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KA2142C

Vertical Deflection Output Circuit

Features

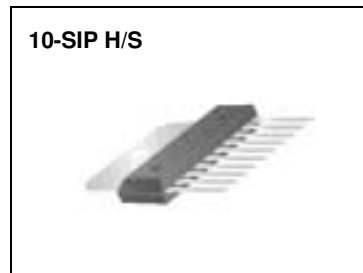
- High output current
- Pump - up circuit
- Low dissipation
- Minimum number of external parts required
- Direct drive to the deflection coils
- Internal thermal shutdown circuit

Applications

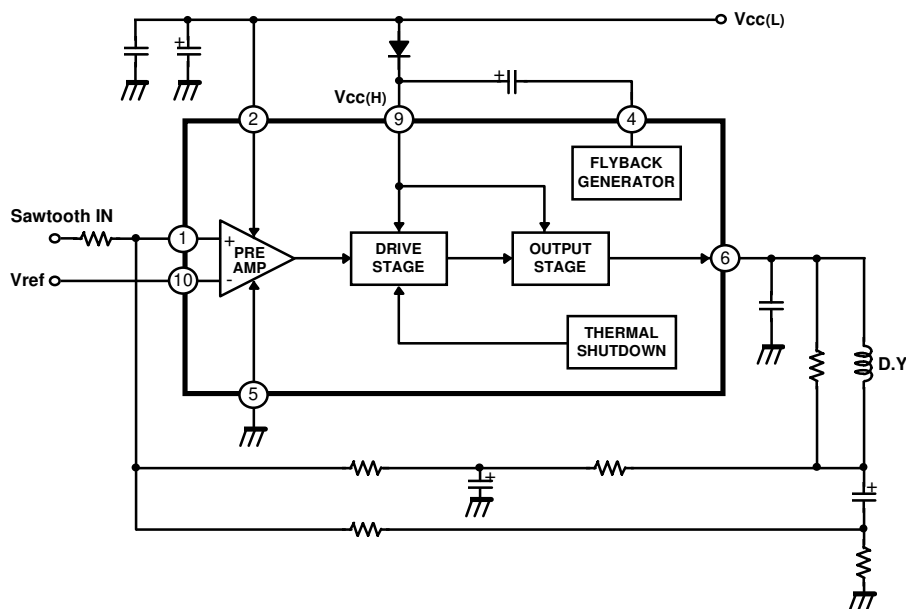
- Power Amplifier
- Thermal Protection
- Flyback Generator

Description

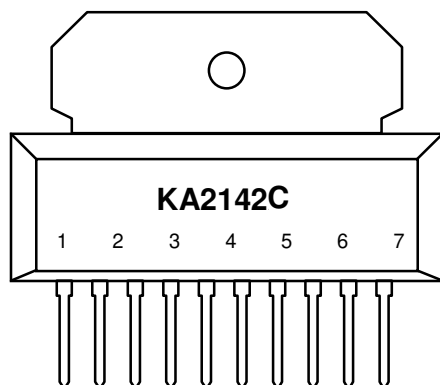
The KA2142C is a monolithic linear IC designed for color TV and monitor vertical deflection output. It is intended for direct drive of the deflection coils with a high efficiency.



Internal Block Diagram

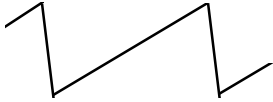
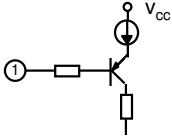

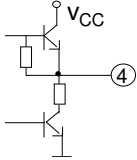
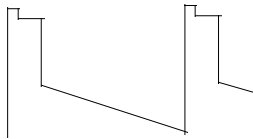
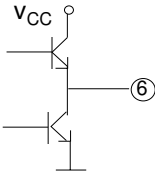

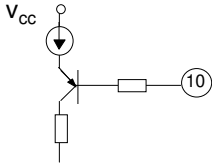


Pin Assignments



Pin Number	Symbol	I/O	Pin Function Description
1	V _{in} (-)	I	Inverting Input
2	V _{cc} (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	V _{cc} (H)	I	Output Stage Supply Voltage
10	V _{in} (+)	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 _{cc(L)}	35	V
Flyback Peak Voltage	V ₆ , V ₉	70	V
Flyback Generator Voltage	V ₆	35	V
Input Voltage	V ₁ , V ₁₀	V _{cc(L)} - 0.5	V
Peak - to - Peak Output Current*	I _{o(p-p)}	3	A
Peak - to - Peak Flyback Current (f = 50 or 60Hz, T _{fb} ≤ 1.5mS)	I _{4(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}	$I_4 = 20mA$	-	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	μA

Typical Performance Characteristic

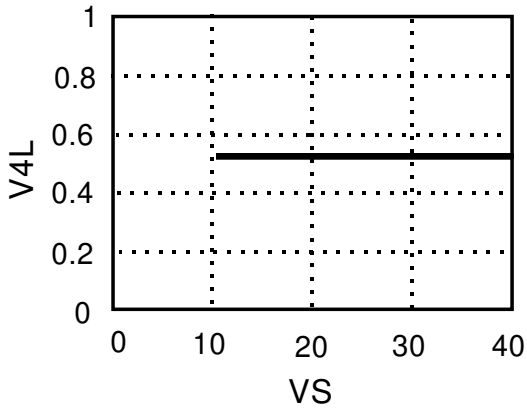


Figure 1. Vs-V4L

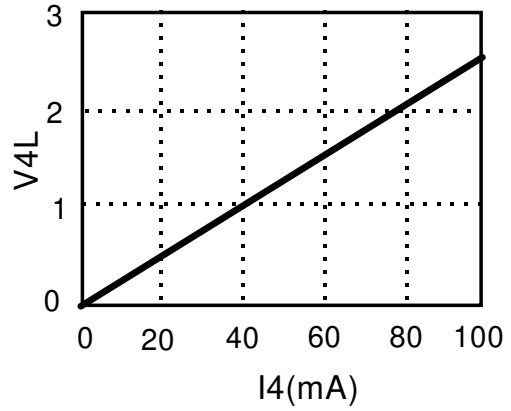


Figure 2. I4-V4L

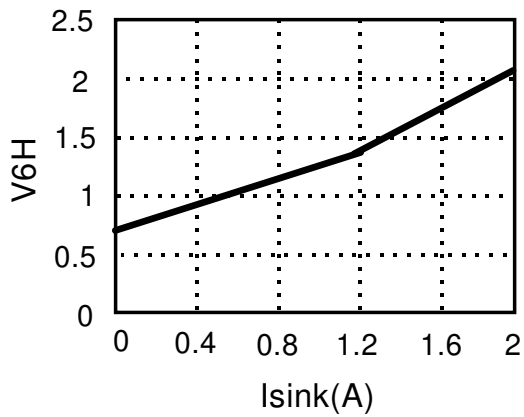


Figure 3. Isink-V6H

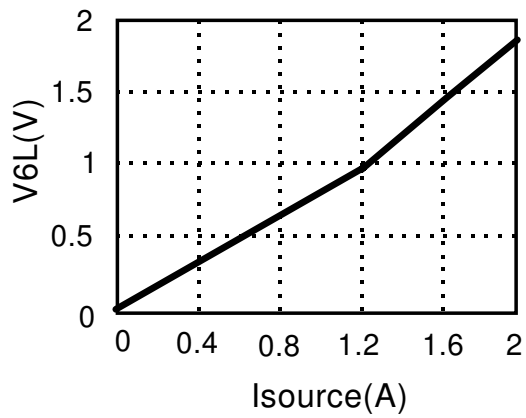


Figure 4. Isource-V6L

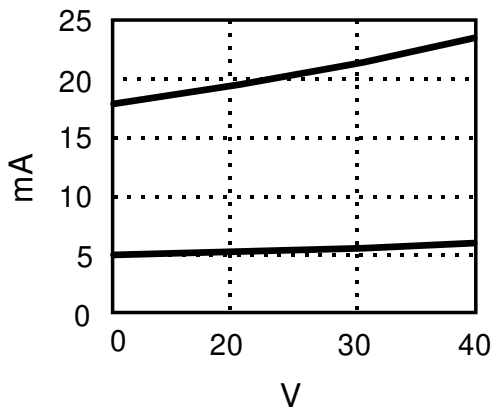
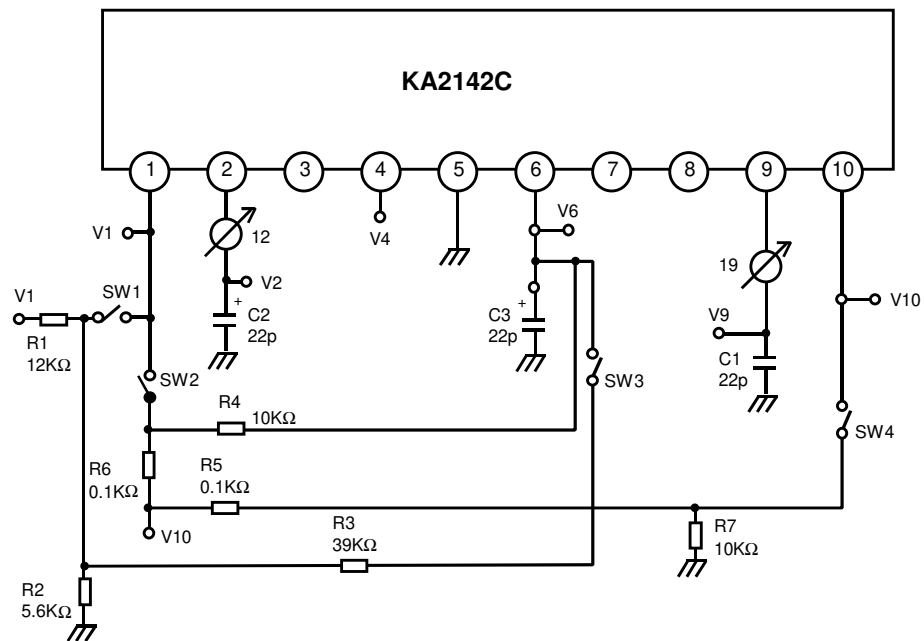


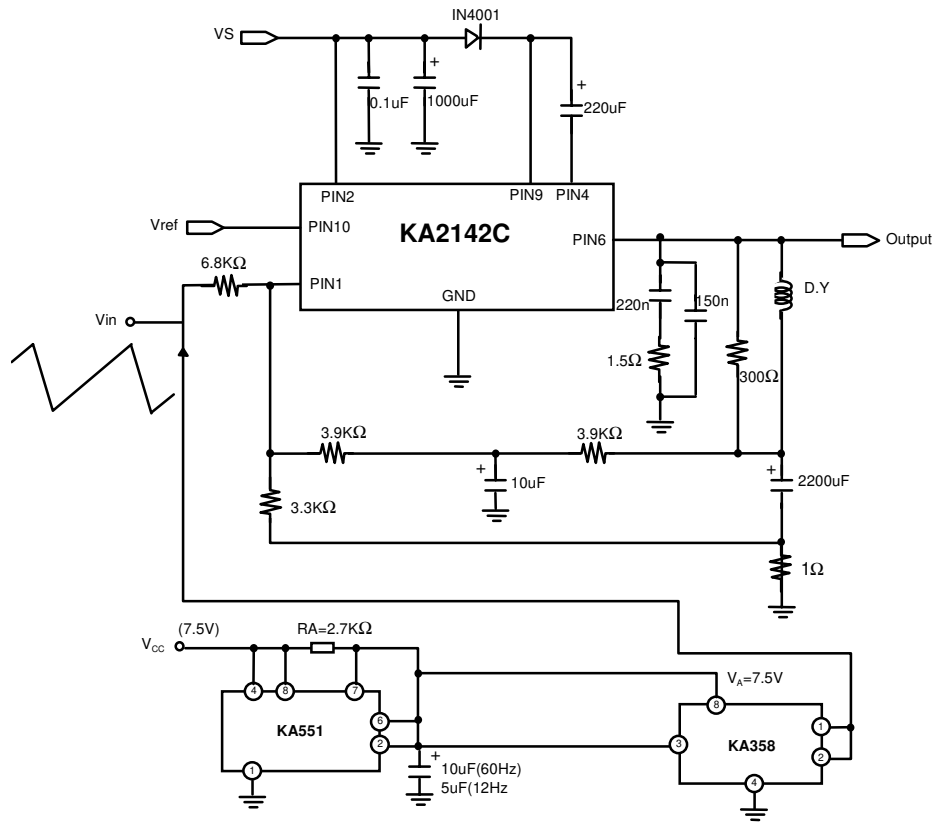
Figure 5. Vs-I2, I9

DC Test Circuit

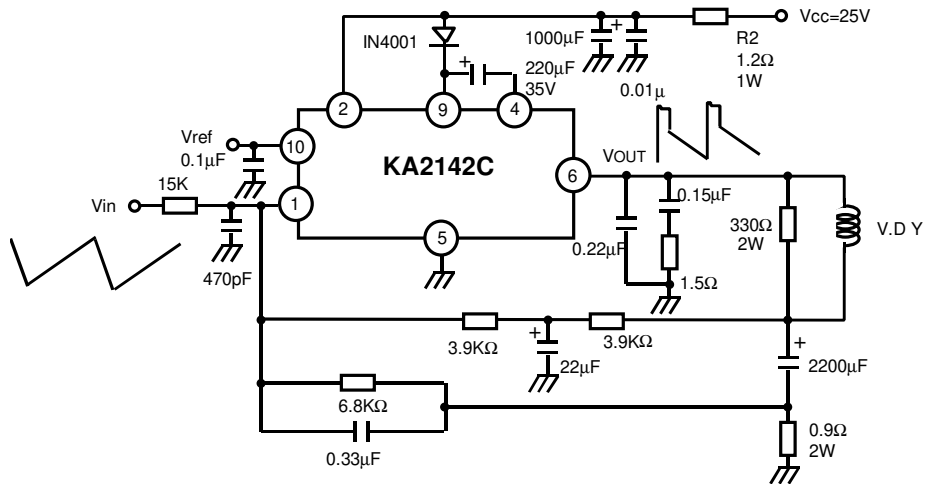


ITEM	INPUT VOLTAGE (V)					SWITCH STATE		
	V1	V10	Vin1	Vin2	SW1	SW2	SW3	SW4
I2, I9	-	-	-	2	OFF	ON	OFF	ON
I1	1	2	-	-	OFF	OFF	OFF	OFF
V4L	3	2	-	-	OFF	OFF	OFF	OFF
V6L	3	2	-	-	OFF	OFF	OFF	OFF
V6H	1	2	-	-	OFF	OFF	OFF	OFF

AC Test Circuit



Typical Application Circuit

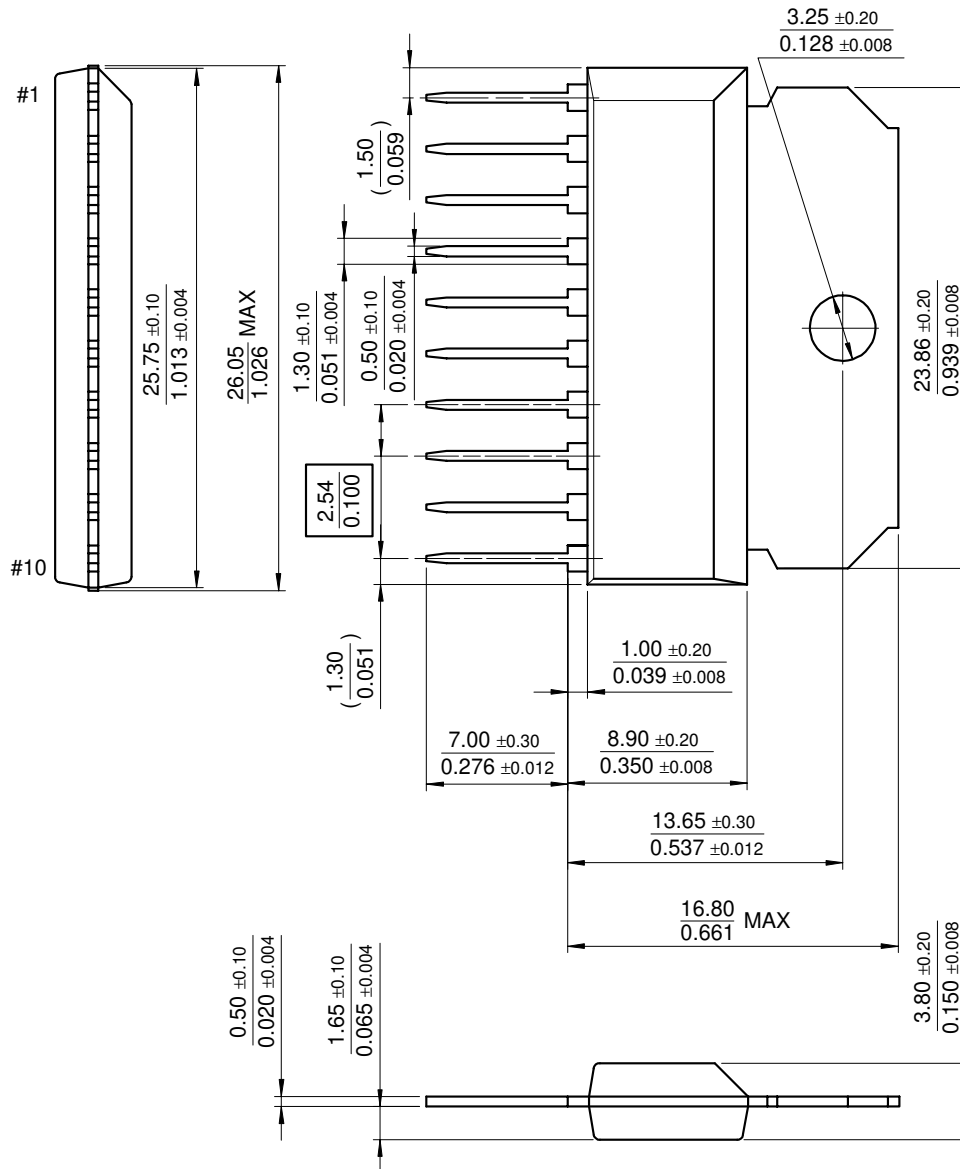


Mechanical Dimensions

Package

Dimensions in millimeters

10-SIP H/S



Ordering Information

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

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