AN6386,AN6386K

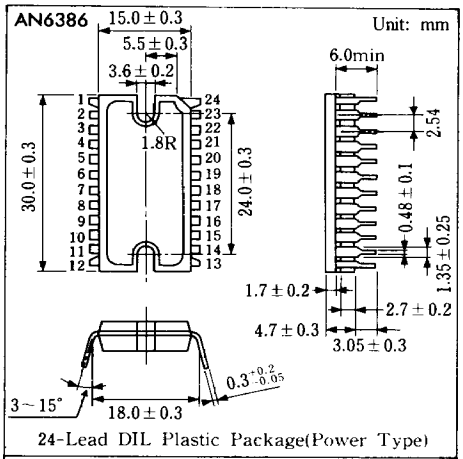
VCR Motor Drive Circuits with Switching Regulator

■ Outline

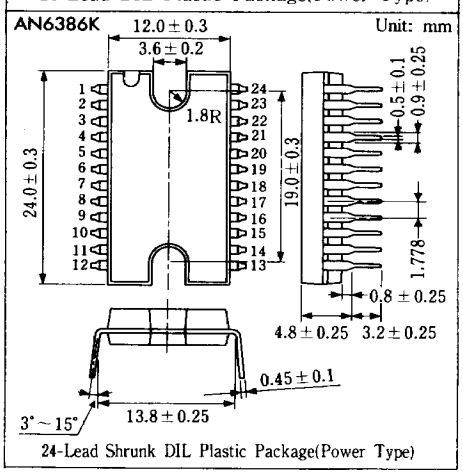
The AN6386 and the AN6386K are integrated circuits designed to drive a VCR cylinder motor and capstan motor.

■ Features

- Switching motor drive
- Forward and reverse are possible. (capstan motor)

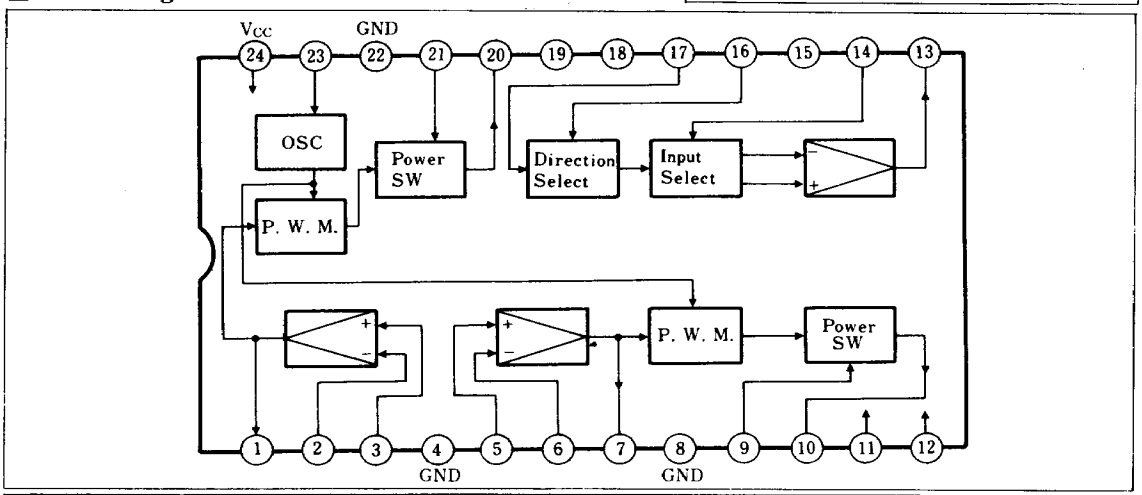


24-Lead DIL Plastic Package(Power Type)



24-Lead Shrunk DIL Plastic Package(Power Type)

■ Block Diagram



■ Pin

Pin No.	Pin Name	Pin No.	Pin Name
1	OP. Amp. Output (CAP. ERROR)	13	CAP. Motor Control Output
2	OP. Amp. Input (CAP. ERROR)	14	CAP. Motor Control Input
3	V_{REF}	15	NC
4	GND	16	CAP. Motor Direction Select
5	V_{REF}	17	CAP. Motor Drive Output
6	OP. Amp. Input (CYL. ERROR)	18	GND
7	OP. Amp. Output (CYL. ERROR)	19	NC
8	GND	20	CAP. Motor Drive Output
9	CYL. Stop Input	21	CAP. Motor Stop Input
10	CYL. Drive Output	22	GND
11	Vun.	23	OSC.
12	Vun.	24	V_{CC}

■ Absolute Maximum Ratings (Ta=25℃)

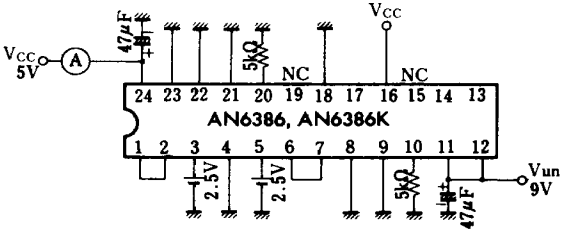
Item	Symbol	Rating	Unit
Supply Voltage	V_{CC}	V_{CC}=6.0, Vun=18	V
Power Dissipation	P_D	2000	mW
Operating Ambient Temperature	T_{opr}	−20~+70	℃
Storage Temperature	T_{stg}	−55~+150	℃

■ Electrical Characteristics (Ta=25℃)

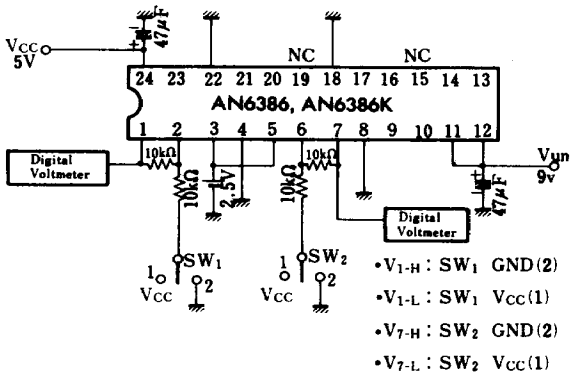
Item	Symbol	Test Circuit	Condition	min.	typ.	max.	Unit
Circuit Current	I_{24}	1	V_{CC}=5V, V_{un}=9V, No signal	3		7	mA
CYL System OP AMP1 Output H_1	V_{7-H}	2	V_{CC}=5V, V_{un}=9V, No signal	4			V
CYL System OP AMP1 Output L_0	V_{7-L}	2	V_{CC}=5V, V_{un}=9V, No signal			1	V
CAP System OP AMP2 Output H_1	V_{1-H}	2	V_{CC}=5V, V_{un}=9V, No signal	4			V
CAP System OP AMP2 Output L_0	V_{1-L}	2	V_{CC}=5V, V_{un}=9V, No signal			1	V
Oscillator Circuit Oscillation Level H_1	V_{23-H}	3	V_{CC}=5V, V_{un}=9V R=68kΩ, C=680pF	3.1		3.8	V
Oscillator Circuit Oscillation Level L_0	V_{23-L}	3	V_{CC}=5V, V_{un}=9V R=68kΩ, C=680pF	1.5		2	V
Oscillating Frequencey	f_{OSC}	3	V_{CC}=5V, V_{un}=9V R=68kΩ, C=680pF	22		31	kHz
Detector H_1	V_{13-H}	4	V_{CC}=5V, V_{un}=9V	5.5			V
Detector L_0	V_{13-L}	4	V_{CC}=5V, V_{un}=9V			0.4	V
CYL STOP Control Voltage	S_9	5	V_{CC}=5V, V_{un}=9V	3			V
CAP STOP Control Voltage	S_{21}	5	V_{CC}=5V, V_{un}=9V	3			V
CAP Forward Motor Direction Select Control Voltage	S_{16-F}	6	V_{CC}=5V, V_{un}=9V	3			V
CAP Reverse Motor Direction Select Control Voltage	S_{16-R}	6	V_{CC}=5V, V_{un}=9V			0.6	V

Note) Operating Supply Voltage Range : $V_{CC(OPR)}$=4.5~5.5V

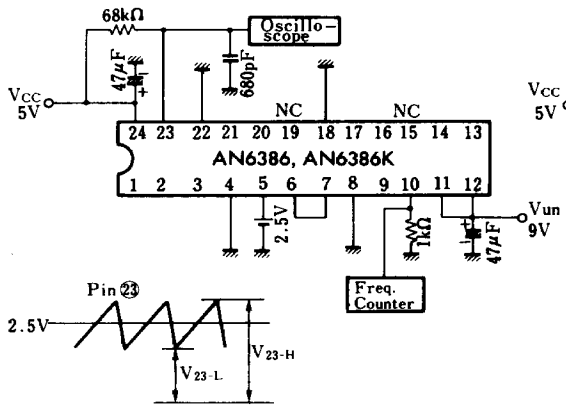
Test Circuit 1 (I_{24})



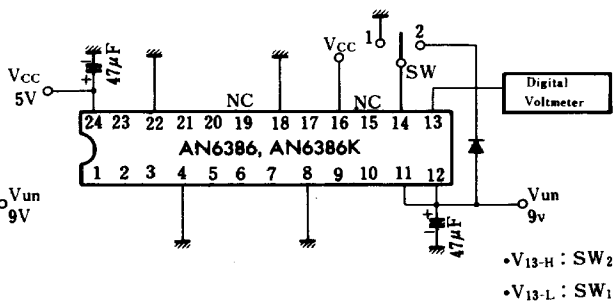
Test Circuit 2 (V_{7-H}, V_{7-L}, V_{1-H}, V_{1-L})



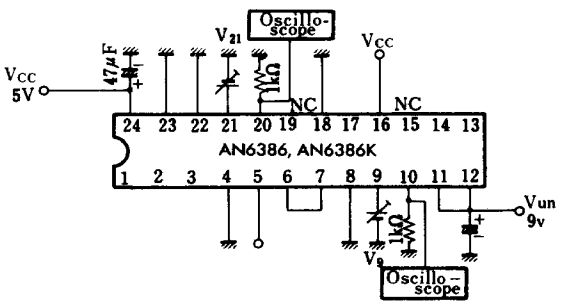
Test Circuit 3 (V_{23-H}, V_{23-L}, f_{OSC})



Test Circuit 4 (V_{13-H}, V_{13-L})

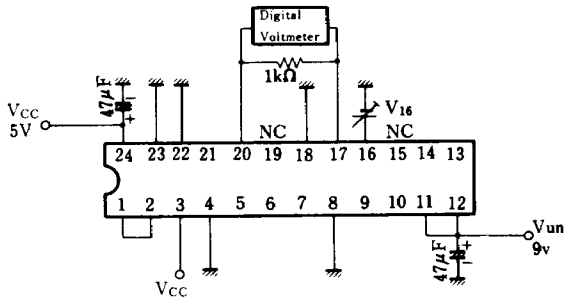


Test Circuit 5 (S_9, S_{21})



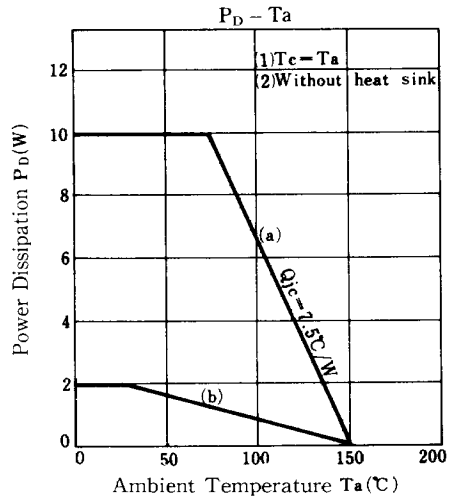
- S_9 : Set V_9 at 0V to check that V_{10} is about 8V. Next, gradually increase V_9 from 0V and read V_9 voltage when V_{10} reached about 0V.
- S_{21} : Set V_{21} at 0V to check that V_{20} is about 8V. Next, gradually increase V_{21} from 0V and read V_{21} voltage when V_{20} reached about 0V.

Test Circuit 6 (S_{16-F}, S_{16-R})



- S_{16-F}:Set V_{16} at 0V to check that Pin⑰ and Pin⑳ are in Hi and Lo level respectively. Next, gradually increase V_{16} from 0V and read V_{16} voltage when Pin⑳ and Pin⑰ became Hi and Lo level respectively.
- S_{16-R}:Set V_{16} at 5V to check that Pin⑳ and Pin⑰ are in Hi and Lo level respectively. Next, gradually decrease V_{16} from 5V and read V_{16} voltage when Pin⑰ and Pin⑳ became Hi and Lo level respectively.

※ : Pins⑮ and ⑲ are NC.



■ Application Circuit