AN6660, AN6660K

Forward/Reverse Motor Drivers

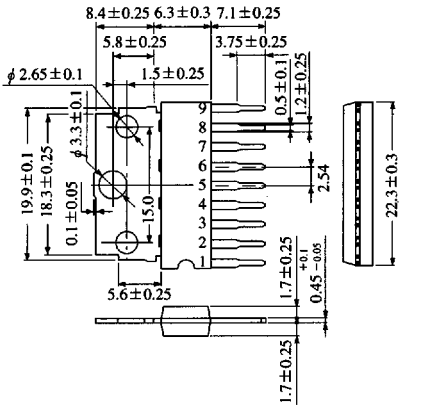
■ Overview

The AN6660 and the AN6660K are the integrated circuits designed for forward/reverse direction select driver for a motor with brush. It also assures four types of outputs ; forward, reverse, brake and stop due to input logic and is suitable for VCR loading, reel and cylinder, or a reel driver for tape deck. Since individual power supplies for motor drive and IC are provided, servo can be applied.

■ Features

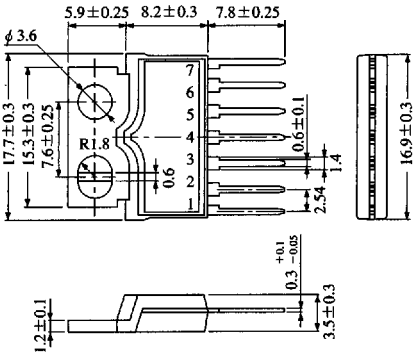
- Wide range of operating supply voltage
  : $V_{CC(opr)}$ =4V to 20V
- Independent power supplies can be used for IC and motor drive, respectively
- Low V_{CC} saturation type output transistor built-in
- Diode to absorb counter EMF built-in

AN6660 Unit : mm



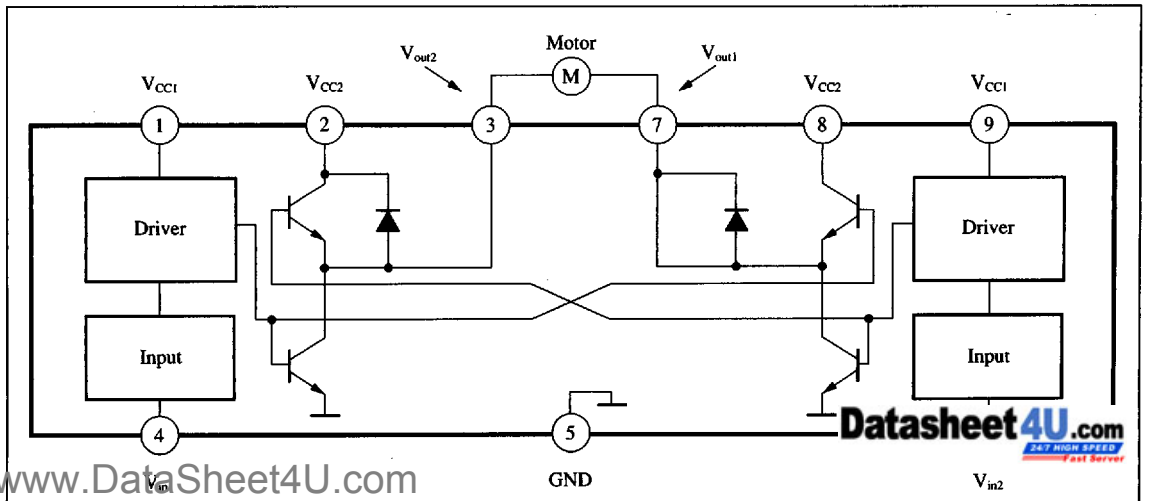
9-pin SIL Plastic Package with Fin (HSIP009-P-0000)

AN6660K Unit : mm



9-pin Shrunk SIL Plastic Package with Fin (HSIP007-P-0000)

■ Block Diagram



■ Pin Descriptions

Pin No.	Pin name
1	Supply voltage
2	Output supply voltage
3	Output (2)
4	Input (1)
5	GND
6	Input (2)
7	Output (1)
8	Output supply voltage
9	Supply voltage

■ Absolute Maximum Ratings (Ta=25℃)

Parameter		Symbol	Rating	Unit
Supply voltage (1)		V_{CC1}	−0.5 to +16	V
Supply voltage (2) *1		V_{CC2}	−0.5 to +20	V
Supply current		I_{CC}	650	mA
Output supply voltage		V_{CC}	−0.5 to V_{CC}	V
Input voltage		V_I	0 to V_{CC}	V
Motor rush allowable current *2		I_{OP}	2.0	A
Motor ordinary current (1)		$I_{O(1)}$	−330 to +330	mA
Motor ordinary current (2) *1		$I_{O(2)}$	−600 to +600	mA
Power dissipation	AN6660	P_D	10 *3	W
	AN6660K		15 *3	
Operating ambient temperature		T_{opr}	−20 to +75	℃
Storage temperature		T_{stg}	−55 to +150	℃

*1 When a heat sink is in use
*2 to_p=10 μs, cycle time>5s, V_{CC}<12V
*3 When an infinite heat sink is in use

■ Recommended Operating Conditions (Ta=25℃)

Parameter	Symbol	min	typ	max	Unit
Supply voltage	V_{CC}	4	—	15	V
Output current	I_O	—	—	±300	mA
High level input voltage	V_{IH}	2	—	V_{CC}	V
Low level input voltage	V_{IL}	—	—	0.5	V
Forward-to-reverse inhibiting time	t_{OFF}	10	—	—	μs

■ Truth Table

Input		Output		Note
1	2	1	2	
0	0	OFF State	OFF State	IC not operating
1	0	1	0	Motor forward
0	1	0	1	Motor reverse
1	1	0	0	Brake

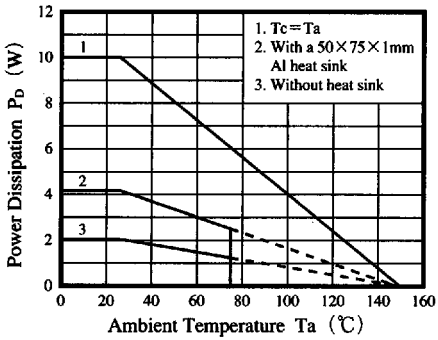
"0" = "L"
"1" = "H"

Electrical Characteristics (Ta=25℃)

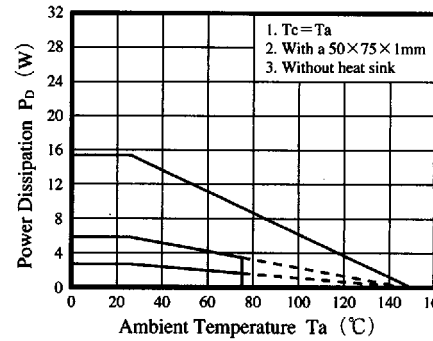
Parameter	Symbol	Condition	min	typ	max	Unit
Supply current	I_{CC1}	$V_{CC}=V_{CC}'=16V, V_{I1}=3V, V_{I2}=0V$	—	—	40	mA
	I_{CC2}	$V_{CC}=V_{CC}'=16V, V_{I1}=V_{I1}=3V$	—	—	50	
Output leak current	$I_{O(Leak)}$	$V_{CC}=V_{CC}'=20V, V_O=20V$	—	—	100	μA
	$-I_{O(Leak)}$	$V_{CC}=V_{CC}'=20V, V_O=0V$	—	—	100	
High level output voltage	V_{OH}	$V_{CC}=V_{CC}'=12V, I_{OH}=-300mA$	10.8	—	—	V
		$V_{CC}=V_{CC}'=12V, I_{OL}=-500mA$	10.7	—	—	
Low level output voltage	V_{OH}	$V_{CC}=V_{CC}'=12V, I_{OH}=300mA$	—	—	0.4	V
		$V_{CC}=V_{CC}'=12V, I_{OL}=500mA$	—	—	0.65	
Output (1) − (2) Voltage	$V_{O1}-V_{O2}$	$V_{CC}=V_{CC}'=12V, I_O=\pm300mA$	10.3	—	—	V
High level output voltage	V_{OH}	$V_{CC}=12V, V_{CC}'=5V, I_{OH}=-300mA$	4.6	—	—	V
Input impedance	Z_i	$V_{CC}=16V, V_I=2V\rightarrow3V$	10	—	20	kΩ

Characteristics Curve

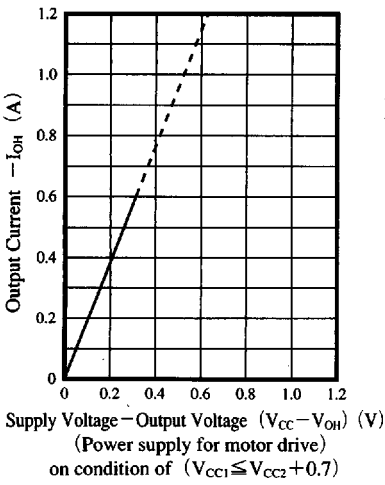
P_D-Ta (AN6660)



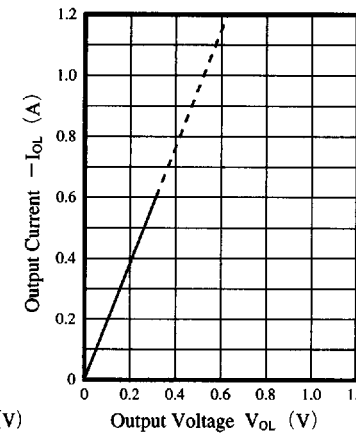
P_D-Ta (AN6660K)



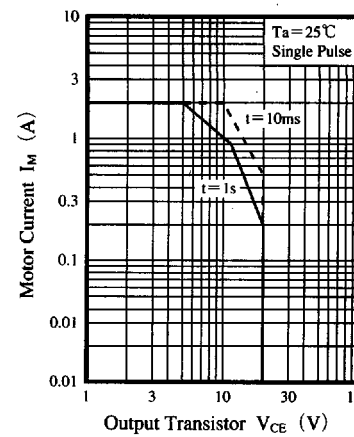
$-I_{OH}-(V_{CC}-V_{OH})$



$I_{OL}-V_{OL}$ (typ.)

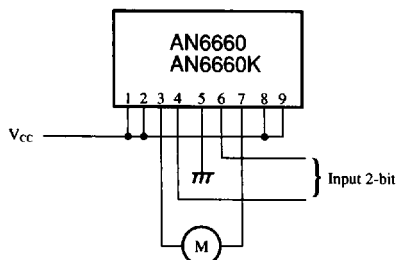


Safety Operation Area

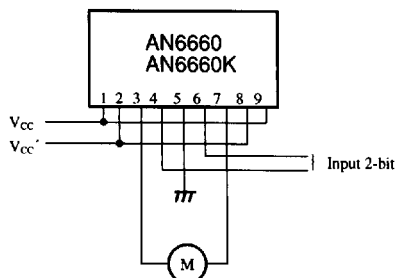


Basic Circuits

- With single power supply



- With 2 power supplies for IC and Motor drive



V_{CC} : ICs power supply
V_{CC}´ : Power supply for motor drive