

# KA2142C

## Vertical Deflection Output Circuit

### Features

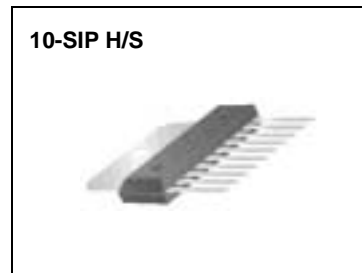
- High output current
- Pump - up circuit
- Low dissipation
- Minimum number of external parts required
- Direct drive to the deflection coils
- Internal thermal shutdown circuit

### Applications

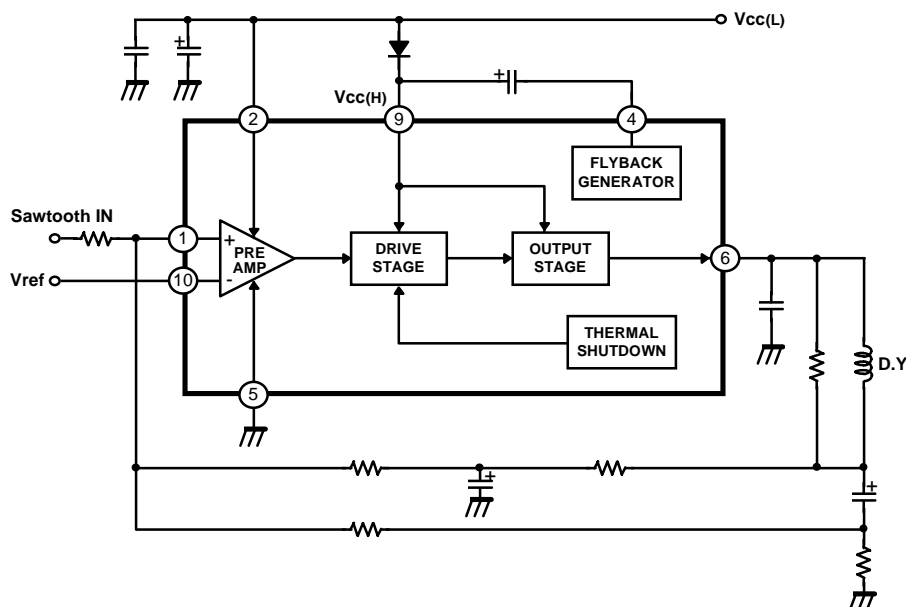
- Power Amplifier
- Thermal Protection
- Flyback Generator

### Description

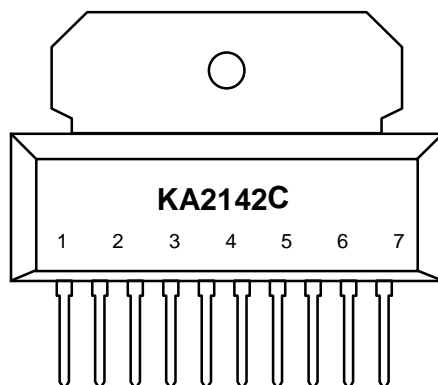
The KA2142C is a monolithic linear IC designed for color TV and monitor vertical deflection output. It is intended for direct drive of the deflection coils with a high efficiency.



### Internal Block Diagram

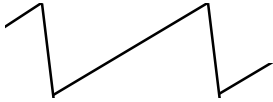
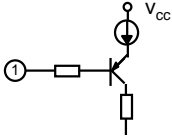

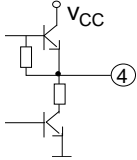
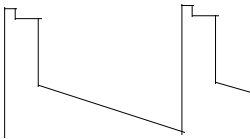
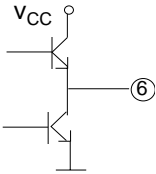
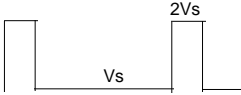
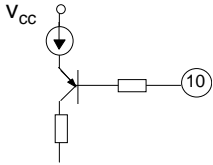


## Pin Assignments



Pin Number	Symbol	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 ,  $V_{CC(L)} = 35V$ , unless otherwise specified)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Supply Voltage	$V_{CC(L)}$	-	15	25	35	V
	$V_{CC(H)}$		15	-	70	V
Supply Quiescent Current	$I_{CC(L)}$	-	-	6	16	mA
	$I_{CC(H)}$		-	22	36	mA
Pin4 Saturation Voltage to Gnd	$V_{4SAT}$	$I_4 = 20mA$	-	0.5	1	V
Saturation Voltage to supply	$V_{HSAT}$	$I_6 = -1.2A$	-	1.6	2.2	V
		$I_6 = -0.7A$	-	1.3	1.8	V
Saturation Voltage to ground	$V_{LSAT}$	$I_6 = 1.2A$	-	1	1.4	V
		$I_6 = 0.7A$	-	0.7	1	V
Output Center Voltage	$V_{MID}$	$R_1=5.6K, R_{fb}=45K$ $V_1=V_{10}=2V$	-	18	-	V
Input Bias Current	$I_{BIAS}$	$V_1 = 1V, V_{10} = 2V$	-	-0.1	-1	$\mu A$

## Typical Performance Characteristic

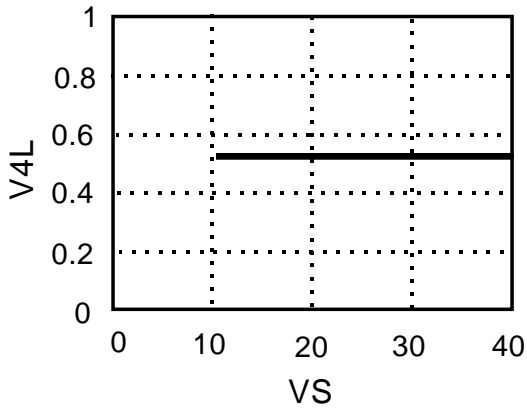


Figure 1. Vs-V4L

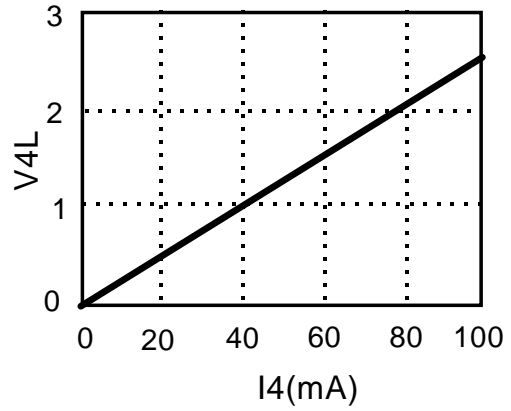


Figure 2. I4-V4L

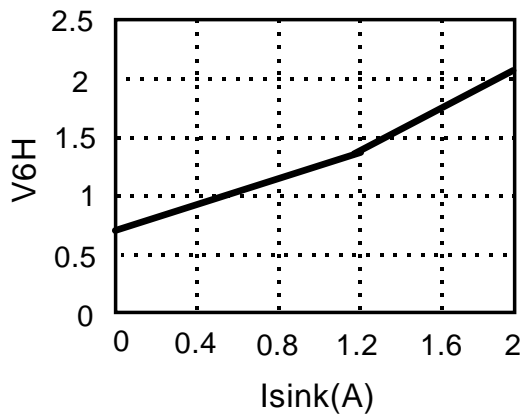


Figure 3. Isink-V6H

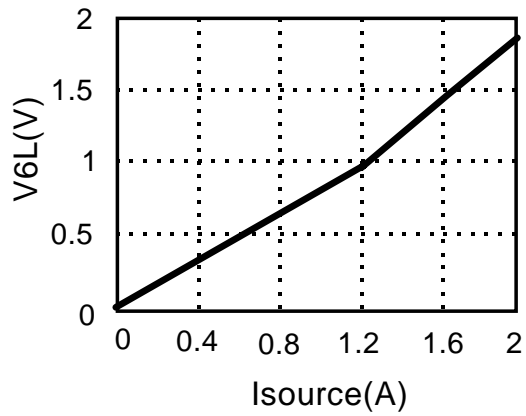


Figure 4. Isource-V6L

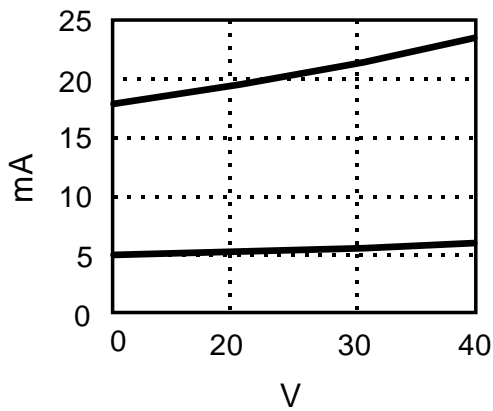
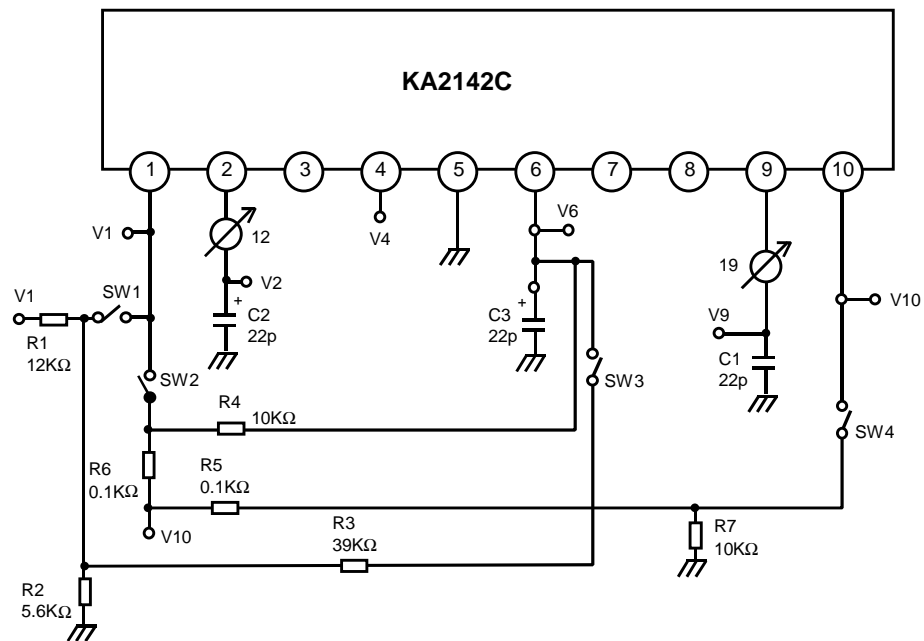


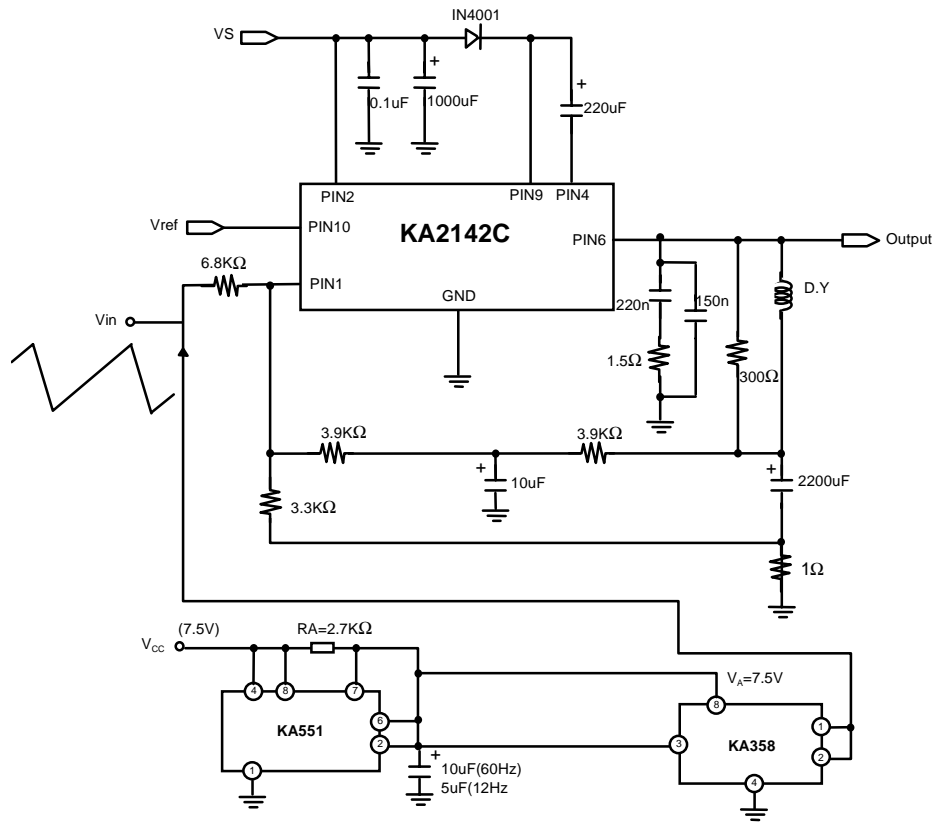
Figure 5. Vs-I2, I9

## DC Test Circuit

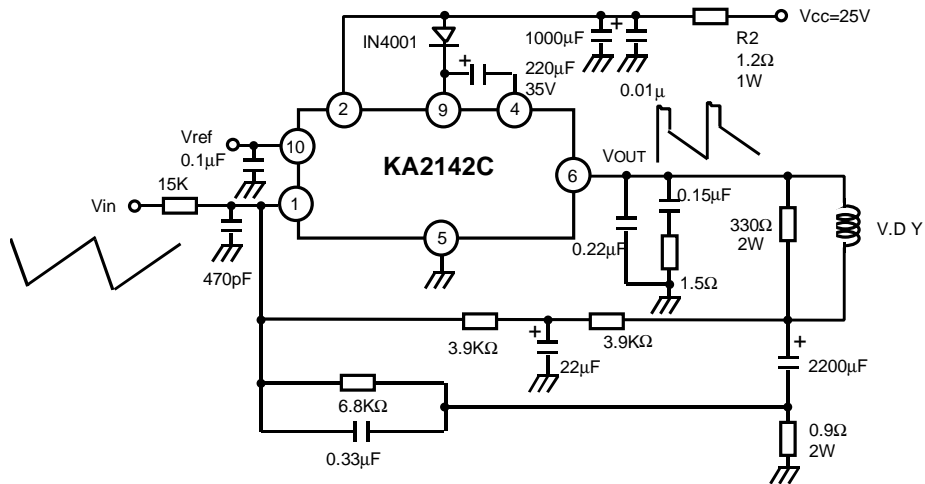


ITEM	INPUT VOLTAGE (V)					SWITCH STATE			
	V1	V10	Vin1	Vin2	SW1	SW2	SW3	SW4	
I2, I9	-	-	-	2	OFF	ON	OFF	ON	
I1	1	2	-	-	OFF	OFF	OFF	OFF	
V4L	3	2	-	-	OFF	OFF	OFF	OFF	
V6L	3	2	-	-	OFF	OFF	OFF	OFF	
V6H	1	2	-	-	OFF	OFF	OFF	OFF	

## AC Test Circuit



## Typical Application Circuit



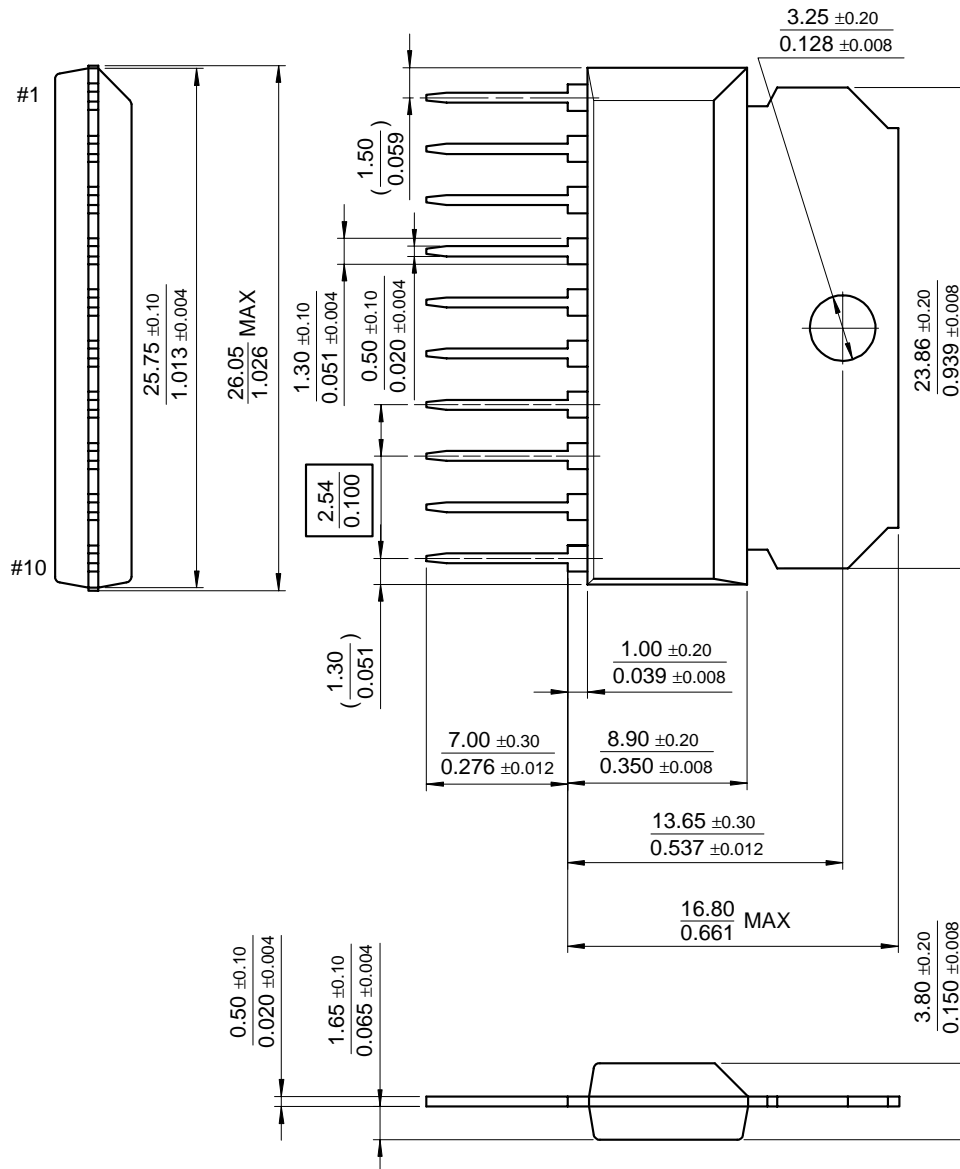


# Mechanical Dimensions

Package

Dimensions in millimeters

## 10-SIP H/S



## Ordering Information

Product Number	Package	Operating Temperature
KA2142C	10-SIP H/S	-20°C ~ +70 °C



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