

KA2142C

Vertical Deflection Output Circuit

Features

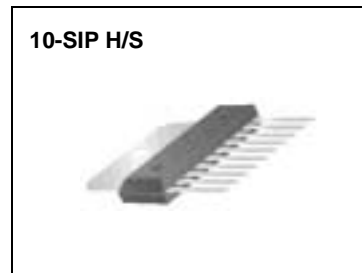
- High output current
- Pump - up circuit
- Low dissipation
- Minimum number of external parts required
- Direct drive to the deflection coils
- Internal thermal shutdown circuit

Applications

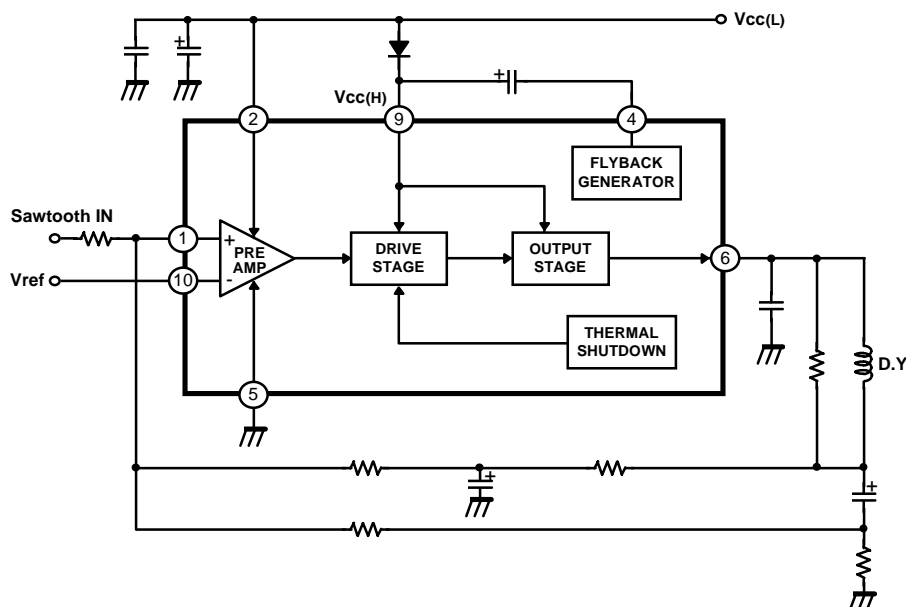
- Power Amplifier
- Thermal Protection
- Flyback Generator

Description

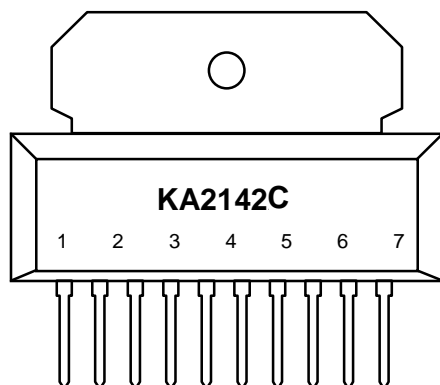
The KA2142C is a monolithic linear IC designed for color TV and monitor vertical deflection output. It is intended for direct drive of the deflection coils with a high efficiency.



Internal Block Diagram

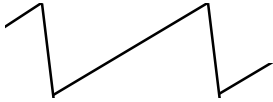
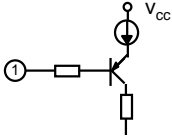

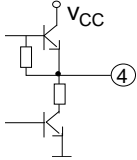
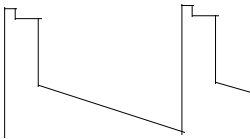
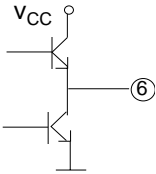
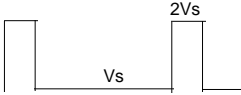
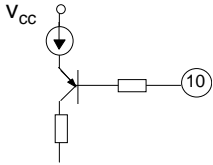


Pin Assignments



Pin Number	Symbol	I/O	Pin Function Description
1	Vin (-)	I	Inverting Input
2	Vcc(L)	I	Supply Voltage
3	-	-	N.C.
4	F.G	O	Flyback Generator
5	GND	-	Ground
6	VO	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	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

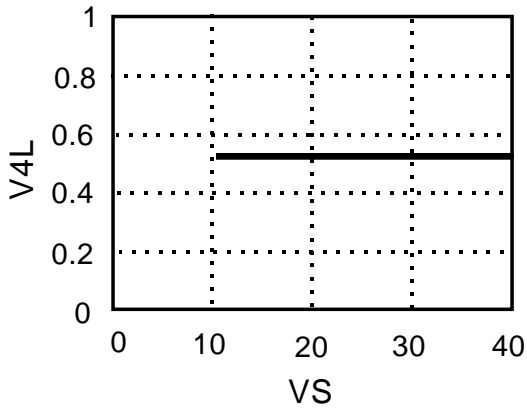


Figure 1. Vs-V4L

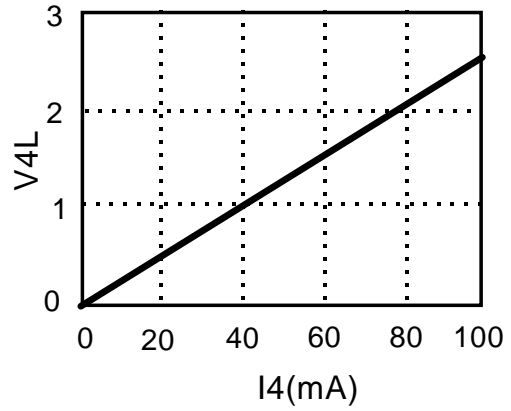


Figure 2. I4-V4L

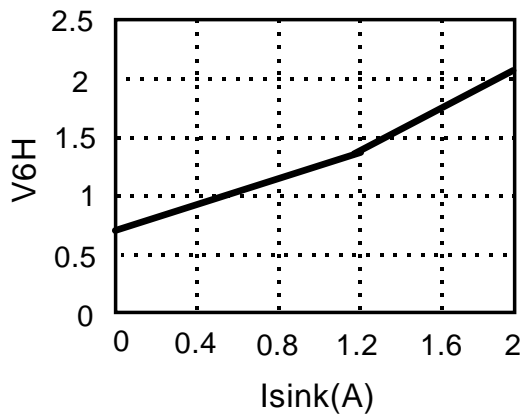


Figure 3. Isink-V6H

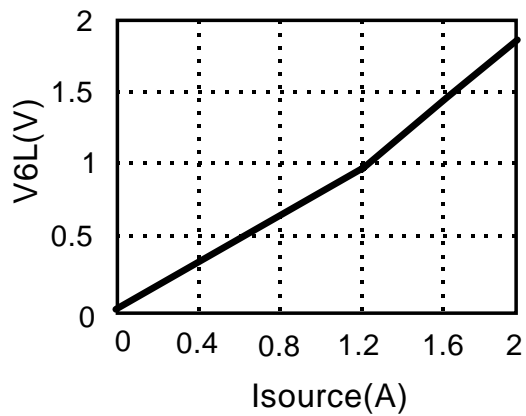


Figure 4. Isource-V6L

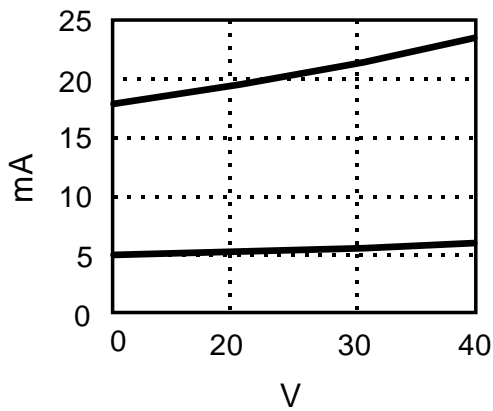
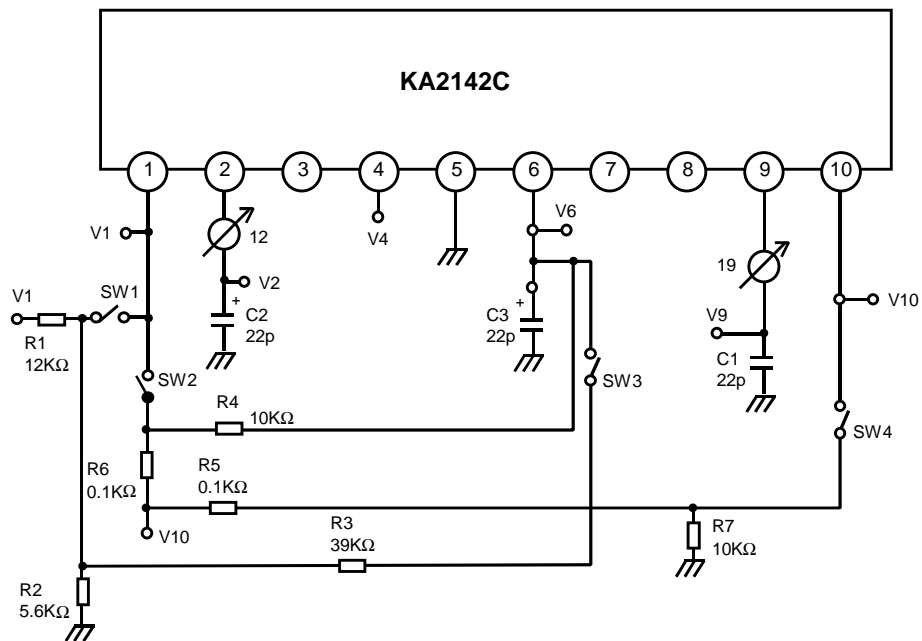


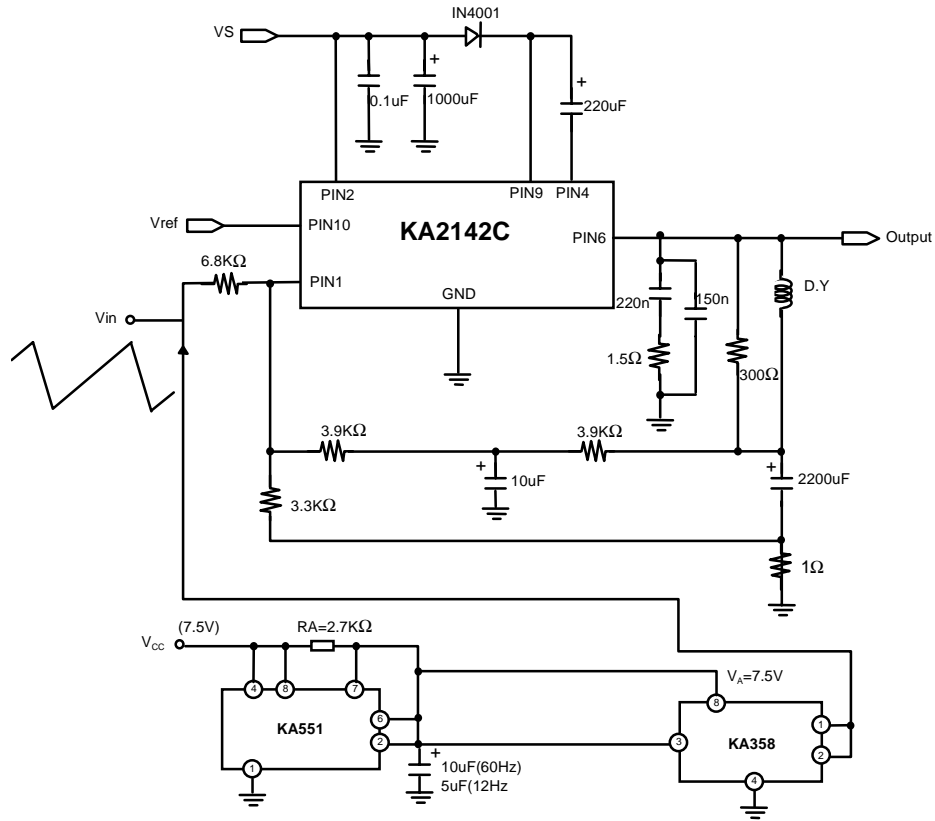
Figure 5. Vs-I2, I9

DC Test Circuit

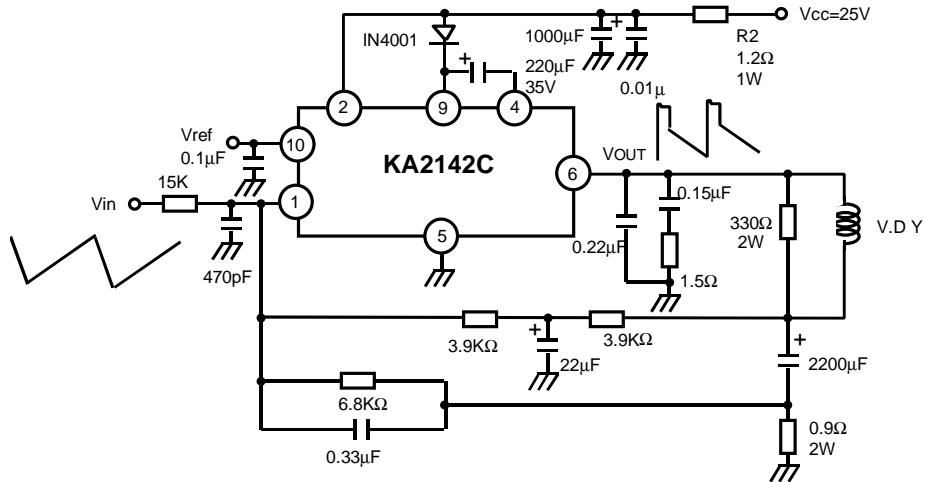


ITEM	INPUT VOLTAGE (V)					SWITCH STATE			
	V1	V10	Vin1	Vin2	SW1	SW2	SW3	SW4	
I2, I9	-	-	-	2	OFF	ON	OFF	ON	
I1	1	2	-	-	OFF	OFF	OFF	OFF	
V4L	3	2	-	-	OFF	OFF	OFF	OFF	
V6L	3	2	-	-	OFF	OFF	OFF	OFF	
V6H	1	2	-	-	OFF	OFF	OFF	OFF	

AC Test Circuit



Typical Application Circuit



Ordering Information

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

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2. A critical component in any component of a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system, or to affect its safety or effectiveness.