

AN6386,AN6386K

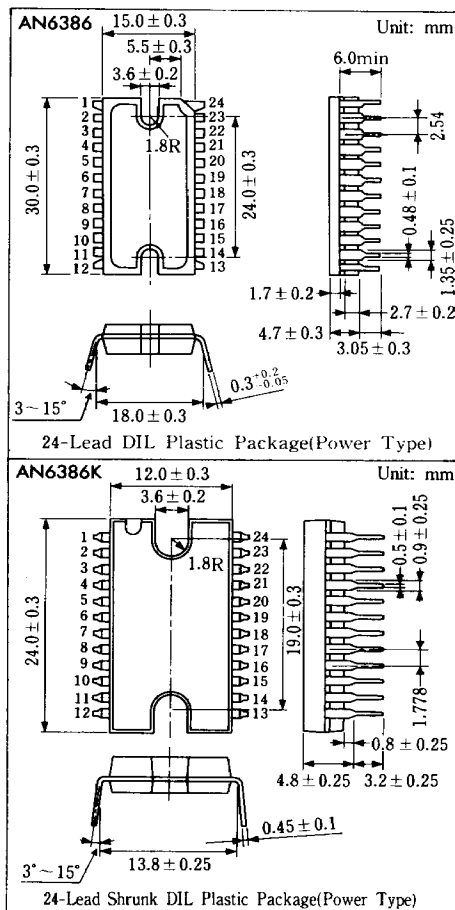
VCR Motor Drive Circuits with Switching Regulator

■ Outline

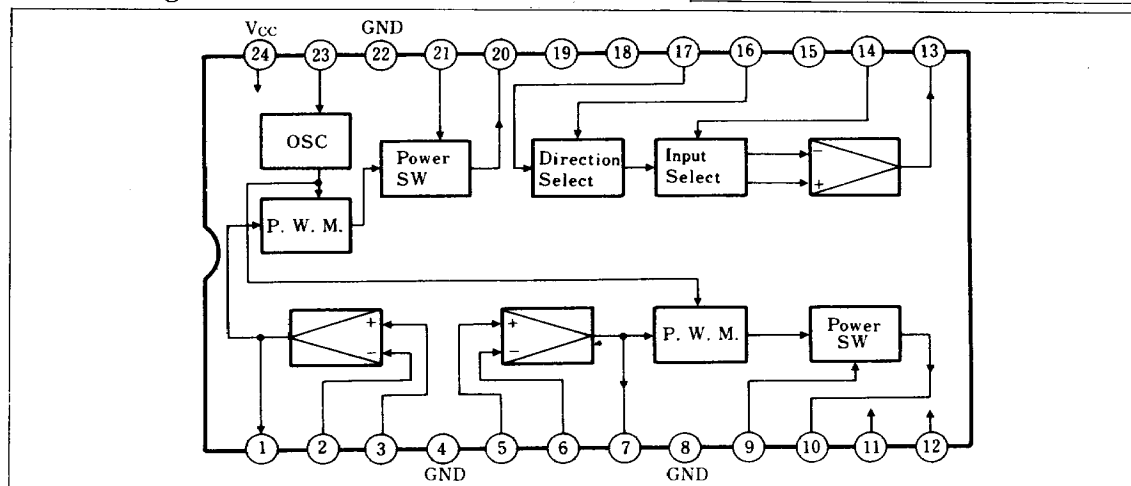
The AN6386 and the AN6386K are integrated circuits designed to drive a VCR cylinder motor and capstan motor.

■ Features

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



■ 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	V _{un} .	23	OSC.
12	V _{un} .	24	V _{CC}

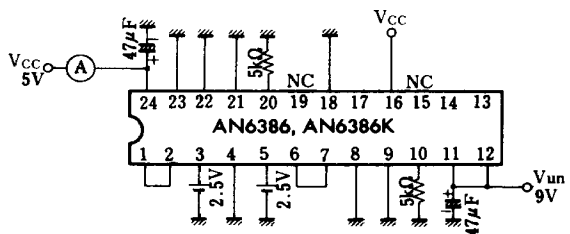
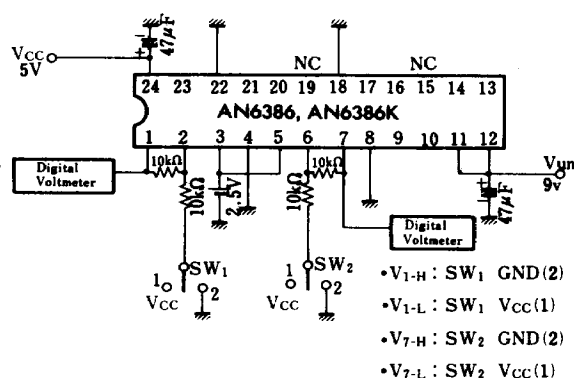
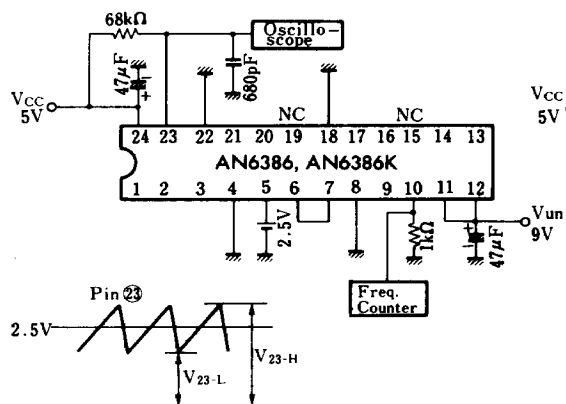
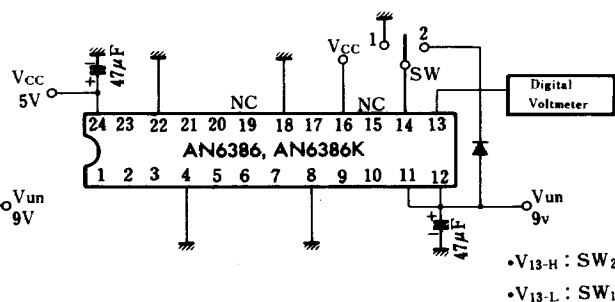
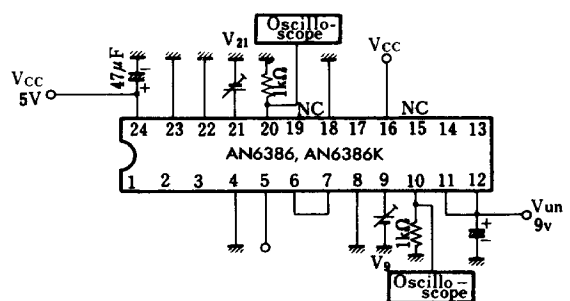
■ Absolute Maximum Ratings (Ta=25°C)

Item	Symbol	Rating	Unit
Supply Voltage	V _{CC}	V _{CC} =6.0, V _{un} =18	V
Power Dissipation	P _D	2000	mW
Operating Ambient Temperature	T _{opr}	-20 ~ +70	°C
Storage Temperature	T _{stg}	-55 ~ +150	°C

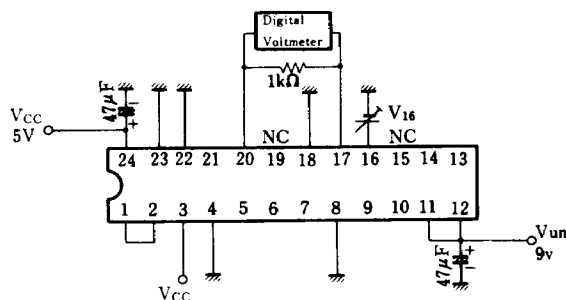
■ Electrical Characteristics (Ta=25°C)

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 _i	V _{7-H}	2	V _{CC} =5V, V _{un} =9V, No signal	4			V
CYL System OP AMP1 Output L _o	V _{7-L}	2	V _{CC} =5V, V _{un} =9V, No signal			1	V
CAP System OP AMP2 Output H _i	V _{1-H}	2	V _{CC} =5V, V _{un} =9V, No signal	4			V
CAP System OP AMP2 Output L _o	V _{1-L}	2	V _{CC} =5V, V _{un} =9V, No signal			1	V
Oscillator Circuit Oscillation Level H _i	V _{23-H}	3	V _{CC} =5V, V _{un} =9V R=68kΩ, C=680pF	3.1		3.8	V
Oscillator Circuit Oscillation Level L _o	V _{23-L}	3	V _{CC} =5V, V _{un} =9V R=68kΩ, C=680pF	1.5		2	V
Oscillating Frequency	f _{OSC}	3	V _{CC} =5V, V _{un} =9V R=68kΩ, C=680pF	22		31	kHz
Detector H _i	V _{13-H}	4	V _{CC} =5V, V _{un} =9V	5.5			V
Detector L _o	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(oper)}=4.5~5.5V

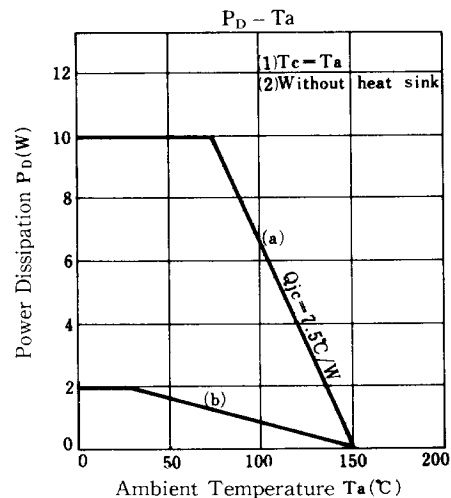
Test Circuit 1 (I_{24})Test Circuit 2 (V_{7-H} , V_{7-L} , V_{1-H} , V_{1-L})Test Circuit 3 (V_{23-H} , V_{23-L} , f_{OSC})Test Circuit 4 (V_{13-H} , V_{13-L})Test Circuit 5 (S_9 , S_{21})

- 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 Pin㉑ and Pin⑰ became Hi and Lo level respectively.
- S_{16-R} : Set V_{16} at 5V to check that Pin㉑ and Pin⑰ are in Hi and Lo level respectively. Next, gradually decrease V_{16} from 5V and read V_{16} voltage when Pin⑰ and Pin㉑ became Hi and Lo level respectively.

* : Pins⑮ and ⑲ are NC.



■ Application Circuit

