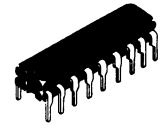
HA16617P,HA16619P ●Fluorescent Display Drivers

HA16617P and HA16619P are fluorescent display drivers operating in high voltage which use positive and negative power source, respectively.



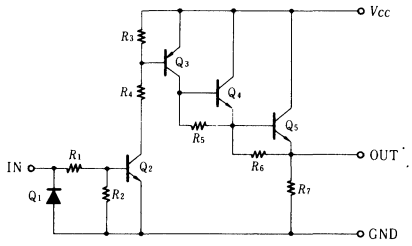
(DP-18)

■ FEATURES

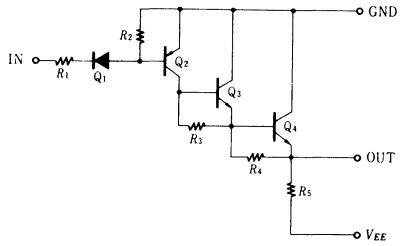
- Capable of driving fluorescent display tube directly because of the built-in 8 circuits and the built-in pull down resistors at output.
- For the inputs, CMOS or TTL accepted.
- The output pulse is non-inverted or inverted from the input pulse in HA16617P or HA16619P, respectively.

■ CIRCUIT SCHEMATIC (1/8)

●HA16617P

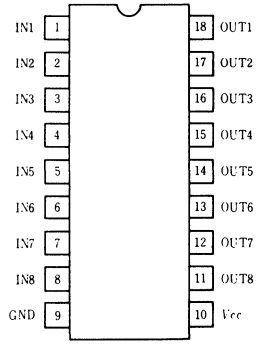


●HA16619P



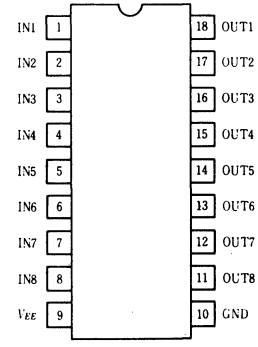
■PIN ARRANGEMENT

●HA16617P



(Top View)

●HA16619P



(Top View)

■ABSOLUTE MAXIMUM RATINGS (Ta=25℃)

Item	Symbol	HA16617P	HA16619P	Unit
Supply Voltage	V_{EE}	−0.3 to +65	+0.3 to −65	V
Input Voltage	V_{in}	−0.5 to +10	+0.5 to −10	V
Output Voltage	V_{out}	−0.3 to +65	+0.3 to −65	V
Output Current*	I_{out}	−45	−45	mA
Power Dissipation**	P_T	625	625	mW
Operating Temperature	T_{opr}	−20 to +75	−20 to +75	℃
Storage Temperature	T_{stg}	−55 to +125	−55 to +125	℃

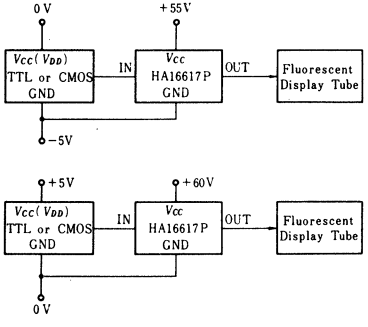
* When only one circuit turns ON.
** Value when $Ta \leqq 50$℃. Derating curve above Ta=50℃ shall be 8.3mW/℃.

■ELECTRICAL CHARACTERISTICS (Ta=−20 to +75℃)

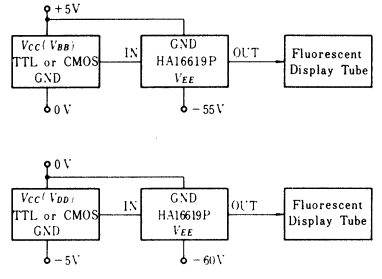
Item	Symbol	Test Conditions	HA16617P			HA16619P			Unit
			min	typ	max	min	typ	max	
Input Voltage	V_{IH}	V_{CC}=60V, $V_O \geqq$ 57V	2.4	—	—	—	—	—	V
		V_{EE}=−60V, $V_O \leqq$ −55V	—	—	—	—	—	−1.5	
	V_{IL}	V_{CC}=60V, $V_O \leqq$ 3V	—	—	0.4	—	—	—	V
		V_{EE}=−60V, $V_O \geqq$ −3V	—	—	—	−4	—	—	
Input Current	I_{IH}	V_{CC}=60V, V_{in}=2.4V	—	—	0.22	—	—	—	mA
		V_{CC}=60V, V_{in}=5V	—	—	0.45	—	—	—	
		V_{EE}=−60V, V_{in}=−1.5V	—	—	—	−280	—	—	μA
	I_{IL}	V_{CC}=60V, V_{in}=0.4V	—	—	80	—	—	—	μA
		V_{EE}=−60V, V_{in}=−4V	—	—	—	−1.2	—	—	mA
		V_{EE}=−60V, V_{in}=−7V	—	—	—	−2.6	—	—	
Output Voltage	V_{OH}	V_{CC}=60V, V_{in}=2.4V, I_O=−40mA	57	58.5	—	—	—	—	V
		V_{EE}=−60V, V_{in}=−4V, I_O=−40mA	—	—	—	−3	−1.5	—	
	V_{OL}	V_{CC}=60V, V_{in}=0.4V	—	—	3.0	—	—	—	V
		V_{EE}=−60V, V_{in}=−1.5V	—	—	—	−55	—	—	
Quiescent Current	$I_{CC(OFF)}$	V_{CC}=60V, all Circuit V_{in}=0.4V	—	0.04	0.4	—	—	—	mA
	$I_{EE(OFF)}$	V_{EE}=−60V, All Circuit V_{in}=−1.5V	—	—	—	−1.3	—	—	
	$I_{CC(ON)}$	V_{CC}=60V, One Circuit V_{in}=2.4V	—	—	4.0	—	—	—	mA
	$I_{EE(ON)}$	V_{CC}=−60V, All Circuit V_{in}=−4V	—	—	—	−12	—	—	

■APPLICATIONS

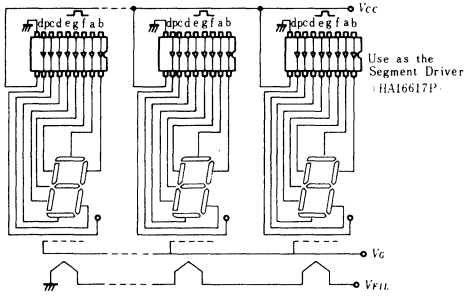
●HA16617P



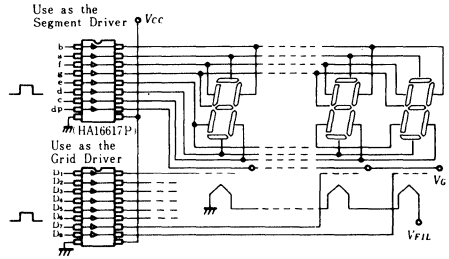
●HA16619P



■BASIC CIRCUIT



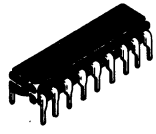
(a) Static Type



(b) Dynamic Type

HA16617PJ,HA16619PJ ● Fluorescent Display Drivers

HA16617PJ and HA16619PJ are fluorescent display drivers operating in high voltage which use positive and negative power source, respectively.



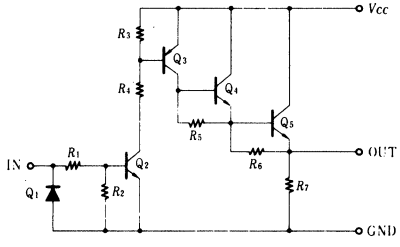
(DP-18)

■ FEATURES

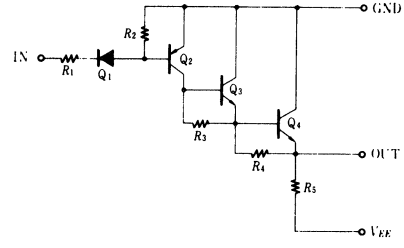
- Capable of driving fluorescent display tube directly because of the built-in 8 circuits and the built-in pull down resistors at output.
- For the inputs, CMOS or TTL accepted.
- The output pulse is non-inverted or inverted from the input pulse in 16617PJ or HA16619PJ, respectively.

■ CIRCUIT SCHEMATIC (1/8)

● HA16617PJ

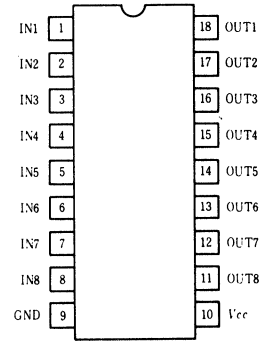


● HA16619PJ



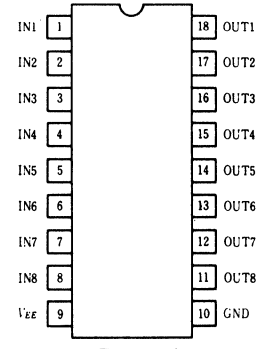
■ PIN ARRANGEMENT

● HA16617PJ



(Top View)

● HA16619PJ



(Top View)

■ ABSOLUTE MAXIMUM RATINGS (Ta=25℃)

Item	Symbol	HA16617PJ	HA16619PJ	Unit
Supply Voltage	V_{EE}	−0.3 to +65	+0.3 to −65	V
Input Voltage	V_{in}	−0.5 to +10	+0.5 to −10	V
Output Voltage	V_{out}	−0.3 to +65	+0.3 to −65	V
Output Current *	I_{out}	−45	−45	mA
Power Dissipation **	P_T	625	625	mW
Operating Temperature	T_{opr}	−40 to +85	−45 to +85	℃
Storage Temperature	T_{stg}	−55 to +125	−55 to +125	℃

*When only one circuit turns ON
**Value when $Ta \leqq 50$℃. Derating curve above Ta=50℃ shall be 8.3mW/℃.

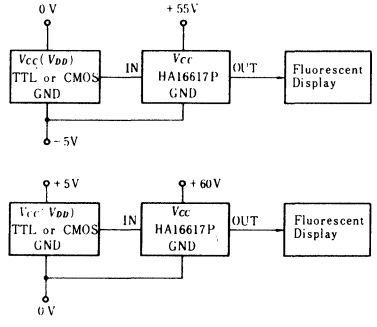
■ ELECTRICAL CHARACTERISTICS (Ta=−45to +85℃)

Item	Symbol	Test Conditions	HA16617PJ			HA16619PJ			Uuit
			Min	Typ	Max	Min	Typ	Max	
Input Voltage	V_{IH}	V_{CC}=60V, $V_O \geqq$ 57V	2.5	—	—	—	—	—	V
		V_{EE}=−60V, $V_O \leqq$ −55V	—	—	—	—	—	−1.4	
	V_{IL}	V_{CC}=60V, $V_O \leqq$ 3V	—	—	0.4	—	—	—	V
		V_{EE}=−60V, $V_O \geqq$ −3V	—	—	—	−4.3	—	—	
Input Current	I_{IH}	V_{CC}=60V, V_{in}=2.5V	—	—	0.22	—	—	—	mA
		V_{CC}=60V, V_{in}=5V	—	—	0.45	—	—	—	
		V_{EE}=−60V, V_{in}=−1.4V	—	—	−280	−280	—	—	
	I_{IL}	V_{CC}=60V, V_{in}=0.4V	—	—	80	—	—	—	μA
		V_{EE}=−60V, V_{in}=−4.3V	—	—	—	−1.2	—	—	mA
		V_{EE}=−60V, V_{in}=−7V	—	—	—	−2.6	—	—	
Output Voltage	V_{OH}	V_{CC}=60V, V_{in}=2.5V, I_O=−40mA	57	58.5	—	—	—	—	V
		V_{EE}=−60V, V_{in}=−4.3V, I_O=−40mA	—	—	—	−3	−1.5	—	
	V_{OL}	V_{CC}=60V, V_{in}=0.4V	—	—	3.0	—	—	—	V
		V_{EE}=−60V, V_{in}=−1.4V	—	—	—	−55	—	—	
Ouiescent Current	$I_{CC(OFF)}$	V_{CC}=60V, All Circuit V_{in}=0.4V	—	0.04	0.4	—	—	—	mA
	$I_{EE(OFF)}$	V_{EE}=−60V, All Circuit V_{in}=−1.4V	—	—	—	−1.3	—	—	
	$I_{CC(ON)}$	V_{CC}=60V, One Circuit V_{in}=2.5V	—	—	4.0	—	—	—	mA
	$I_{EE(ON)}$	V_{CC}=−60V, All Circuit V_{in}=−4.3V	—	—	—	−12	—	—	

■ APPLICATIONS

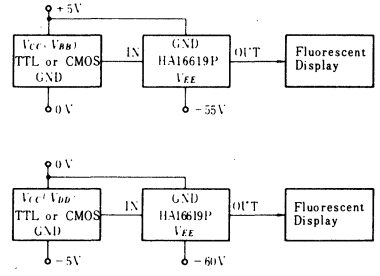
● HA16617PJ

Input voltage within 0 to +7V shall be used with regard to GND.

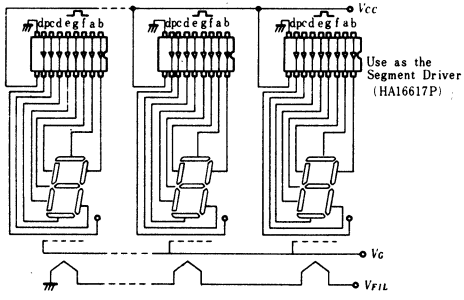


● HA16619PJ

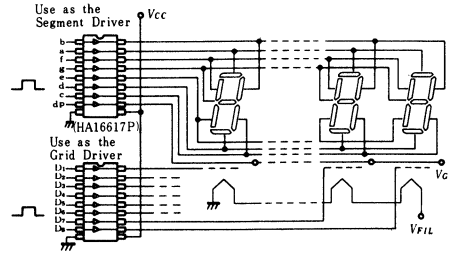
Input voltage within 0 to −7V shall be used with regard to GND.



■ BASIC CIRCUIT



(a) Static Type



(b) Dynamic Type