



DUAL BRIDGE DRIVER

KA8306 is dual bridge driver designed for the cassette and tape loading motor drives in a VCR system.

FEATURES

- 4 modes available (CW/CCW/STOP/BRAKE)
- Output current up to 1.0A (AVE) and 1.5A (PEAK)
- Wide range of operating voltage
 $V_{CC\text{ opr}} = 4.5 \sim 18V$
 $V_S\text{ opr} = 0 \sim 18V$
 $V_{REF\text{ opr}} = 0 \sim 18V$
- Build in thermal shutdown, over current protector and punch through current restriction circuit.
- Hysteresis for all inputs.



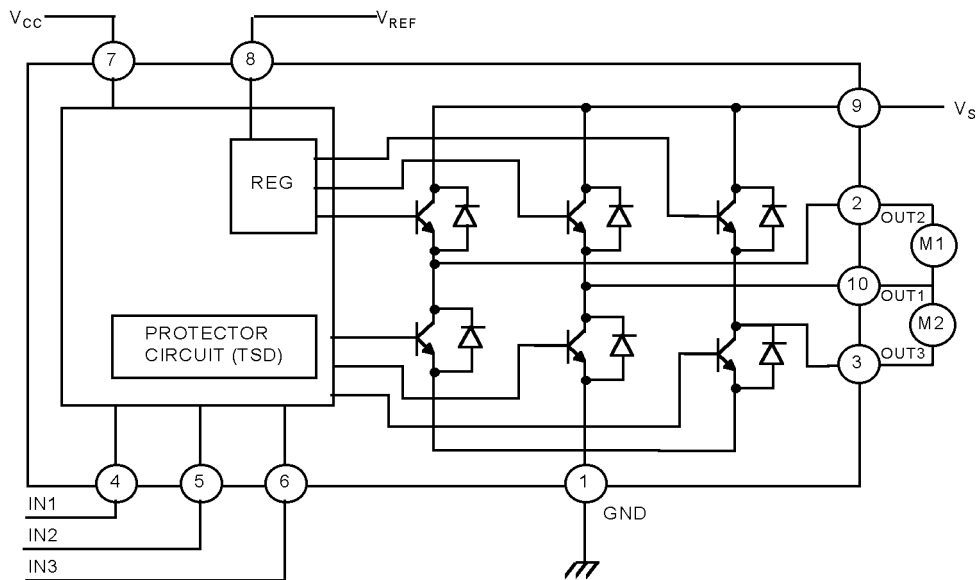
ORDERING INFORMATION

| Device | Package | Operating Temperature |
|--------|------------|-----------------------|
| KA8306 | 10 SIP H/S | -30 ~ +75°C |

ABSOLUTE MAXIMUM RATINGS (T_A = 25°C)

| Characteristic | Symbol | Value | Unit |
|-----------------------|-----------------------|------------|------|
| Supply Voltage | V _{CC} | 25 | V |
| Motor Drive Voltage | V _S | 25 | V |
| Reference Voltage | V _{REF} | 25 | V |
| Output Current | I _O (peak) | 1.5 | A |
| | I _O (AVE) | 1.0 | A |
| Power Dissipation | P _D | 7.0 | W |
| Operating Temperature | T _{OPR} | -30 ~ +75 | °C |
| Storage Temperature | T _{STG} | -55 ~ +150 | °C |

BLOCK DIAGRAM



| INPUT* | | | OUTPUT | | | MODE | |
|--------|-----|-----|--------|------|------|--------|--------|
| IN1 | IN2 | IN3 | OUT1 | OUT2 | OUT3 | M1 | M2 |
| 0 | 0 | 1/0 | L | L | L | BRAKE | BRAKE |
| 1 | 0 | 0 | H | L | ** | CW/CCW | STOP |
| 1 | 0 | 1 | L | H | ** | CCW/CW | STOP |
| 0 | 1 | 0 | H | ** | L | STOP | CW/CCW |
| 0 | 1 | 1 | L | ** | H | STOP | CCW/CW |
| 1 | 1 | 1/0 | L | L | L | BRAKE | BRAKE |

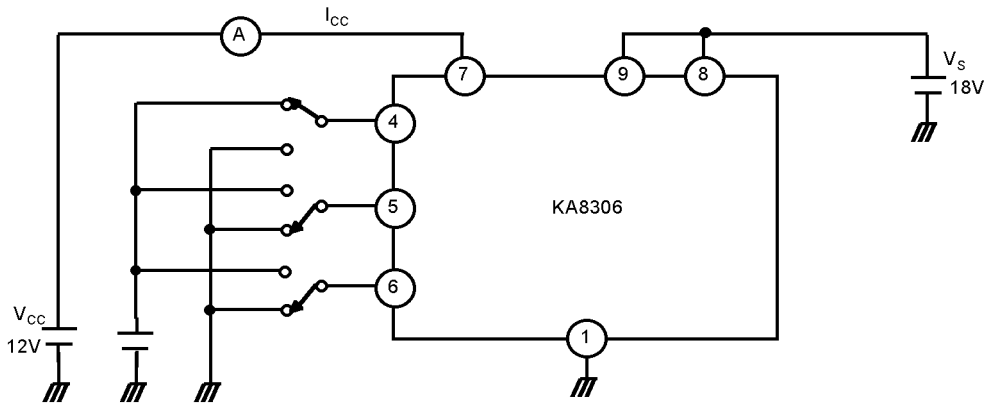
*: Inputs are all high active type

** : High impedance

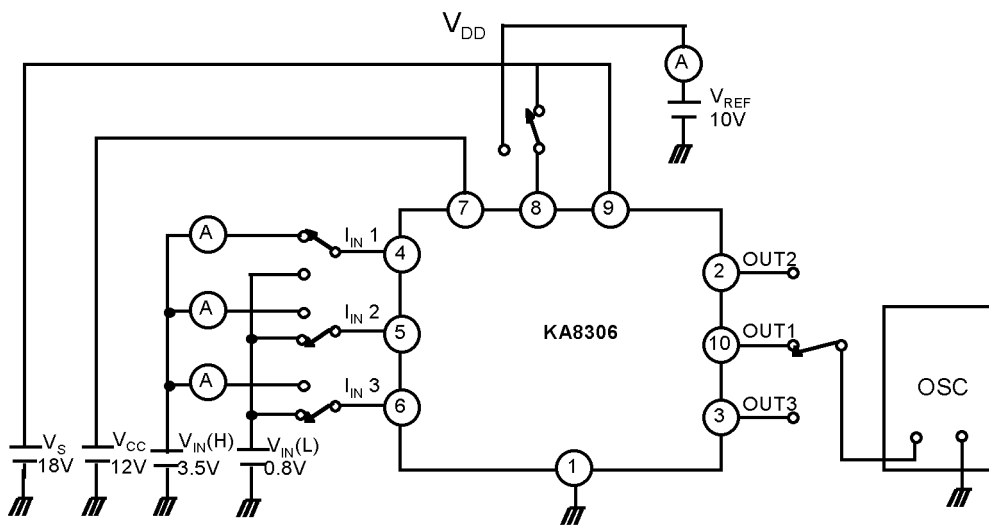
ELECTRICAL CHARACTERISTICS ($T_A=25^\circ\text{C}$, $V_{CC}=18\text{V}$, $V_S=18\text{V}$)

| Characteristic | | Symbol | Test Circuit | Test Conditions | Min | Typ | Max | Unit |
|--------------------------|-------|--------------|--------------|--|------|------|------|---------------|
| Supply Current | | I_{CC1} | 1 | Output Off CW/CCW Mode | — | 17 | 30 | mA |
| | | I_{CC2} | 1 | Output Off, Stop Mode | — | 13 | 25 | mA |
| Input Operating Voltage | H | V_{IN-H} | 2 | $T_J=25^\circ\text{C}$ | 3.5 | — | 5.5 | V |
| | L | V_{IN-L} | 2 | $T_J=25^\circ\text{C}$ | 0 | — | 0.8 | V |
| Input Current | | I_{IN} | 2 | $V_{IN}=3.5\text{V}$, Sink Mode | — | 5 | 20 | μA |
| Input Hysteresis Voltage | | V_{HYS} | 2 | | — | 0.7 | — | V |
| Saturation Voltage | Upper | V_{SAT-1U} | 3 | $V_{REF}=V_S$, $I_O=0.2\text{A}$ | — | 1.2 | 1.5 | V |
| | Lower | V_{SAT-1L} | 3 | $V_{REF}=V_S$, $I_O=0.2\text{A}$ | — | 1.1 | 1.4 | V |
| | Upper | V_{SAT-2U} | 3 | $V_{REF}=V_S$, $I_O=1.0\text{A}$ | — | 2.7 | 3.1 | V |
| | Lower | V_{SAT-2L} | 3 | $V_{REF}=V_S$, $I_O=1.0\text{A}$ | — | 2.5 | 3.0 | V |
| Output Voltage | | V_O-1 | 3 | $V_{REF}=10\text{V}$, $I_O=0.5\text{A}$ Output Measure | 10.3 | 10.7 | 11.5 | V |
| | | V_O-2 | 3 | $V_{REF}=10\text{V}$, $I_O=0.5\text{A}$ Output Measure | 10.1 | 10.5 | 11.3 | V |
| Leakage Current | Upper | I_{L-U} | | $V_S=25\text{V}$ | — | 0 | 50 | μA |
| | Lower | I_{L-L} | | $V_S=25\text{V}$ | — | 0 | 50 | μA |
| Diode Forward Voltage | Upper | V_F-U | 4 | $I_F=1.0\text{A}$ | — | 2.2 | — | V |
| | Lower | V_F-L | 4 | $I_F=1.0\text{A}$ | — | 1.4 | — | V |
| Reference Current | | I_{REF} | 2 | $V_{REF}=10\text{V}$, Source Mode | — | 20 | 30 | μA |

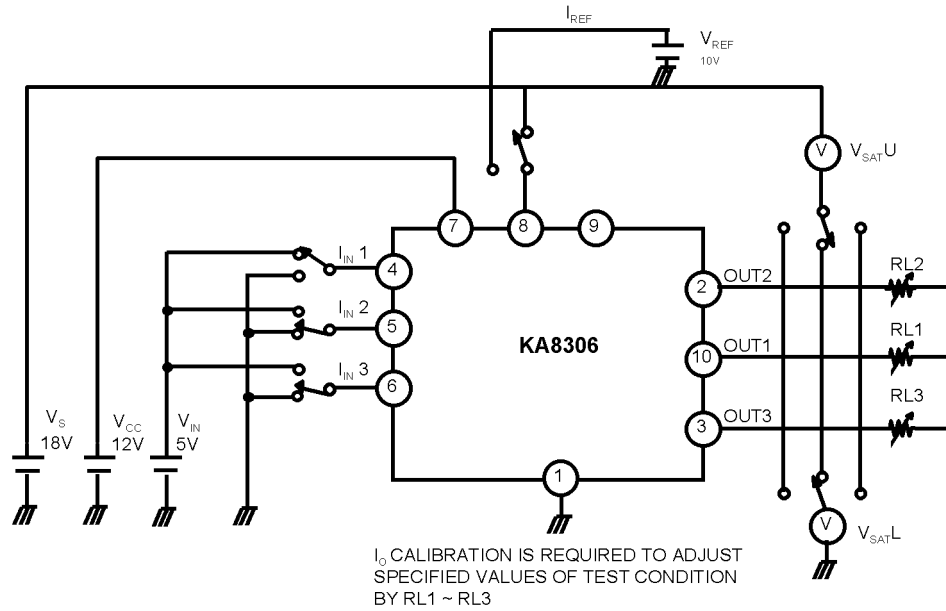
TEST CIRCUIT 1



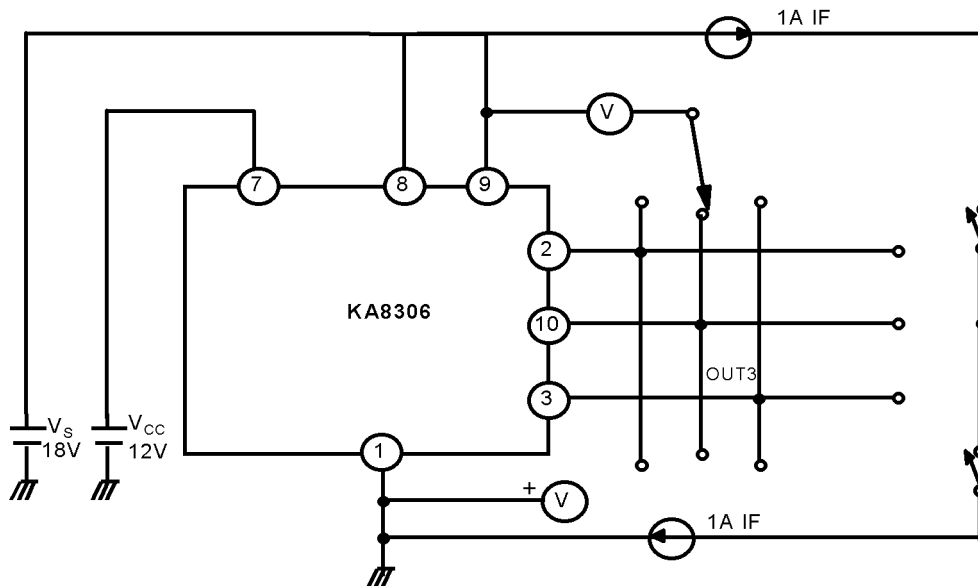
TEST CIRCUIT 2



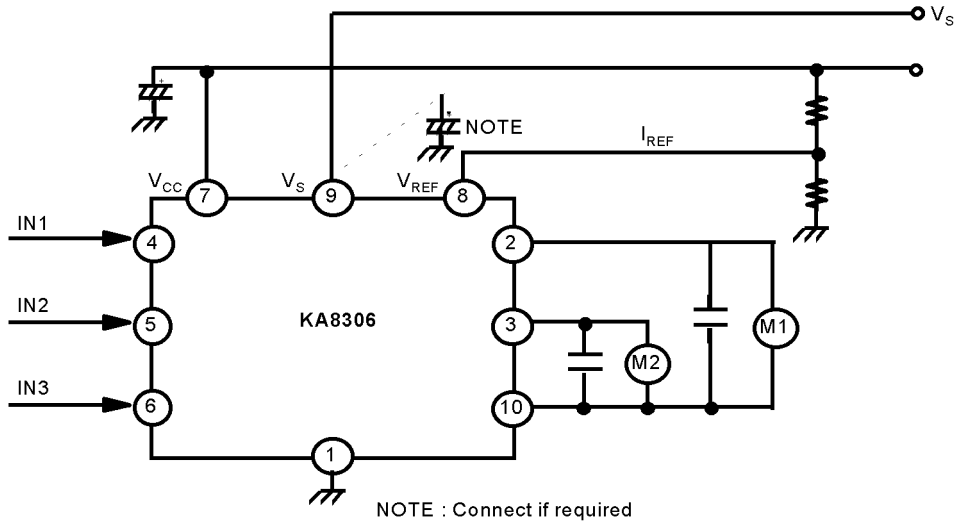
TEST CIRCUIT 3



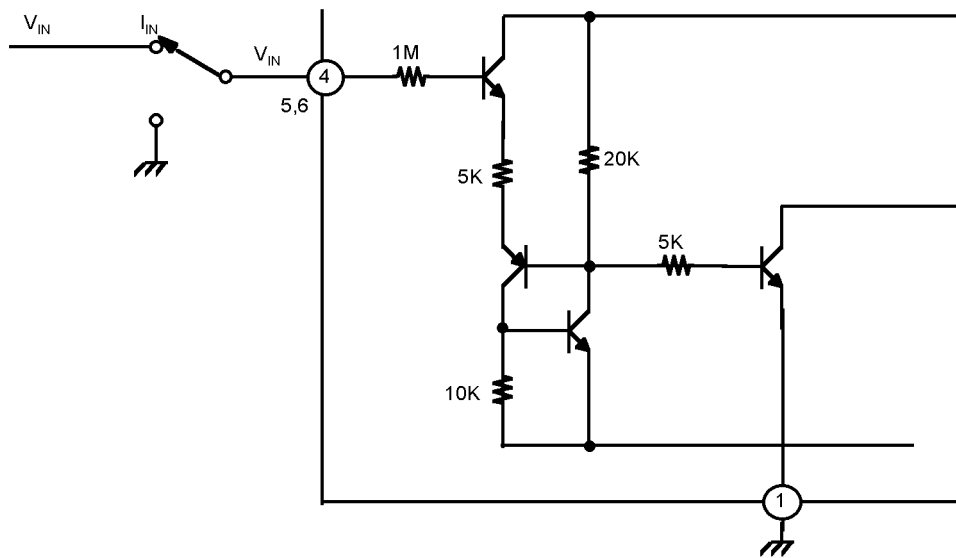
TEST CIRCUIT 4



APPLICATION CIRCUIT

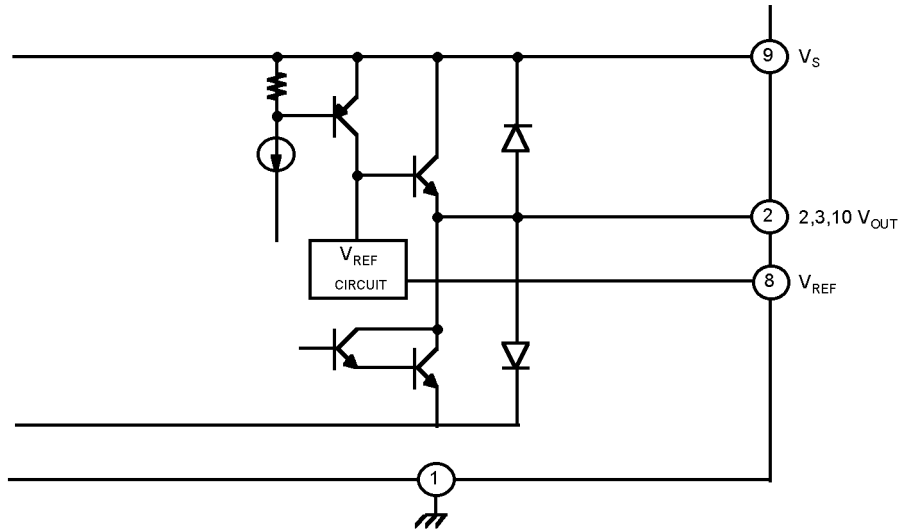


INPUT CIRCUIT



INPUT TERMINALS OF PINS 4,5 AND 6 ARE ALL HIGH ACTIVE TYPE AND HAVE A HYSTERESIS OF 0.7V TYPE 5 μ A TYPE OF SOURCE MODE INPUT CURRENT IS REQUIRED.

OUTPUT CIRCUIT



OUTPUT VOLTAGE IS CONTROLLED BY V_{REF} VOLTAGE RELATIONSHIP BETWEEN V_{OUT} AND V_{REF} IS $V_{OUT} = V_{BE} (= 0.7) + V_{REF}$
 V_{REF} TERMINAL REQUIRED TO CONNECT TO V_S TERMINAL FOR STABLE OPERATION IN CASE OF NO REQUIREMENT OF V_{OUT} CONTROL

Dimensions in Millimeters

