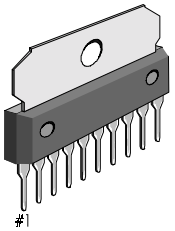
VERTICAL DEFLECTION OUTPUT CIRCUIT

The KA2142A is a monolithic linear IC designed for color TV and monitor vertical deflection output. It is intended for direct drive of the deflection coil with a high efficiency.

10-SIP-HS



FEATURES

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

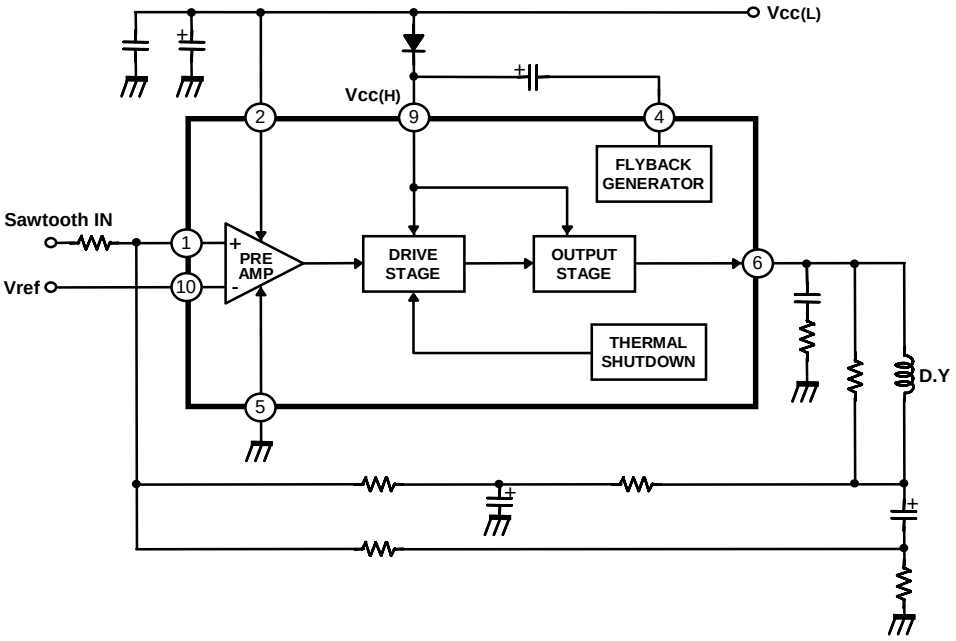
ORDERING INFORMATION

Device	Package	Operating Temperature
KA2142B	10-SIP-HS	–25 ~ + 70°C

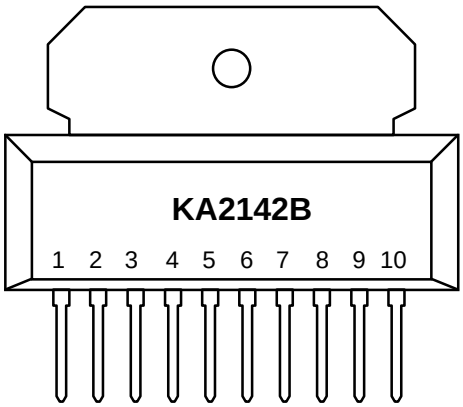
FUNCTIONS

- Power Amplifier
- Thermal Protection
- Flyback Generator

BLOCK DIAGRAM



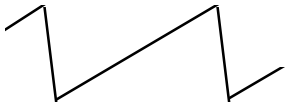
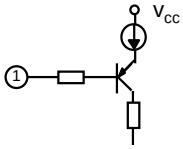
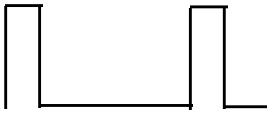
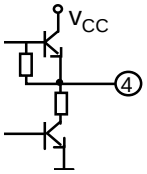
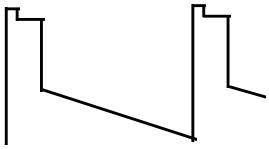
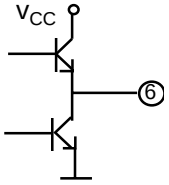
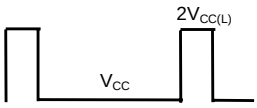
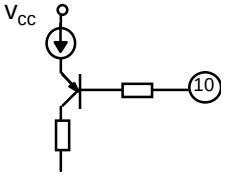
PIN CONFIGURATION



PIN DEFINITIONS

Pin No.	Symbol	I/O	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 DESCRIPTION

Pin Nunber	Function	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 (T_A = 25°C)

Characteristic	Symbol	Value	Unit
Supply Voltage	V_{CC}(L)	35	V
Flyback Peak Voltage	V6, V9	70	V
Flyback Generator Voltage	V4	35	V
Input Voltage	V1, V10	Vcc(L), - 0.5	V
Peak-to-Peak Output Current*	I_O(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

NOTE: Maximum output peak to peak current in TV or Monitor set.

THERMAL DATA

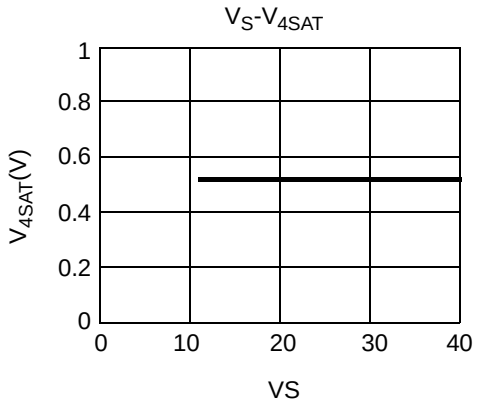
Characteristic	Symbol	Value	Unit
Thermal Resistance Between Junction and Case	$R_{th\ (j\text{-}c\ )}$	12	°C/W
Thermal Resistance Between Junction and Ambient	$R_{th\ (j\text{-}a)}$	60	°C/W
Thermal Shut-down Temperature	T_{TSD}	150	°C

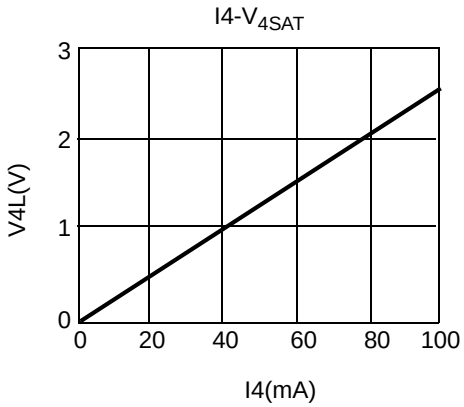
ELECTRICAL CHARACTERISTIC

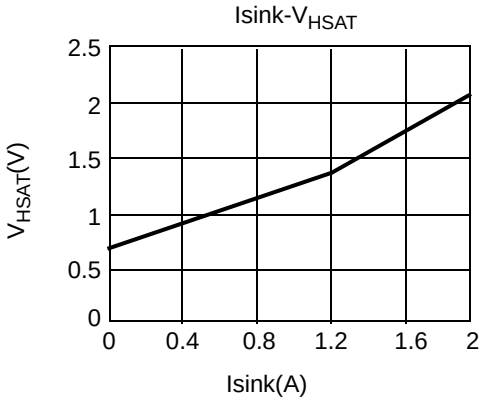
(Refer to the test circuit, V_{CC}(L)= 35V, unless otherwise specified)

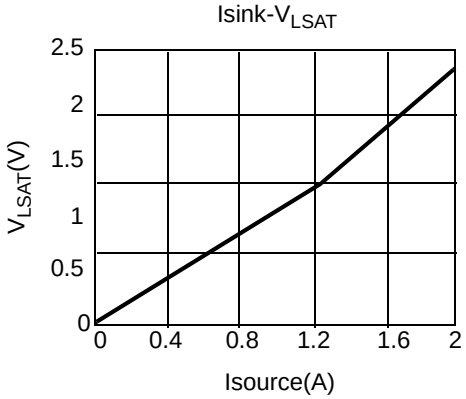
Characteristic	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Supply Voltage	$V_{CC(L)}$	–	15	25	35	V
	$V_{CC(H)}$		15	–	70	V
Supply Quiescent Current	$I_{CC(L)}$	–	–	6	16	mA
	$I_{CC(H)}$		–	22	36	mA
Pin4 Saturation Voltage to Gnd	V_{4SAT}	I4 = 20mA	–	.5	1	V
Output Saturation Voltage to supply	V_{HSAT}	I6 = -1.2A	–	1.6	2.2	V
		I6 = -0.7A	–	1.3	1.8	V
Output 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

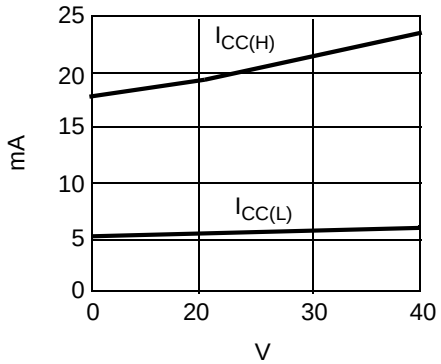
TYPICAL PERFORMANCE CHARACTERISTIC





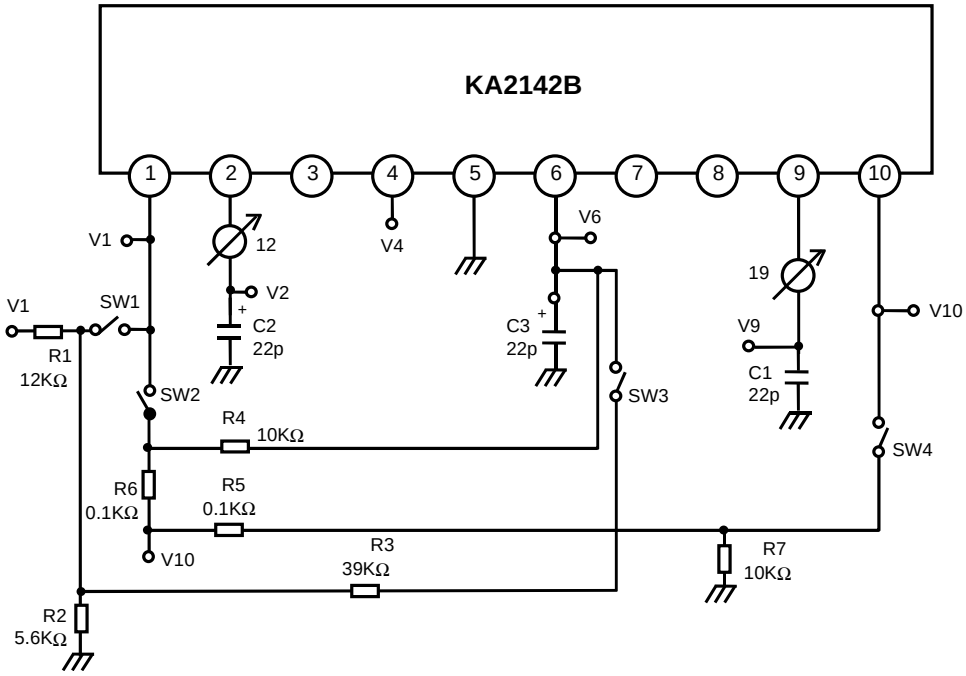






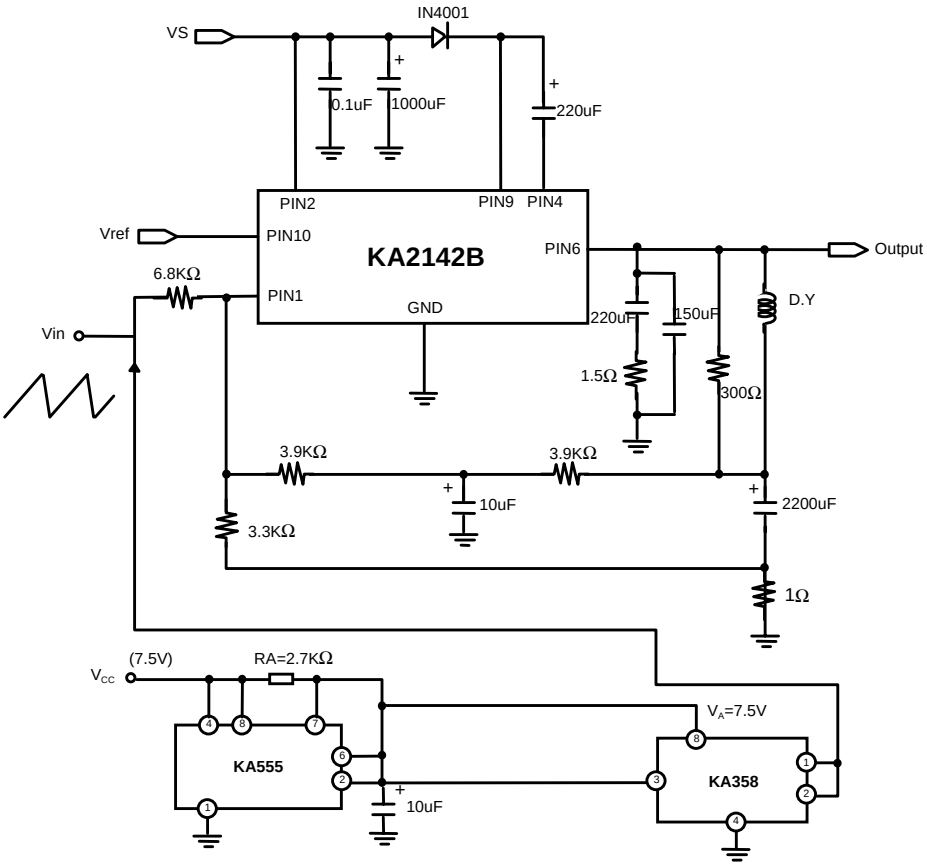
FAIRCHILD SEMICONDUCTOR TM

DC TEST CIRCUIT

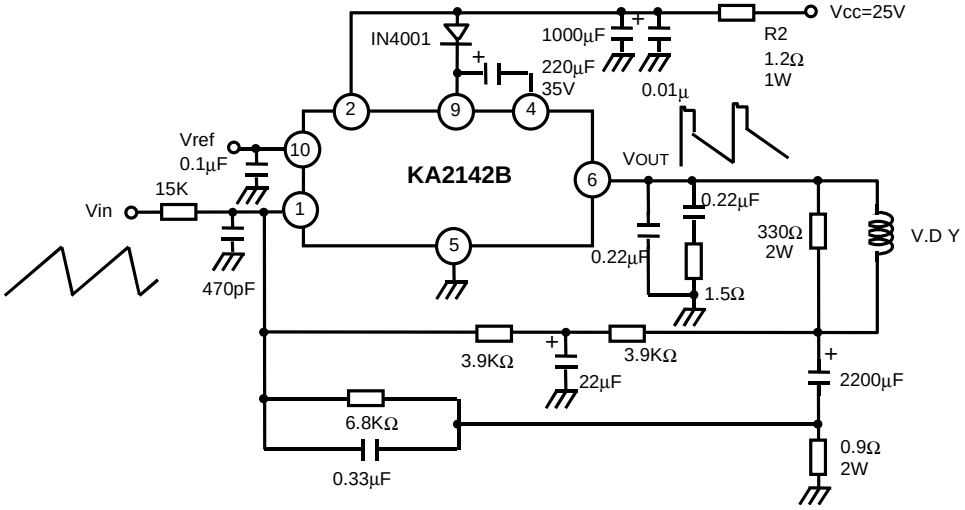


	Input Voltage (V)				Switch State			
ITEM	**V1**	**V10**	**Vin1**	**Vin2**	**SW1**	**SW2**	**SW3**	**SW4**
$I_{CC(L)}$, $I_{CC(H)}$	–	–	–	2	OFF	ON	OFF	ON
I_{BIAS}	1	2	–	–	OFF	OFF	OFF	OFF
V_{4SAT}	3	2	–	–	OFF	OFF	OFF	OFF
V_{LSAT}	3	2	–	–	OFF	OFF	OFF	OFF
V_{HSAT}	1	2	–	–	OFF	OFF	OFF	OFF

AC TEST CIRCUIT



TYPICAL APPLICATION CIRCUIT



LIFE SUPPORT POLICY

FAIRCHILD'S PRODUCTS ARE NOT AUTHORIZED FOR USE AS CRITICAL COMPONENTS IN LIFE SUPPORT DEVICES OR SYSTEMS WITHOUT THE EXPRESS WRITTEN APPROVAL OF THE PRESIDENT OF FAIRCHILD SEMICONDUCTOR CORPORATION. As used herein:

1. Life support devices or systems are devices or systems which, (a) are intended for surgical implant into the body, or (b) support or sustain life, and (c) whose failure to perform when properly used in accordance with instructions for use provided in the labeling, can be reasonably expected to result in a significant injury of the user.
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.

12/28/99 0.0m 001
Stock#DSxxxxxxxx