Regulated Power Supply "Foldback" Current Limiting Circuit



Scan Generator



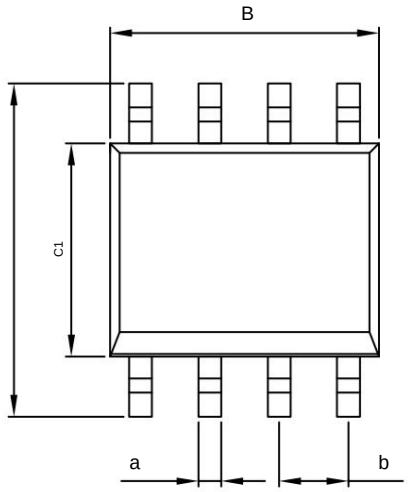
Basic Single Supply Voltage Regulator

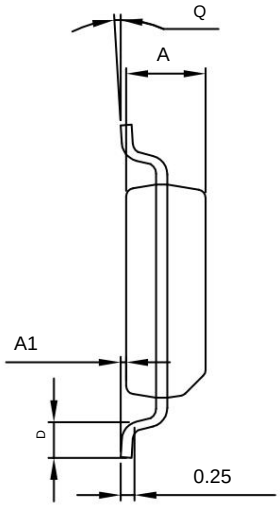


Broadband Output Amplifier

Package outline drawing

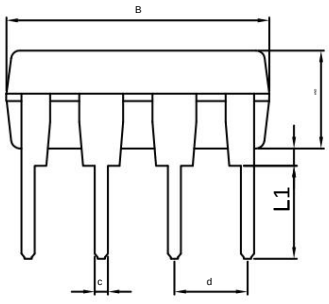
SOP8

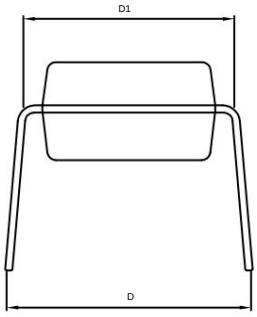


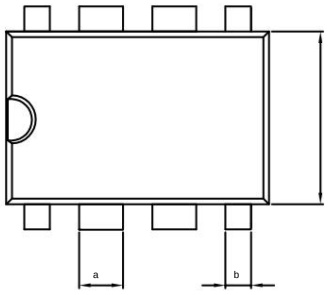


UNIT:mm							
DIM.	MIN	TYPE	MAX	DIM.	MIN	TYPE	MAX
A	4.520	4.570	4.620	0.100	0.250		
A1				b	1.260	1.270	1.280
B	4.800	4.920	5.100	Q	0°		8°
C	5.800	6.100	6.250				
C1	3.800	3.900	4.000				
D	0.400		0.950				

DIP8







UNIT:mm							
DIM.	MIN		MAX	DIM.	MIN		MAX
A	TYPE 6,100	6,300	6,680	9,000	a	TYPE 1,504	1,524	1,544
B	9,200	9,500			b		0.889	
D	8.400	8.700	9.000		c	0.437	0.457	0.477
D1	7.42	7.62	7.82		d	2.530	2.540	2.550
	3.100	3.300	3.550		L	0.500 -		0.700
					L1	3.000	3.200	3.600

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