KA2142

Vertical Deflection Output Circuit

Features

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

Applications

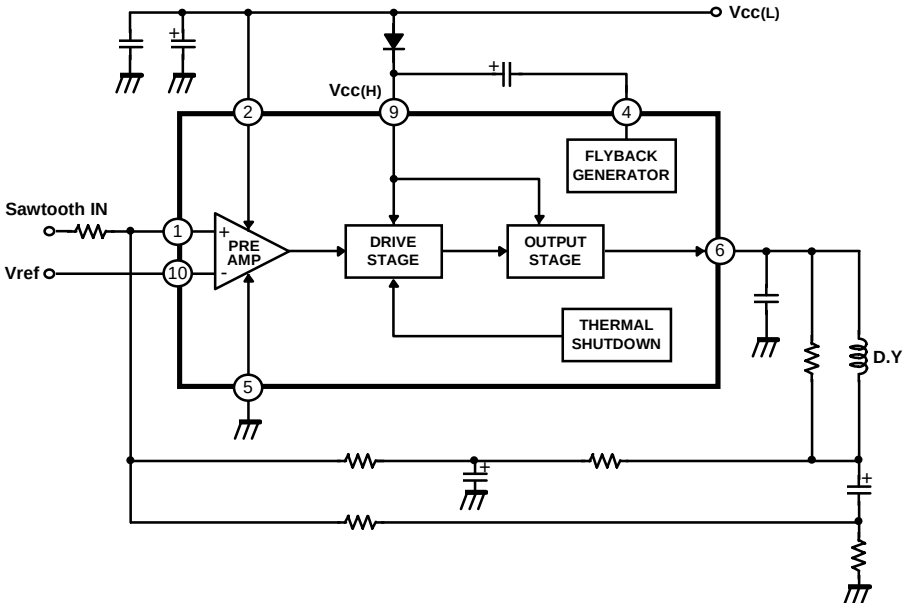
- Power Amplifier
- Thermal Protection
- Flyback Generator

Description

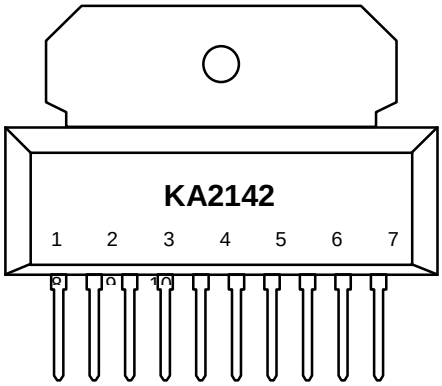
The KA2142 is a monolithic linear IC designed for color TV and monitor vertical deflection output. It is intended for direct drive of the deflection coils with a high efficiency.

10-SIP H/S

internal Block Diagram

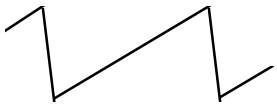
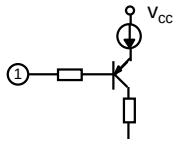
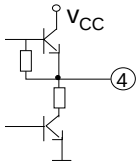
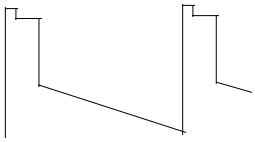
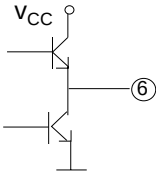
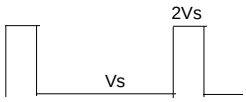
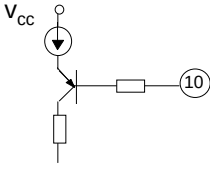


Pin Assignments



Pin Number	Pin Name	I/O	Pin Function Descrition
1	Vin (-)	I	Inverting Input
2	Vcc(L)	I	Supply Voltage
3	-	-	N.C.
4	F.G	O	Flyback Generator
5	GND	-	Ground
6	V_O	O	Output
7	-	-	N.C.
8	-	-	N.C.
9	Vcc(H)	I	Output Stage Supply Voltage
10	Vin (+)	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	Vcc(L)	35	V
Flyback Peak Voltage	V6, V9	70	V
Flyback Generator Voltage	V6	35	V
Input Voltage	V1, V10	V cc(L) - 0.5	V
Peak - to - Peak Output Current*	Io(p-p)	3	A
Peak - to - Peak Flyback Current (f = 50 or 60Hz, Tfb ≤ 1.5mS)	I4(p-p)	3	A
Total Power Dissipation (Ta = 25°C)	P_D	15	W
Storage Temperature Range	T_{stg}	-40 ~ +150	°C
Operating Ambient Temperature	T_{opt}	-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	$R_{th\ (j\ -\ c)}$	12	°C/W
Thermal Resistance Between Junction and Ambient	$R_{th\ (j\ -\ a)}$	60	°C/W
Thermal Shut down Temperature	T_{tsd}	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}	I4 = 20mA	-	0.5	1	V
Saturation Voltage to supply	V_{HSAT}	I6 = -1.2A	-	1.6	2.2	V
		I6 = -0.7A	-	1.3	1.8	V
Saturation Voltage to ground	V_{LSAT}	I6 = 1.2A	-	1	1.4	V
		I6 = 0.7A	-	0.7	1	V
Output Center Voltage	V_{MID}	R1=5.6K,Rfb=45K V1=V10=2V	-	18	-	V
Input Bias Current	I_{BIAS}	V1 = 1V, V10 = 2V	-	-0.1	-1	μA

Typical Performance Characteristic

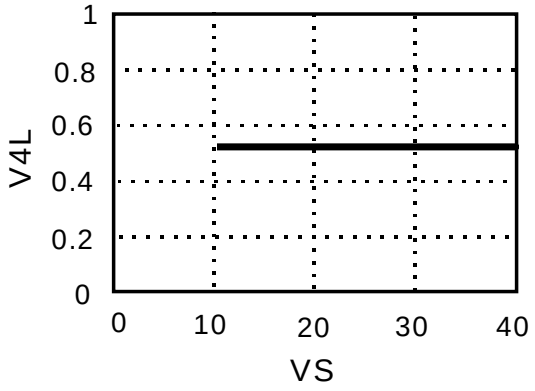


Figure 1. Vs-V4L

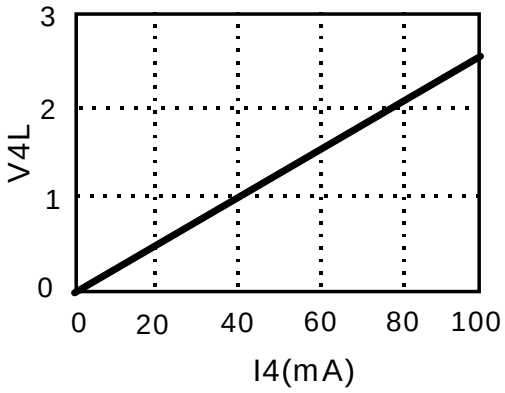


Figure 2. I4-V4L

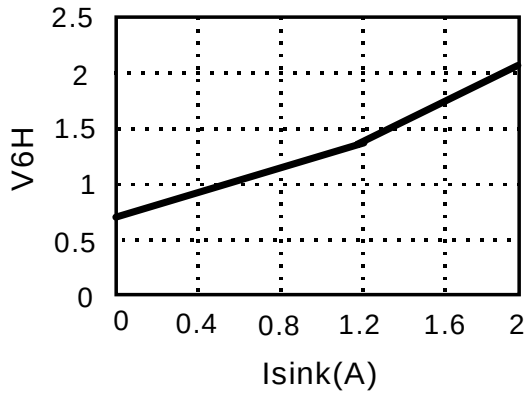


Figure 3. Isink-V6H

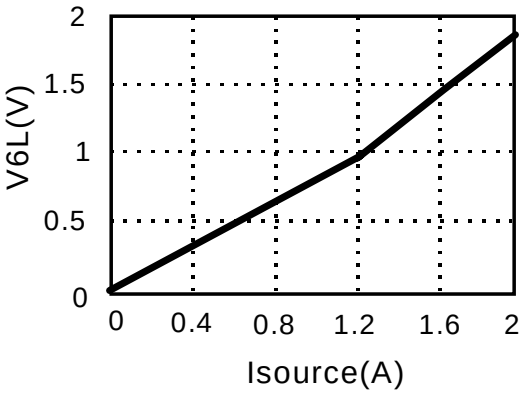


Figure 4. Isource-V6L

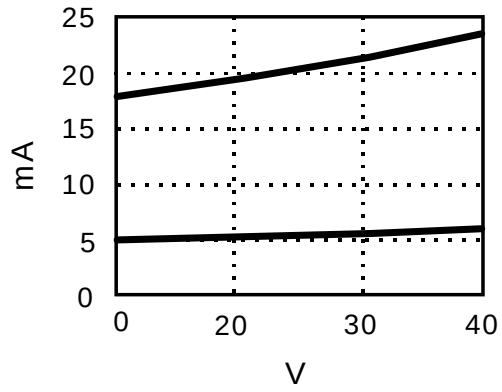
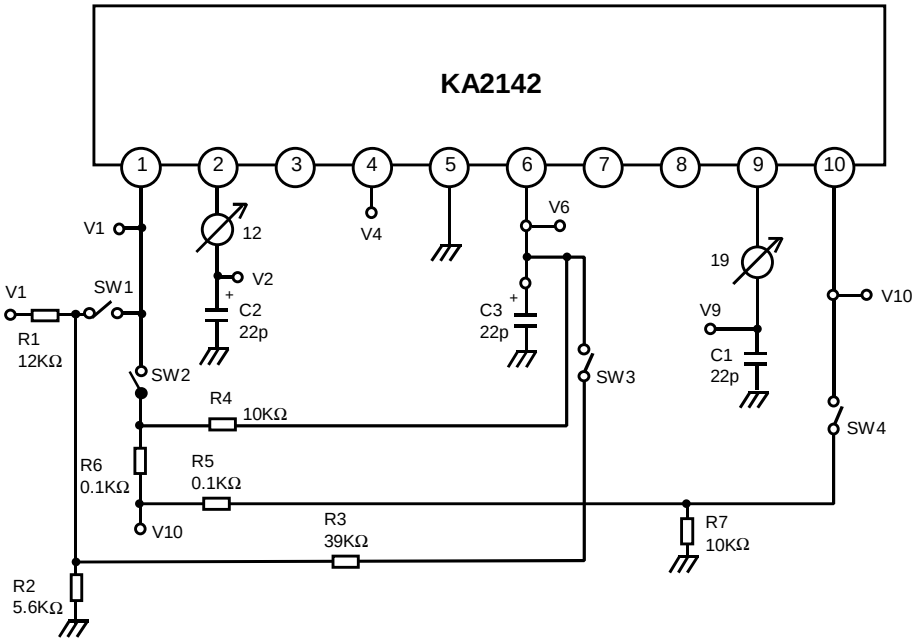


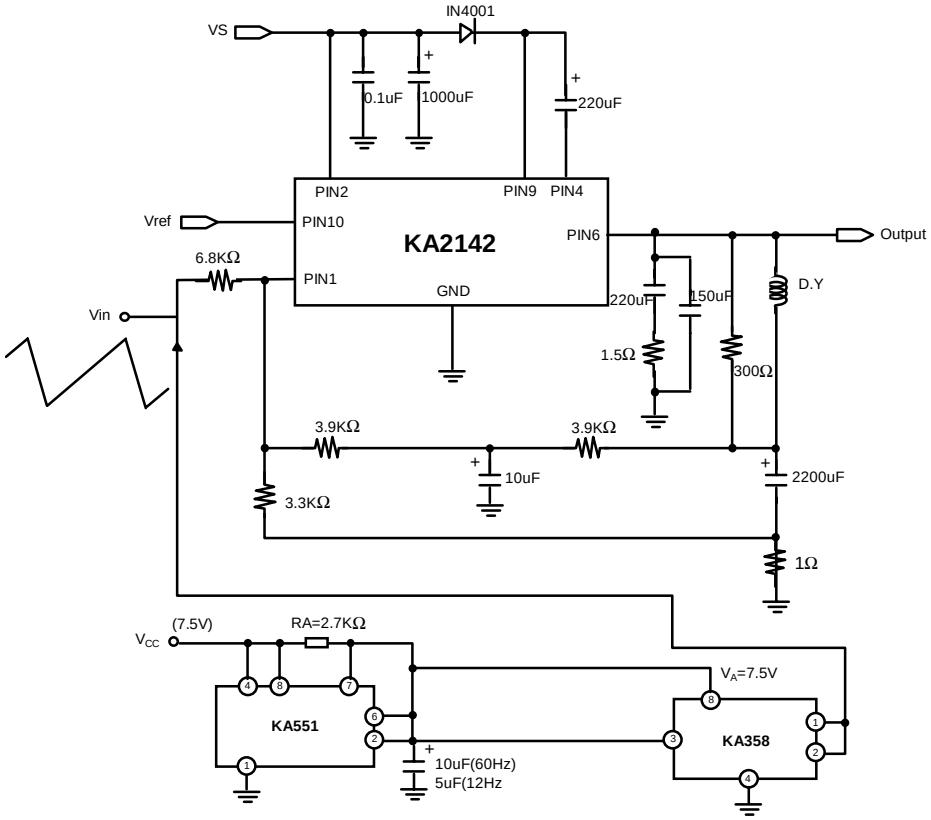
Figure 5. Vs-I2, I9

DC Test Circuit

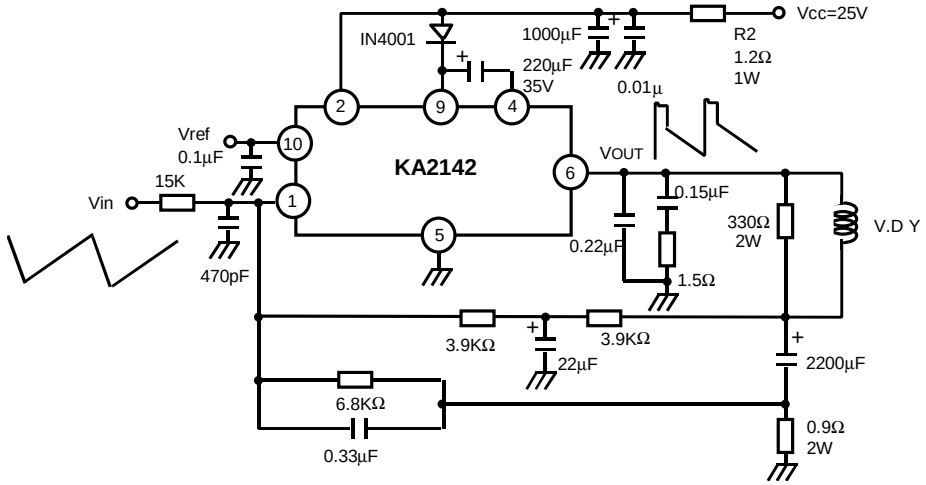


ITEM	INPUT VOLTAGE (V)					SWITCH STATE		
	V1	V10	Vin1	Vin2	SW1	SW2	SW3	SW4
I2, I9	-	-	-	2	OFF	ON	OFF	ON
I1	1	2	-	-	OFF	OFF	OFF	OFF
V4L	3	2	-	-	OFF	OFF	OFF	OFF
V6L	3	2	-	-	OFF	OFF	OFF	OFF
V6H	1	2	-	-	OFF	OFF	OFF	OFF

AC Test Circuit



Typical Application Circuit

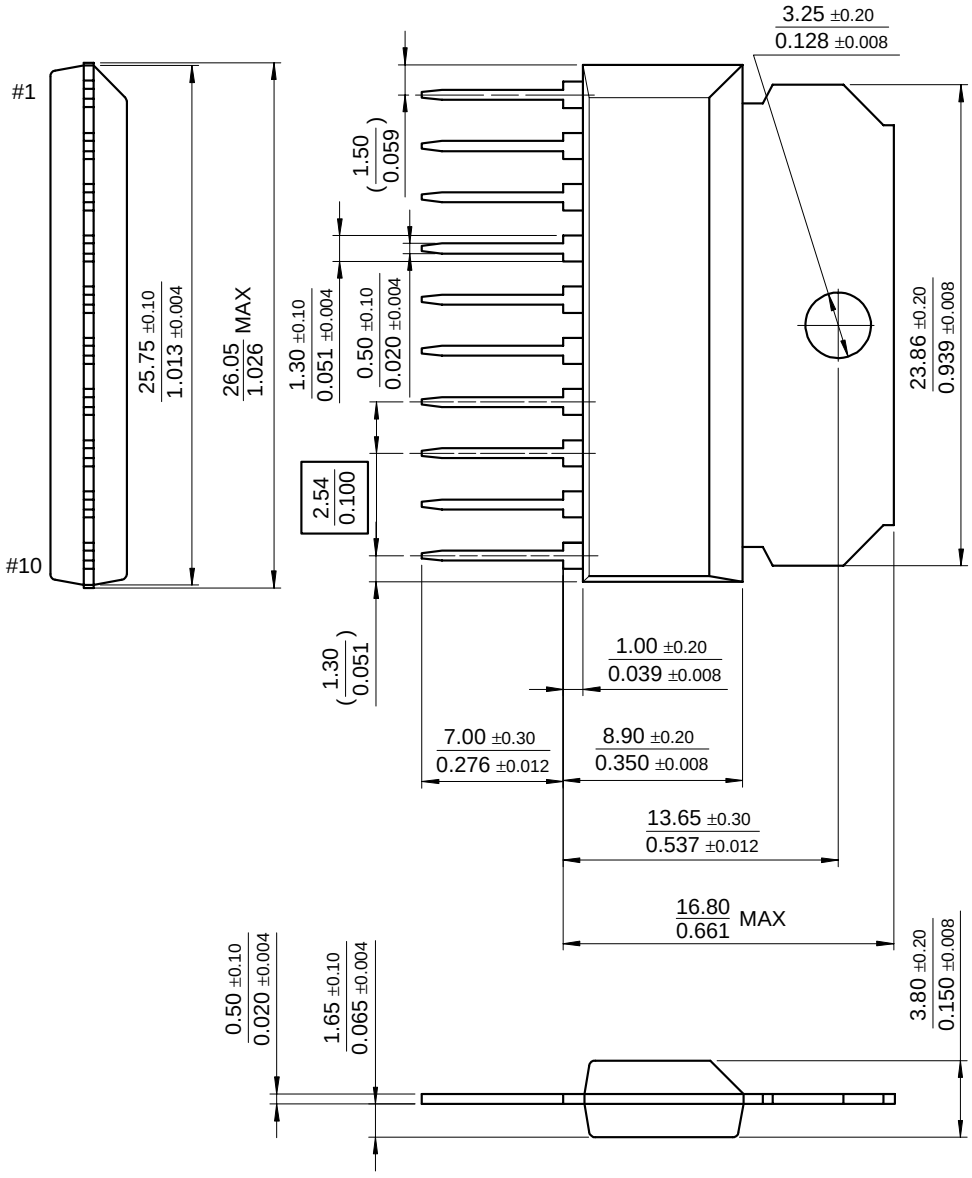


Mechanical Dimensions

Package

Dimensions in millimeters

10-SIP H/S



Ordering Information

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

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