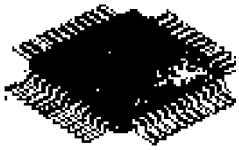
ZOOM & REEL MOTOR DRIVER AND CONTROLLER

The KA7406 is a monolithic integrated circuit, and suitable for the zoom & reel motor driver for camera, tape deck, any other consumer and industrial applications.
The KA7406 has the functions which drive buffer for flash & battery check and auto-focus magnetic control.

48-QFP-1010E



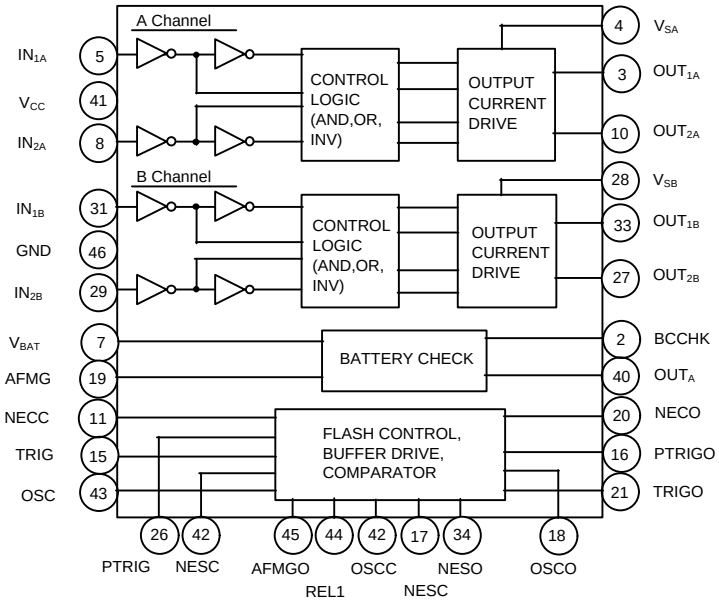
FEATURES

- Output current up to 0.8A(each channel).
- 4 function modes (CW,CCW,STOP and BRAKE) are controlled by 2 logic signals fed into 2 input terminals.
- Operating voltage range : Vcc = 2.5 ~ 7V. (exception battery check function)
- Build in spark killer diode .
- Low saturation voltage(1.5V max at 600mA).

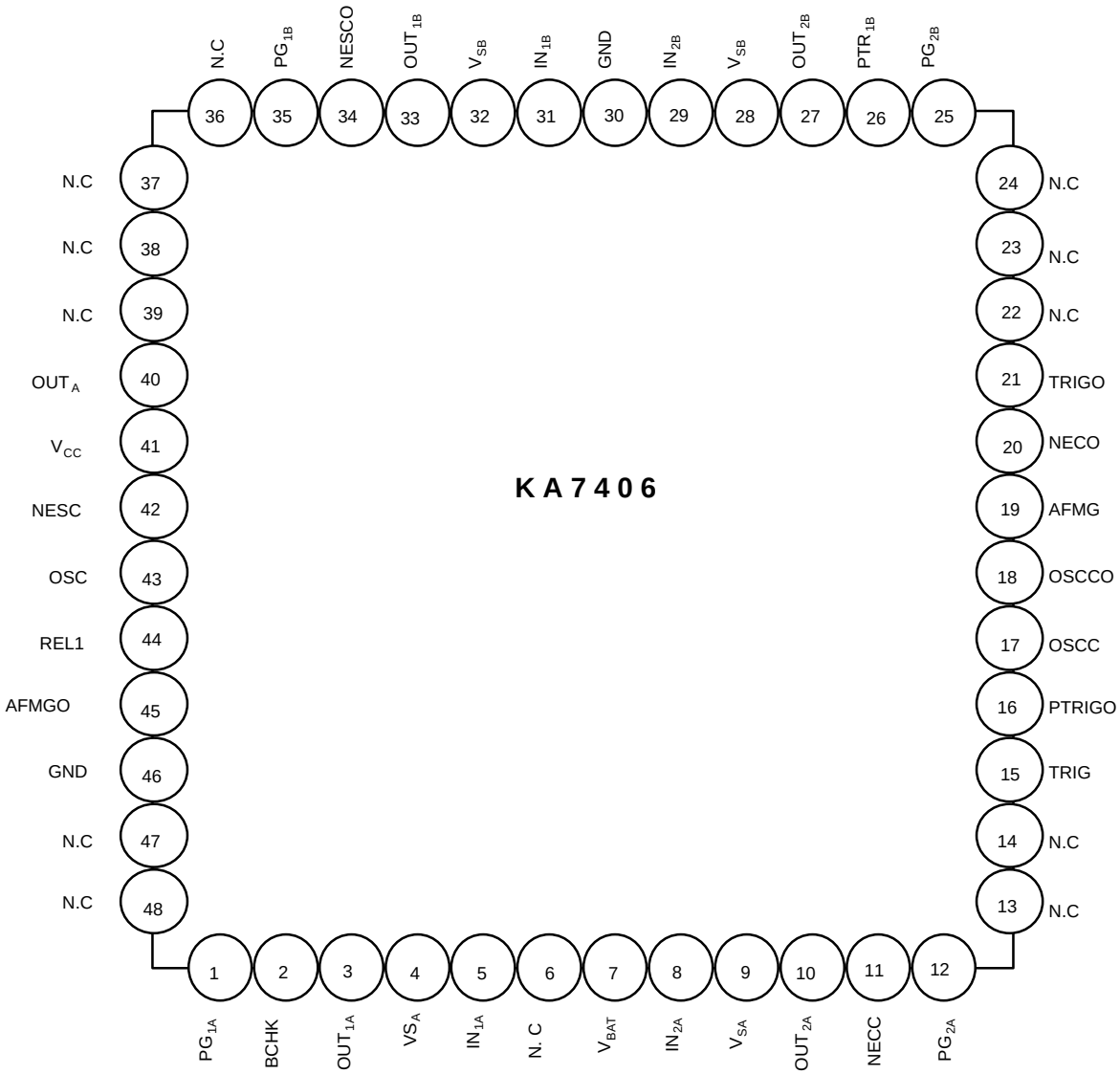
ORDERING INFORMATION

Device	Package	Operating Temperature
KA7406	48-QFP-1010E	£ -20 ¡ É~ + 75 ¡ É

BLOCK DIAGRAM



PIN CONFIGURATION



PIN DESCRIPTION

Pin No	Symbol	I/O	Define	Remark
1	PG_{1A}	-	Power Ground 1	Channel A
2	BCCHK	O	Battery Check Output	
3	OUT_{1A}	O	Output 1	Channel A
4	V_{SA}	-	Output Supply Voltage	Channel A
5	IN_{1A}	I	Input 1	Channel A
6	N.C	-	No Connection	
7	V_{BAT}	-	Power Supply Voltage	
8	IN_{2A}	I	Input 2	Channel A
9	V_{SA}	-	Output Supply Voltage	Channel A
10	OUT_{2A}	O	Output 2	Channel A
11	NECC	I	Flash Charge Control Input	
12	PG_{2A}	-	Power Gound 2	Channel A
13	M.C	-	No Connection	
14	N.C	-	No Connection	
15	TRIG	I	Flash Triger Input	
16	PTRIGO	O	Pretriger Output	
17	OSCC	I	Flash Charge Control Input	
18	OSCCO	O	Flash Charge Control Output	
19	AFMG	I	Auto Focus Magnetic Control Input	
20	NECO	O	Flash Charge Control Input	
21	TRIGO	O	Flash Triger Output	
22	N.C	-	No Connection	
23	N.C	-	No Connection	
24	N.C	-	No Connection	
25	PG_{2B}	-	Power Ground 2	Channel B
26	PTRIG	I	Flash Control Input	
27	OUT_{2B}	O	Output 2	Channel B
28	V_{SB}		Output Supply Voltage	Channel B
29	IN_{2B}	-	Input 2	Channel B
30	GND	I	Signal Ground	
31	IN_{1B}	-	Input 2	Channel B
32	V_{SB}	I	Output Supply Voltage	Channel B
33	OUT_{1B}	O	Output 1	Channel B
34	NESCO	-	Battery Check Output	
35	PG_{1B}	-	Power Supply Voltage Ground	Channel B
36	N.C	-	No Connection	
37	N.C	-	No Connection	
38	N.C	-	No Connection	
39	N.C	-	No Connection	
40	OUT_A	O	Battery Check TR Driving Signal	
41	VCC	-	Regulator Output Voltage	Effective REL1=Low Channel A
42	NESC	I	Battery Check Input	
43	OSC	I	Oscillator Input	
44	REL1	I	Battery Check Input	
45	AFMGO	O	Auto Focus Magnetic Control Output	
46	GND	-	AFMG Control TR Ground	
47	N.C	-	No Connection	
48	NC	-	No Connection	

ABSOLUTE MAXIMUM RATING (Ta=25 ¡ É

Characteristics	Symbol	Value	Unit
Power Supply Voltage	V_{BAT}	10	V
Channel Supply Voltage	V_S	10	V
Power Dissipation	P_D	750	mW
Operating Temperature	T_{OPR}	-25~+75	¡ É
Storage Temperature	T_{STG}	-40~+125	¡ É
Output Current	I_O	1	A

ELECTRICAL CHARACTERISTICS (V_{CC}=5.0V, T_a=25 ¡ Éunless otherwise specified)

Characteristics	Symbol	Conditions	Min	Typ	Max	Unit
Operating Voltage	V_{CC}		2.5	-	7.0	V
Supply Current (1)	$I_{CC}1$	V_{IN}(all)=0V	-	0.1	10	§ Ë
Supply Current (2)	$I_{CC}2$	$V_{IN}1$=3V	-	15	30	§ Ì
Supply Current (3)	$I_{CC}3$	$V_{IN}2$=3V	-	15	30	§ Ì
Supply Current (4)	$I_{CC}4$	V_{IN}=3V	-	30	50	§ Ì
Input Current	I_{IN}	V_{CC}=5V, V_{IN}=2V	-	45	80	§ Ë
Leakage Current	I_{IK}	V_{CC}=7V	-	0.1	10	§ Ë
Upper Spark Diode Voltage(1)	V_{SF1}	I_O=500mA	-	1.0	1.7	V
Lower Spark Diode Voltage(2)	V_{SF2}	I_O=500mA	-	1.0	1.7	V
Output Saturation Voltage(1A)	V_{O1A}	I_{OA}=200mA	-	0.45	0.70	V
Output Saturation Voltage (1B)	V_{O1B}	I_{OB}=200mA	-	0.45	0.70	V
Output Saturation Voltage (2A)	V_{O2A}	I_{OA}=400mA	-	1.0	1.5	V
Output Saturation Voltage (2B)	V_{O2B}	I_{OB}=400mA	-	1.0	1.5	V
Output Saturation Voltage (3A)	V_{O3A}	I_{OA}=200mA	-	0.45	0.70	V
Output Saturation Voltage (3B)	V_{O3B}	I_{OB}=200mA	-	0.45	0.70	V
Output Saturation Voltage (4A)	V_{O4A}	I_{OA}=400mA	-	1.0	1.5	V
Output Saturation Voltage (4B)	V_{O4B}	I_{OB}=400mB	-	1.0	1.5	V
Output Saturation Voltage (5)	V_{O5}	I_{OB}=400mA	-	0.6	0.8	V
Output Saturation Voltage (6)	V_{O6}	I_O= 400mA	-	0.6	0.8	V
Output Saturation Voltage (7)	V_{O7}	I_O=800mA	-	1.2	1.6	V
Output Saturation Voltage (8)	V_{O8}	I_O=800mA	-	1.2	1.6	V
OUTA Terminal Output Current	I_{OUTA}	V_{OUTA}=0.7A	6	15	24	mA
Battery Check Time	T_{CHECK}	R_{OSC}=72K, C_{OSC}=0.1 § þ	8	10	12	mS
Battery Check Reference Voltage	V_{CHECK}	V_{BAT}=4~5V	4.4	4.5	4.6	V
Comparator Reference Voltage	V_{TH}	V_{nesc}=1~2V	1.15	1.25	1.35	V
REL1 Terminal Input Current	I_{REL1}	V_{REL1}=0V	-	5	7	mA
V_{CC} Terminal Out Saturation Voltage	V_{VCC}	I_O=150mA	-	0.3	0.5	V

ELECTRICAL CHARACTERISTICS (continued, V_{CC}=5.0V, T_a=25 ¡ Éunless otherwise specified)

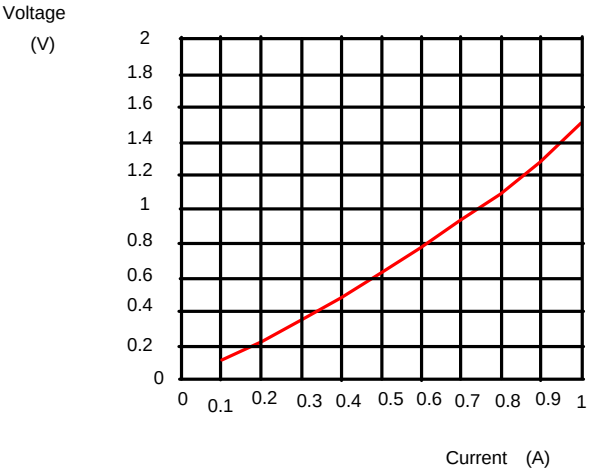
Characteristics	Symbol	Conditions	Min	Typ	Max	Unit
AFMG Terminal Input Current	I_{AFMG}	V_{AFMG}=5V	-	145	190	§ Ë
AFMGO Output Saturation Voltage	V_{AFMGO}	I_O=100mA	-	0.3	0.5	V
PTRIG Terminal Input Current	I_{PTRIG}	V_{PTRIG}=5V	-	145	190	§ Ë
PTRIGO Output Saturation Voltage	V_{PTRIGO}	I_O=10mA	-	0.3	0.5	V
TRIG Terminal Input Current	I_{TRIG}	V_{TRIG}=5V	-	145	190	§ Ë
TRIGO Terminal Voltage	V_{TRIGO}	V_{TRIG}=5V	0.84	0.94	1.04	V
NECC Terminal Input Current	I_{NECC}	V_{NECC}=5V	-	145	190	mA
NECO Terminal Output Current	I_{NECO}	V_{NECO}=0V	1.0	1.15	1.3	V
OSCC Terminal Input Current	I_{OSCC}	V_{OSCC}=5V	-	500	700	§ Ë
OSCCO Output Saturation Voltage	V_{OSCCO}	I_O=10mA	-	0.3	0.5	V

MOTOR OPERATION TRUTH TABLE

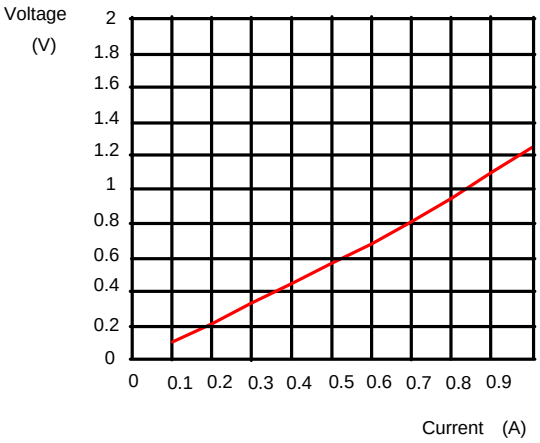
Motor Operation / Input/ Output	Input1	Input2	Output1	Output2	Remark
Stop	LOW	LOW	OFF	OFF	High impedance
Forward operation	LOW	HIGH	LOW	HIGH	CW/CCW
Backward operation	HIGH	LOW	HIGH	LOW	CCW/CW
Fast stop	HIGH	HIGH	LOW	LOW	Brake

CHARACTERISTIC GRAPHS

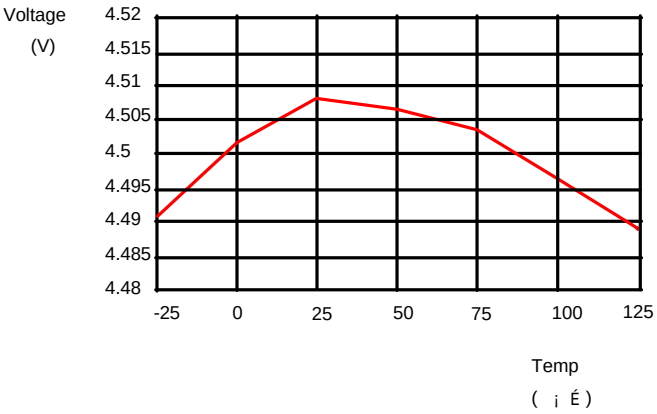
PNP Saturation Voltage



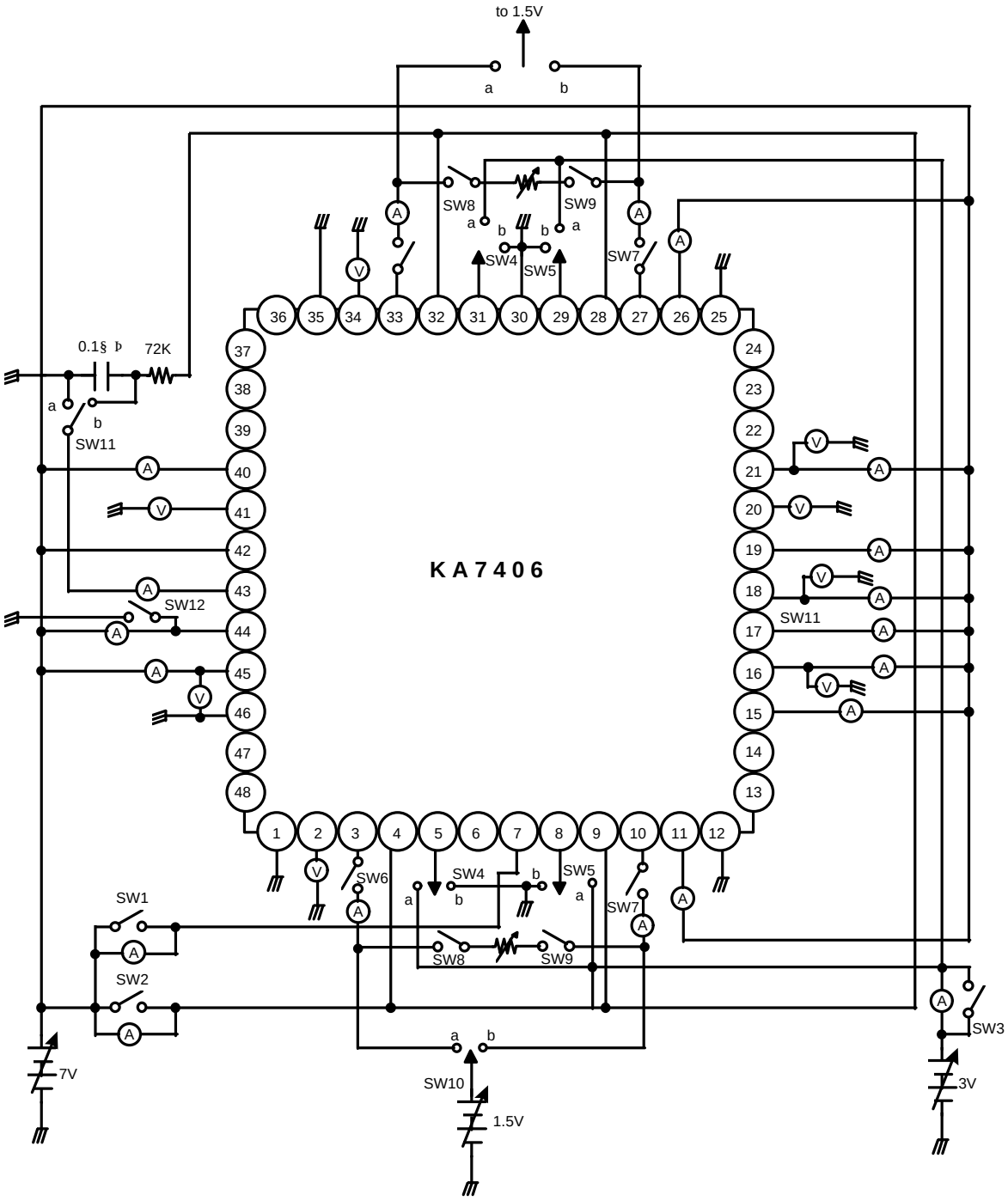
NPN Saturation Voltage



Battery Chek Voltage
(Vchk=4.5V)



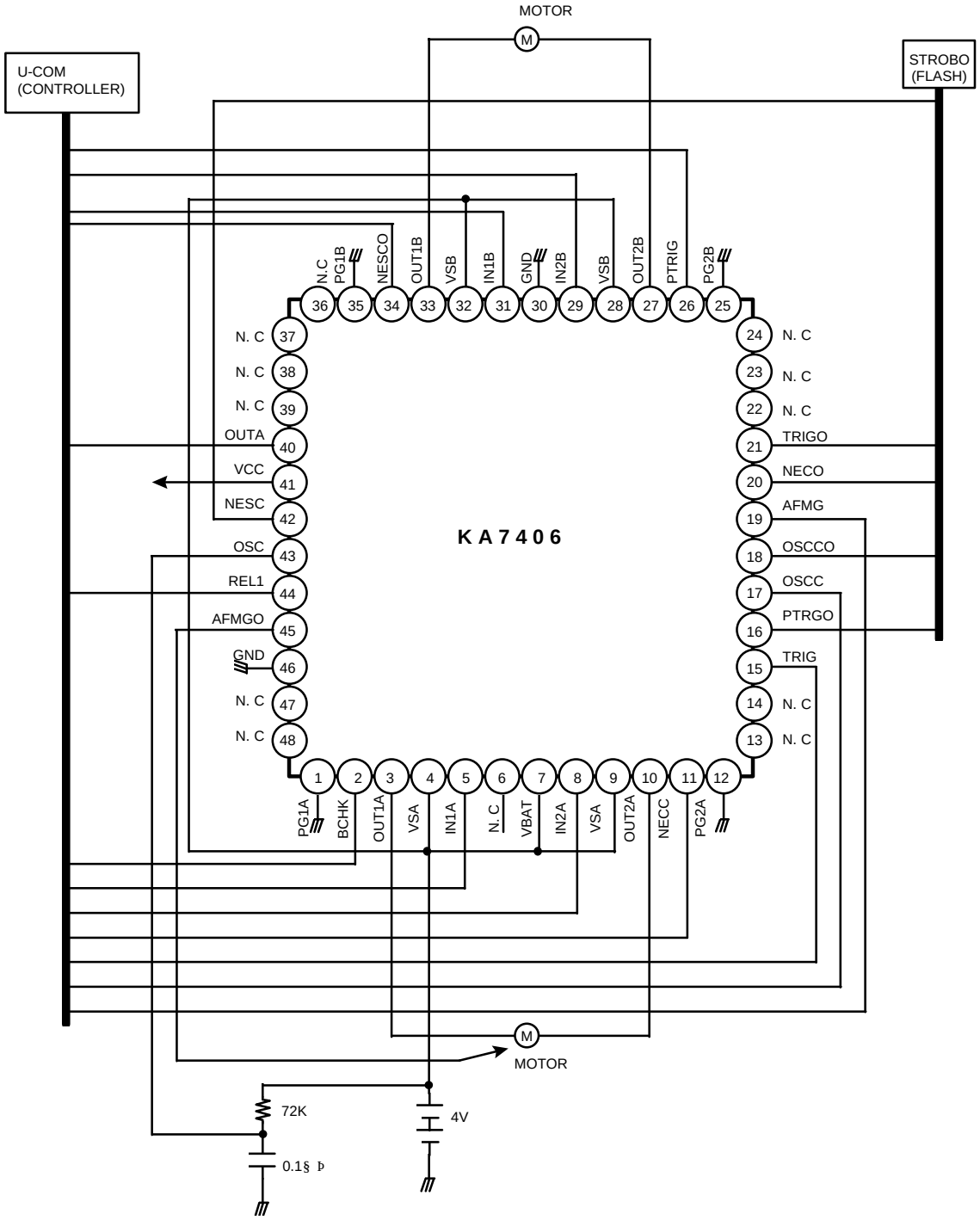
TEST CIRCUIT



TEST CONDITIONS

Characteristics	SW1	SW2	SW3	SW4	SW5	SW6	SW7	SW8	SW9	SW10	Remark
I_{CC1}	off	off	x	b	b	off	off	x	x	off	Supply Current
I_{CC2}	off	off	on	a	b	off	off	x	x	off	Supply Current
I_{CC3}	off	off	on	b	a	off	off	x	x	off	Supply Current
I_{CC4}	off	off	on	a	a	off	off	x	x	off	Supply Current
I_{IN}	off	off	off	a	a	off	off	x	x	off	Input Current
I_{LK}	off	off	x	b	b	off	off	x	x	off	Leakage Current
V_{SF1}	on	on	on	a	b	on	on	off	off	a	Spark Diode
V_{SF2}	on	on	on	b	a	on	on	off	off	b	Spark Diode
V_{O1A}	on	on	on	a	b	on	on	on	on	off	Single Mode
V_{O2A}	on	on	on	b	a	on	on	on	on	off	Single Mode
V_{O3A}	on	on	on	a	b	on	on	on	on	off	Single Mode
V_{O4A}	on	on	on	b	a	on	on	on	on	off	Single Mode
V_{O5}	on	on	on	a	b	on	on	on	on	off	Parallel Mode
V_{O6}	on	on	on	b	a	on	on	on	on	off	Parallel Mode
V_{O7}	on	on	on	a	b	on	on	on	on	off	Parallel Mode
V_{O8}	on	on	on	b	a	on	on	on	on	off	Parallel Mode
V_{SUS}	off	off	x	b	b	on	on	on	on	off	Sustain Voltage
Characteristics	**SW1**	**SW2**	**SW11**	**SW12**							**Remark**
I_{OUTA}	on	on	a	on							
T_{CHK}	on	on	b	off							
V_{CHK}	on	on	x	x							
V_{TH}	on	on	x	x							
I_{REL1}	on	on	x	x							
V_{VCC}	on	on	x	x							
I_{AFMG}	on	on	x	x							
V_{AFMGO}	on	on	x	x							
I_{PTRG}	on	on	x	x							
V_{PTRGO}	on	on	x	x							
I_{TRIG}	on	on	x	x							
V_{TRIGO}	on	on	x	x							
I_{NECC}	on	on	x	x							
I_{NECO}	on	on	x	x							
I_{OSCC}	on	on	x	x							
V_{OSCCO}	on	on	x	x							

APPLICATION CIRCUIT



PACKAGE DIMENSIONS (Unit : mm)

48-QFP-1010E