

# KA2142

## Vertical Deflection Output Circuit

### Features

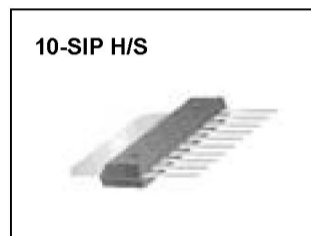
- High output current
- Pump - up circuit
- Low dissipation
- Minimum number of external parts required
- Direct drive to the deflection coils
- Internal thermal shutdown circuit

### Applications

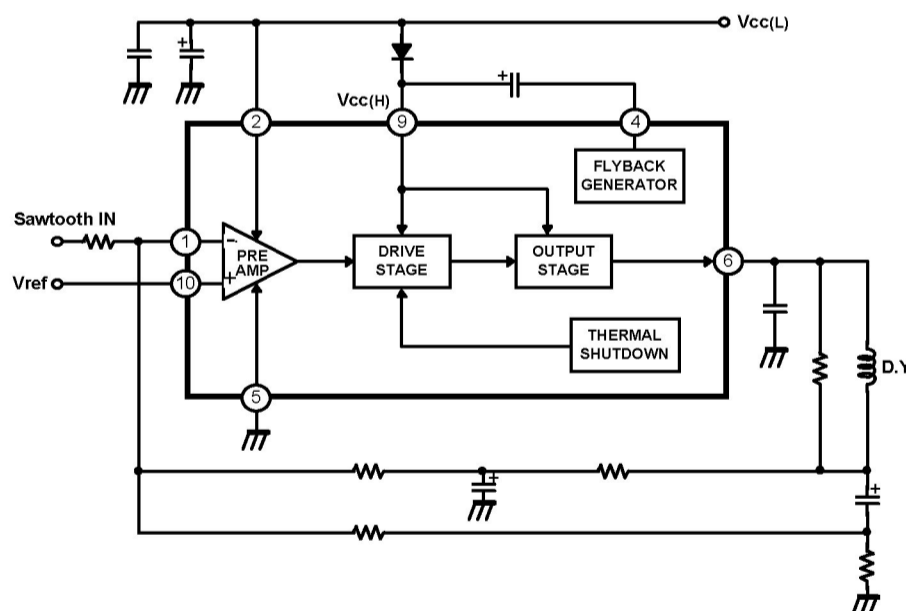
- Power Amplifier
- Thermal Protection
- Flyback Generator

### Description

The KA2142 is a monolithic linear IC designed for color TV and monitor vertical deflection output. It is intended for direct drive of the deflection coils with a high efficiency.

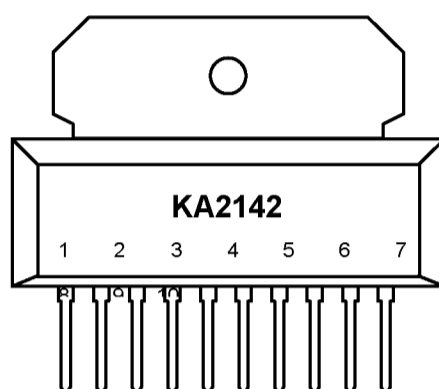


### internal Block Diagram



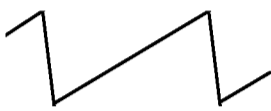
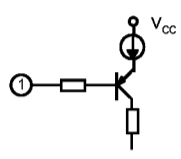

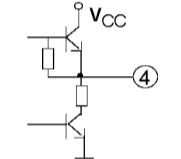
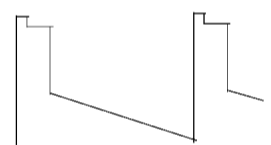
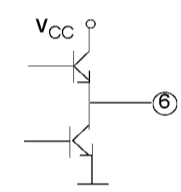
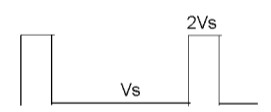
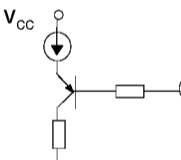
Rev. 1.0.1

## Pin Assignments



Pin Number	Pin Name	I/O	Pin Function Description
1	V <sub>in</sub> (-)	I	Inverting Input
2	V <sub>cc</sub> (L)	I	Supply Voltage
3	-	-	N.C.
4	F.G	O	Flyback Generator
5	GND	-	Ground
6	V <sub>O</sub>	O	Output
7	-	-	N.C.
8	-	-	N.C.
9	V <sub>cc</sub> (H)	I	Output Stage Supply Voltage
10	V <sub>in</sub> (+)	I	Non-Inverting Input

### PIN Definitions

Pin Number	Pin Name	WAVEFORM	EQUIVALENT CIRCUIT
1	Inverting Input		
2	Voltage Supply	DC	-
4	Flyback Generator		
5	Ground	DC	-
6	Output Voltage		
9	Output Stage Voltage Supply		-
10	Non-Inverting Input	DC	

**Absolute Maximum Rating (Ta = 25°C)**

Parameter	Symbol	Value	Unit
Supply Voltage	V <sub>cc(L)</sub>	35	V
Flyback Peak Voltage	V <sub>6</sub> , V <sub>9</sub>	70	V
Flyback Generator Voltage	V <sub>6</sub>	35	V
Input Voltage	V <sub>1</sub> , V <sub>10</sub>	V <sub>cc(L)</sub> - 0.5	V
Peak - to - Peak Output Current*	I <sub>o(p-p)</sub>	3	A
Peak - to - Peak Flyback Current ( f = 50 or 60Hz, T <sub>fb</sub> ≤ 1.5mS )	I <sub>4(p-p)</sub>	3	A
Total Power Dissipation ( Ta = 25°C )	P <sub>D</sub>	15	W
Storage Temperature Range	T <sub>stg</sub>	-40 ~ +150	°C
Operating Ambient Temperature	T <sub>opt</sub>	-25 ~ +70	°C

\* Maximum output peak to peak current in TV or Monitor set.

**Thermal Data**

Parameter	Symbol	Value	Unit
Thermal Resistance Between Junction and Case	R <sub>th(j-c)</sub>	12	°C/W
Thermal Resistance Between Junction and Ambient	R <sub>th(j-a)</sub>	60	°C/W
Thermal Shut down Temperature	T <sub>tsd</sub>	150	°C

**Electrical Characteristic**

(Refer to the test circuit , V<sub>cc(L)</sub>= 35V, unless otherwise specified)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Supply Voltage	V <sub>CC(L)</sub>	-	15	25	35	V
	V <sub>CC(H)</sub>	-	15	-	70	V
Supply Quiescent Current	I <sub>CC(L)</sub>	-	-	6	16	mA
	I <sub>CC(H)</sub>	-	-	22	36	mA
Pin4 Saturation Voltage to Gnd	V <sub>4SAT</sub>	I <sub>4</sub> = 20mA	-	0.5	1	V
Saturation Voltage to supply	V <sub>HSAT</sub>	I <sub>6</sub> = -1.2A	-	1.6	2.2	V
		I <sub>6</sub> = -0.7A	-	1.3	1.8	V
Saturation Voltage to ground	V <sub>LSAT</sub>	I <sub>6</sub> = 1.2A	-	1	1.4	V
		I <sub>6</sub> = 0.7A	-	0.7	1	V
Output Center Voltage	V <sub>MID</sub>	R <sub>1</sub> =5.6K, R <sub>fb</sub> =45K V <sub>1</sub> =V <sub>10</sub> =2V	-	18	-	V
Input Bias Current	I <sub>BIAS</sub>	V <sub>1</sub> = 1V, V <sub>10</sub> = 2V	-	-0.1	-1	μA

Typical Performance Characteristic

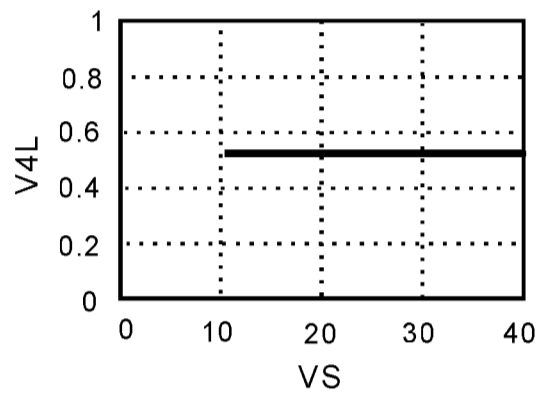


Figure 1. Vs-V4L

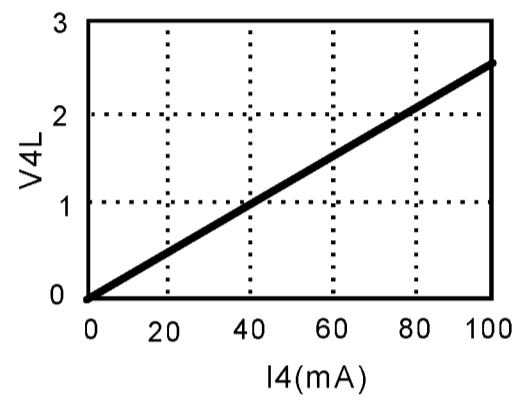


Figure 2. I4-V4L

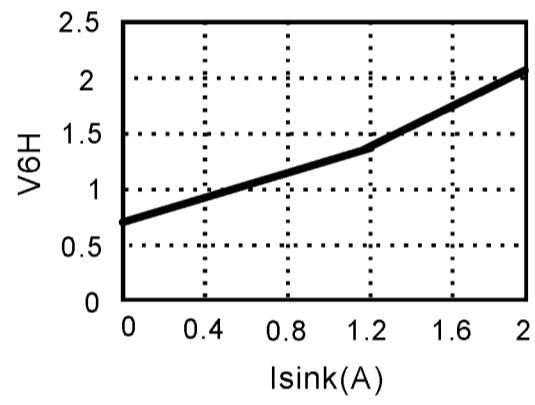


Figure 3. Isink-V6H

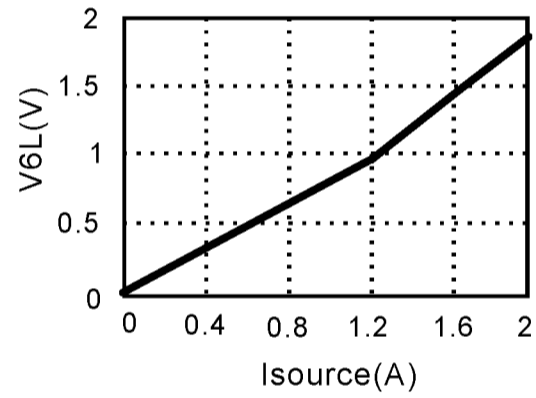


Figure 4. Isource-V6L

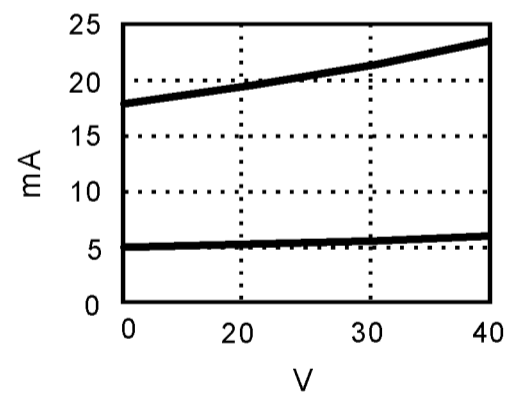
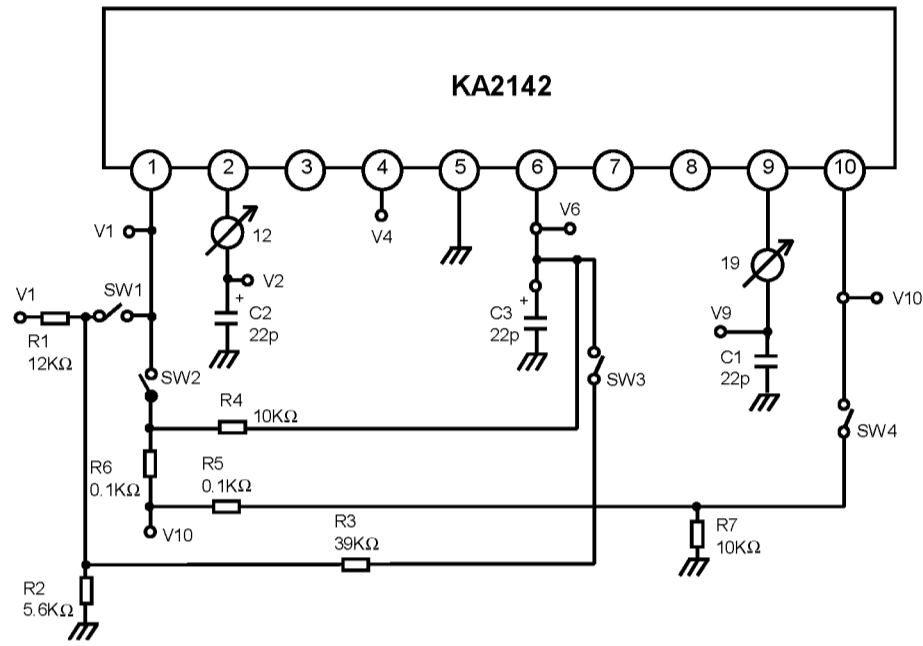


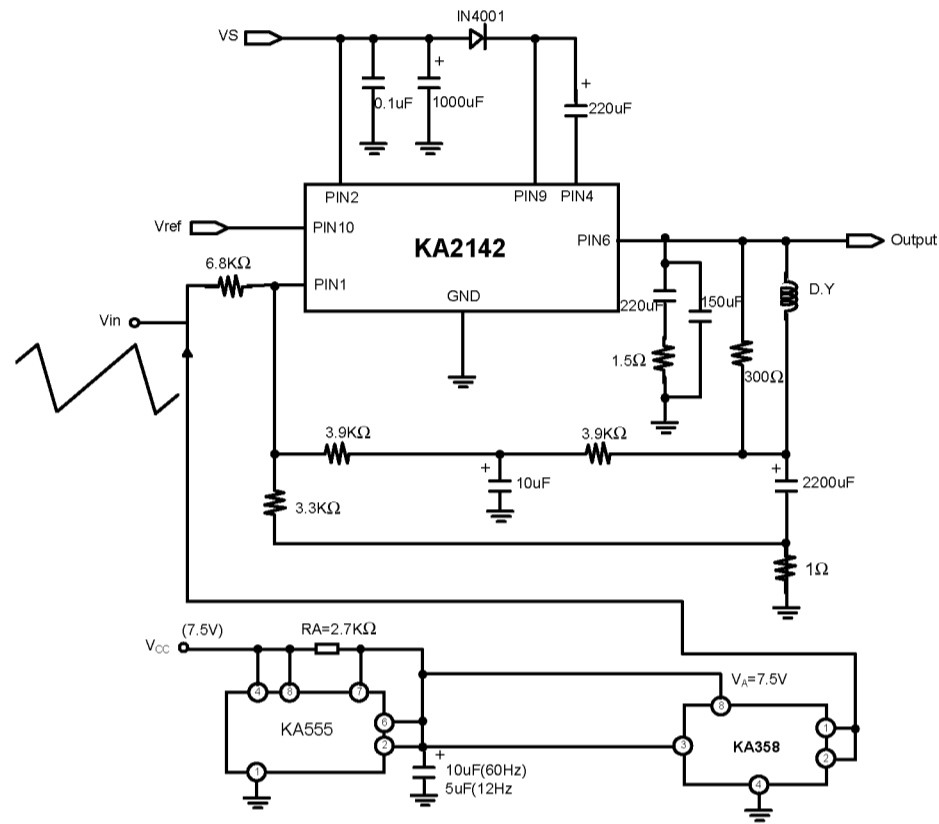
Figure 5. Vs-I2, I9

**DC Test Circuit**

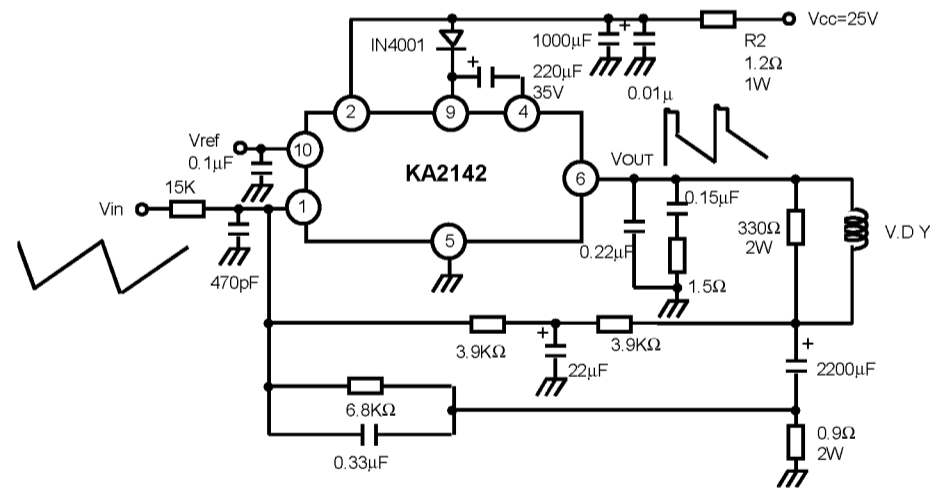


ITEM	INPUT VOLTAGE (V)				SWITCH STATE			
	V1	V10	Vin1	Vin2	SW1	SW2	SW3	SW4
I2, I9	-	-	-	2	OFF	ON	OFF	ON
I1	1	2	-	-	OFF	OFF	OFF	OFF
V4L	3	2	-	-	OFF	OFF	OFF	OFF
V6L	3	2	-	-	OFF	OFF	OFF	OFF
V6H	1	2	-	-	OFF	OFF	OFF	OFF

AC Test Circuit



Typical Application Circuit

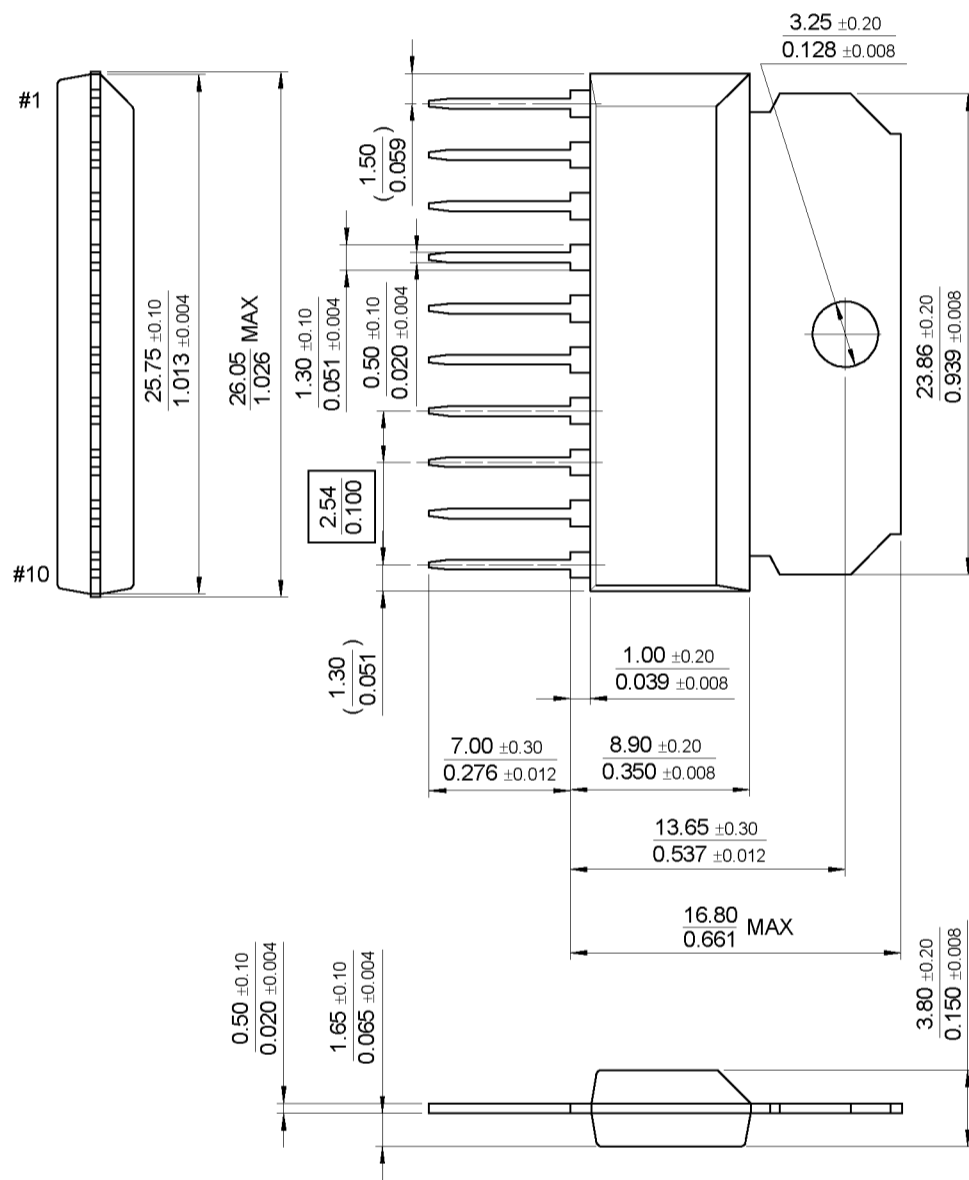


**Mechanical Dimensions**

Package

Dimensions in millimeters

**10-SIP H/S**





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**Ordering Information**

Product Number	Package	Operating Temperature
KA2142	10-SIP H/S	-20°C ~ +70 °C

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