AN6386, AN6386K

VTR Motor Drive Circuit with Switching Regulator

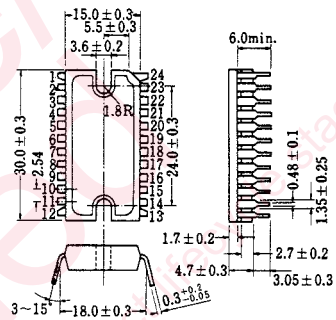
■ Outline

The AN6386 and the AN6386K are integrated circuits designed for VCR cylinder/capstan motor drive.

■ Features

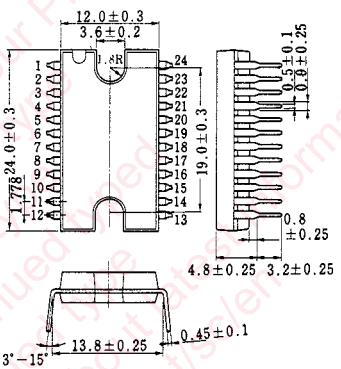
- Switching motor drive
- Forward and reverse are possible (capstan motor)

AN6386 Unit: mm



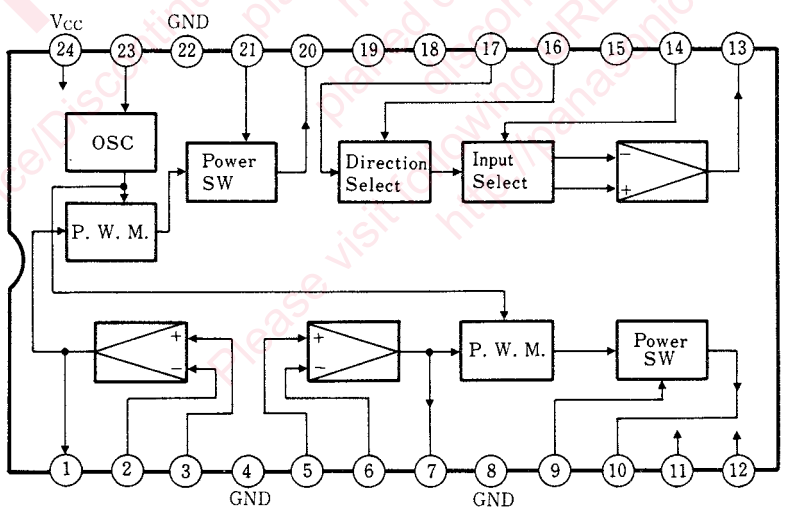
24-Lead DIL Plastic Package (Power Type)

AN6386K Unit: mm



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℃)

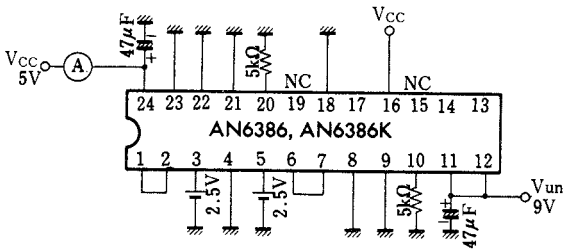
Item	Symbol	Rating	Unit
Supply voltage	V_{CC}	V_{CC}=6.0, Vun=18	V
Power dissipation	P_D	2000	mW
Operating ambient temperature	T_{opr}	−20~+70	℃
Storage temperature	T_{stg}	−55~+150	℃

■ Electrical Characteristics (Ta=25℃)

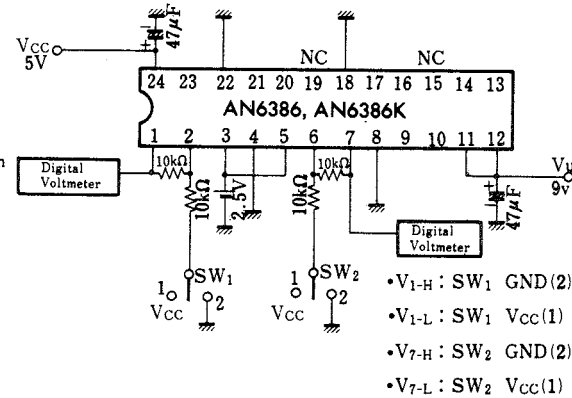
Item	Symbol	Test Circuit	Condition	min.	typ.	max.	Unit
Circuit current	I_{24}	1	V_{CC}=5V, Vun=9V No signal	3		7	mA
CYL system OP AMP1 output Hi	V_{7-H}	2	V_{CC}=5V, Vun=9V No signal	4			V
CYL system OP AMP1 output Lo	V_{7-L}	2	V_{CC}=5V, Vun=9V No signal			1	V
CAP system OP AMP2 output Hi	V_{1-H}	2	V_{CC}=5V, Vun=9V No signal	4			V
CAP system OP AMP2 output Lo	V_{1-L}	2	V_{CC}=5V, Vun=9V No signal			1	V
Oscillation circuit oscillation level Hi	V_{23-H}	3	V_{CC}=5V, Vun=9V, R=68kΩ, C=680pF	3.1		3.8	V
Cscillation circuit oscillation level Lo	V_{23-L}	3	V_{CC}=5V, Vun=9V, R=68kΩ, C=680pF	1.5		2	V
Oscillation frequency	f_{OSC}	3	V_{CC}=5V, Vun=9V, R=68kΩ, C=680pF	22		31	kHz
Detection circuit Hi	V_{13-H}	4	V_{CC}=5V, Vun=9V	5.5			V
Detection circuit Lo	V_{13-L}	4	V_{CC}=5V, Vun=9V			0.4	V
CYL STOP control voltage	S_9	5	V_{CC}=5V, Vun=9V	3			V
CAP control voltage	S_{21}	5	V_{CC}=5V, Vun=9V	3			V
CAP For. select control voltage	S_{16-F}	6	V_{CC}=5V, Vun=9V	3			V
CAP Rev. select control voltage	S_{16-R}	6	V_{CC}=5V, Vun=9V			0.6	V

Note) Operating supply voltage range : $V_{CC(opr)}$=4.5~5.5V

■ Test Circuit 1 (I_{24})

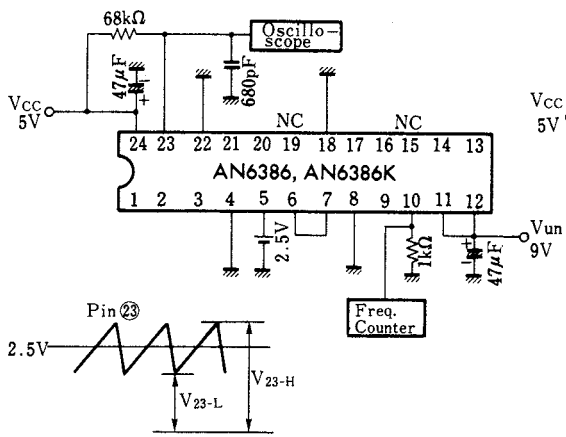


■ Test Circuit 2 (V_{7-H}, V_{7-L}, V_{1-H}, V_{1-L})

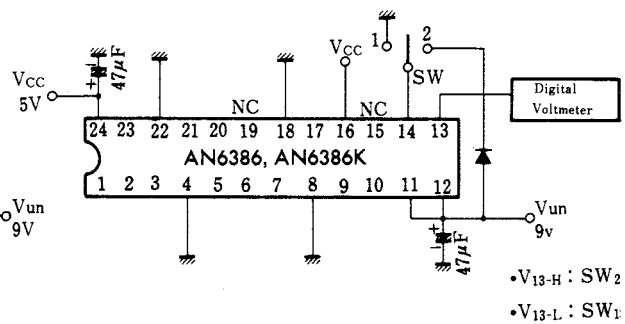


- V_{1-H} : SW_1 GND(2)
- V_{1-L} : SW_1 Vcc(1)
- V_{7-H} : SW_2 GND(2)
- V_{7-L} : SW_2 Vcc(1)

■ Test Circuit 3 (V_{23-H}, V_{23-L})

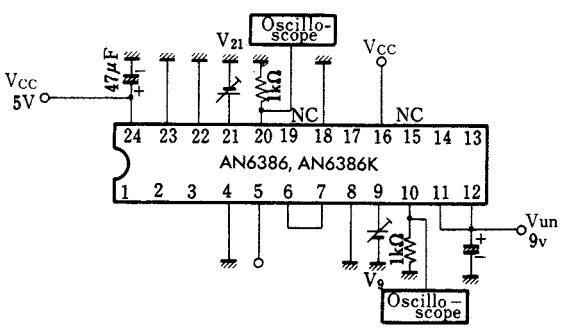


■ Test Circuit 4 (V_{13-H}, V_{13-L})



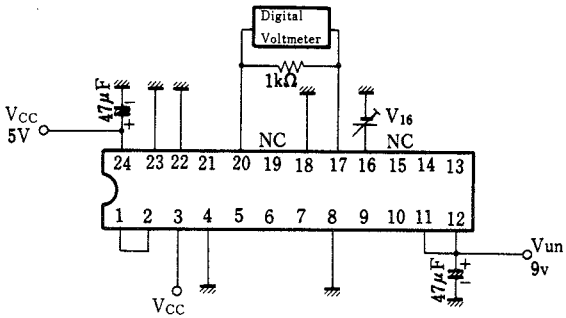
- V_{13-H} : SW_2
- V_{13-L} : SW_1

■ Test Circuit 5 (S_9, S_{12})



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

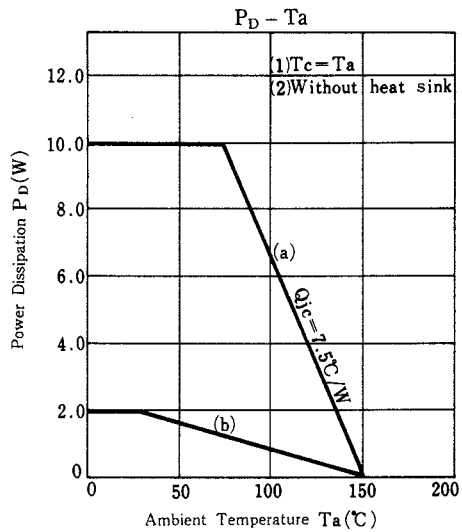
■ Test Circuit 6 (S_{16-F}, S_{16-R})



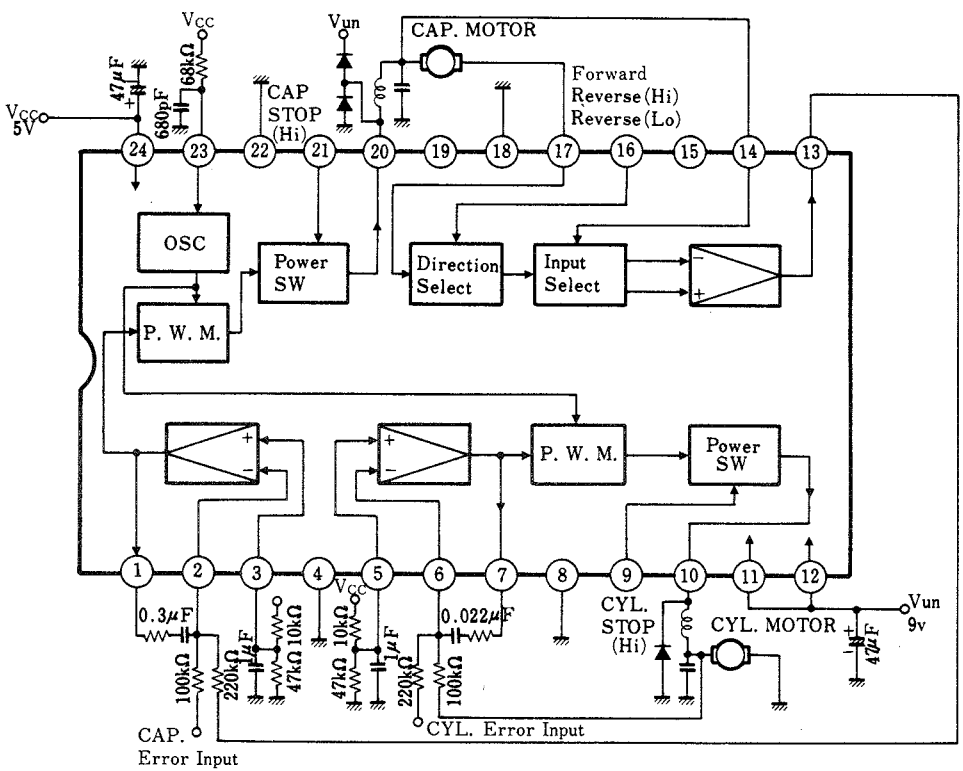
- S_{16-F} : Set V_{16} to 0V and check that the pins⑰ and⑳ are at Hi and Lo potentials, respectively. Next, increase V_{16} gradually from 0V and read a V_{16} voltage when the Pins⑳ and⑰ are turned to Hi and Lo potentials, respectively.

S_{16-R} : Set V_{16} to 5V and check that the Pins⑳ and⑰ are at Hi and Lo potentials. Next, decrease V_{16} gradually from 5V and read a V_{16} voltage when the Pins⑰ and⑳ are turned to Hi and Lo potentials.

※The Pins⑮ and⑲ are NC.



■ Application Circuit



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