

Preliminary

MITSUBISHI[Standard Linear IC]

M62580P

High speed High voltage OP. Amp.

Notice: This is not a final specification.
Some parametric limits are subject to change.

DESCRIPTION

M62580P is a semiconductor integrated circuit designed for capacitive load drive that operates at single power supply. M62580P features high voltage operation with fixed voltage gain (18.00V/V) and built-in pre-amplifier with high slew rate. For output, AB class Amp. can be structured by connecting 2 emitter outputs, also featuring distinctive characteristics for high current load.

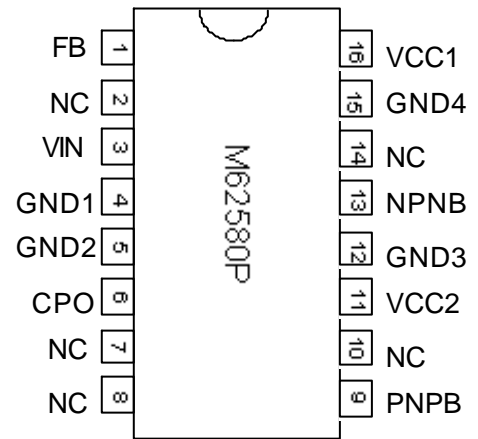
FEATURES

- *High voltage ----- $V_{CC}=42V$ (typ.)
- *High slew rate----- $35V/\mu s$ (typ.)
- *High current(Io: peak current)----- $\pm 120mA$ (min.)
- *Gain----- $18.00V/V$ (typ.)
- *Output voltage range----- $V_{OL}=0.8V$ (typ.), $V_{CC}-V_{OH}=0.8V$ (typ.)

APPLICATION

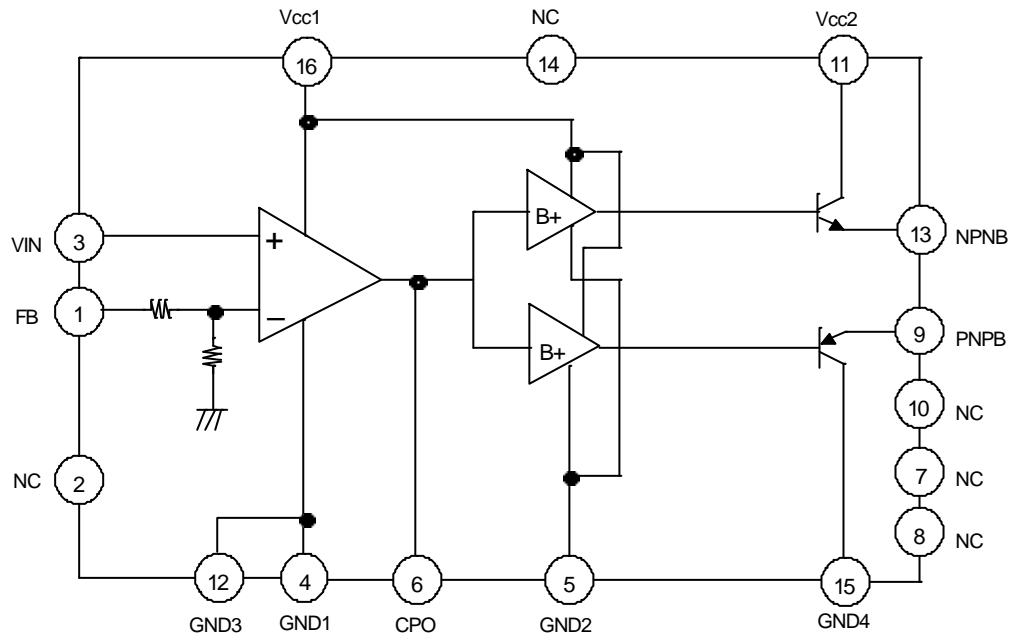
*For capacitive load drive, etc.

PIN CONFIGURATION(TOP VIEW)



Outline 16P4

BLOCK DIAGRAM



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ABSOLUTE MAXIMUM RATINGS (Ta=25°C unless otherwise noted.)

Symbol	Parameter	Conditions	Ratings	Unit
V _{CC}	Supply voltage		50	V
I _O	Output current	peak current	±150	mA
V _{IN}	Input voltage		0.0~3.0	V
P _d	Power dissipation	Ta=25°C	2.5	W
K _q	Thermal derating	Ta>25°C	20	mW/°C
T _{opr}	Operating temperature		-20~75	°C
T _{stg}	Storage temperature		-40~150	°C

ELECTRICAL CHARACTERISTICS (Ta=25°C.V_{CC1}=V_{CC2}=42V unless otherwise noted.)

Symbol	Parameter	Test conditions	Limits			Unit	Remarks
			Min.	Typ.	Max.		
I _{CC}	Circuit current	V _{IN} =0.1V	15.14	22.00	28.60	mA	
V _{OFF}	Offset voltage	V _{IN} =80mV	1.15	1.44	1.72	V	
I _{IB}	Input bias current	V _{IN} =1V		-0.5		μA	
A _v	Voltage gain	V _{IN} =80mV~2.08V	16.20	18.00	19.80	V/V	
V _{OL}	Output low voltage	PNPB/NPNB output		0.8	1.1	V	
V _{OH}	Output high voltage	V _{CC} -PNPB/NPNB output		0.8	1.1	V	
SR	Slew rate	PNPB/NPNB output voltage change	25	35		V/μs	
I _{source}	Output source current	peak current			-120	mA	
I _{sink}	Output sink current	peak current	120			mA	

RECOMMENDED OPERATING CONDITIONS

Symbol	Parameter	Test conditions	Limits			Unit	Remarks
			Min.	Typ.	Max.		
V _{CC}	Supply voltage		40	42	45	V	
V _{INL}	Input low voltage			TBD		mV	
V _{IN}	Input amplitude			2.0		V _{pp}	

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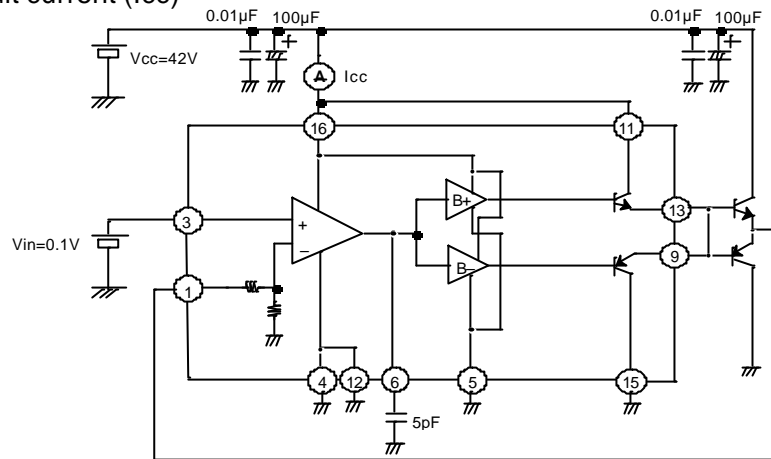
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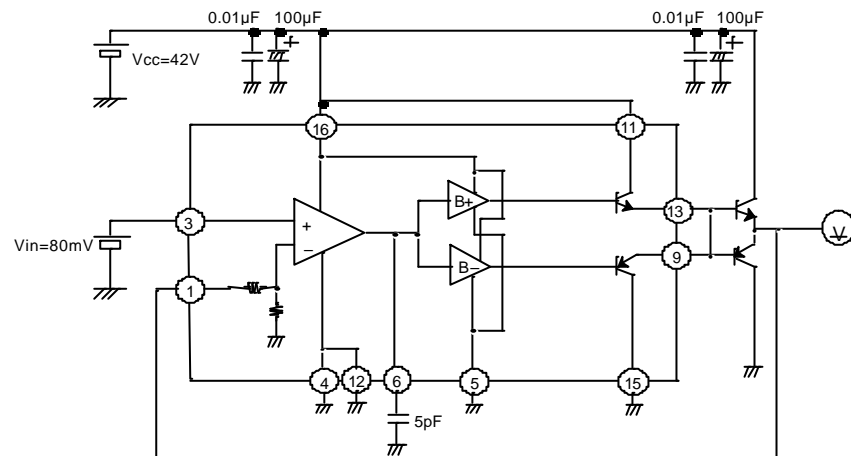
Measurement circuit

1. Circuit current (I_{cc})



Measure sink current to 11pin and 16pin

2. Offset voltage (V_{off})



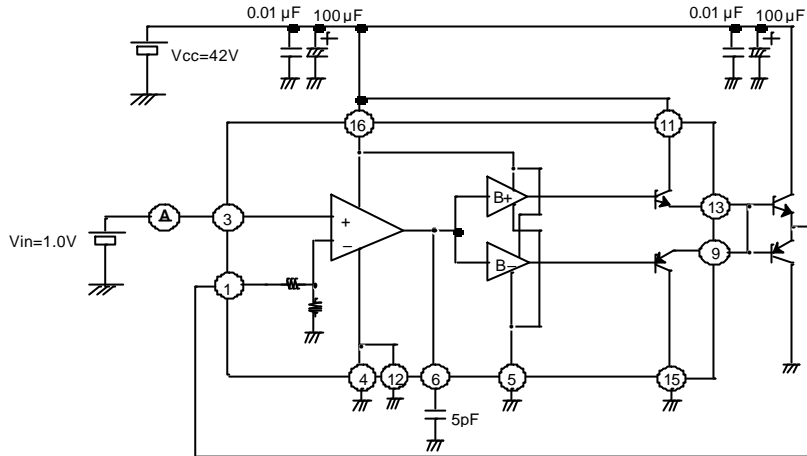
Measure power Tr. output voltage when 80mV DC voltage is applied to 3pin.

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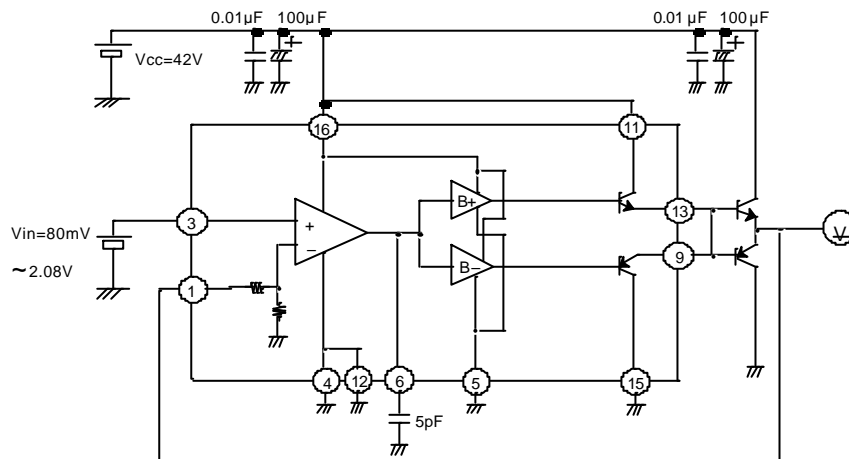
Measurement circuit (continued)

3. Input bias current (IIB)



Measure source current from 3pin when 1.0V DC voltage is applied to 3pin.

4. Voltage gain(V/V)



Measure gain for 3pin input voltage

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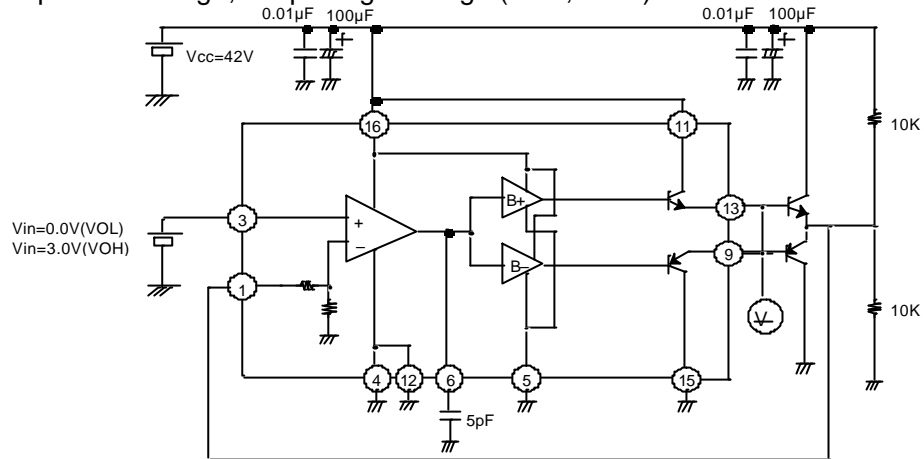
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Measurement circuit (continued)

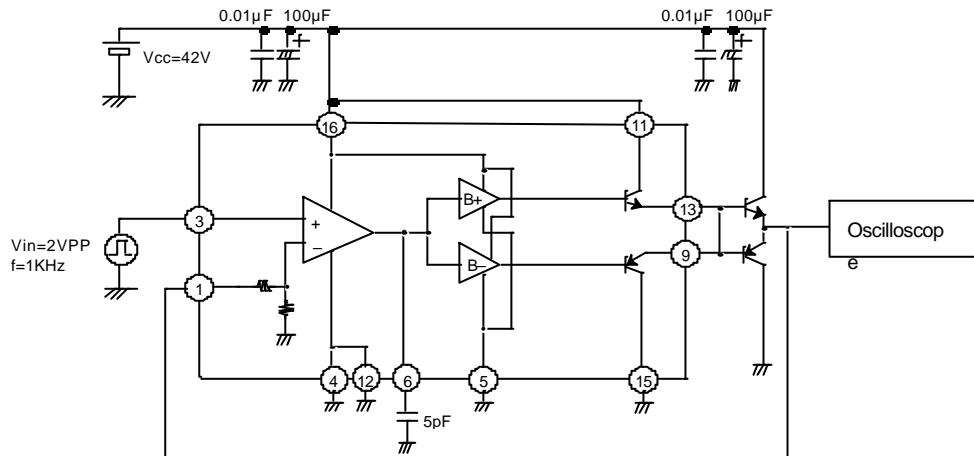
5. Output low voltage, Output high voltage (VOL, VOH)



VOL: Measure 9pin, 13pin output voltage when 0.0V DC voltage is applied to 3pin.

VOH: Measure the differential voltage between Vcc and 9pin, 13pin output voltage when 3.0V DC voltage is applied to 3pin.

6. Slew rate (SR)



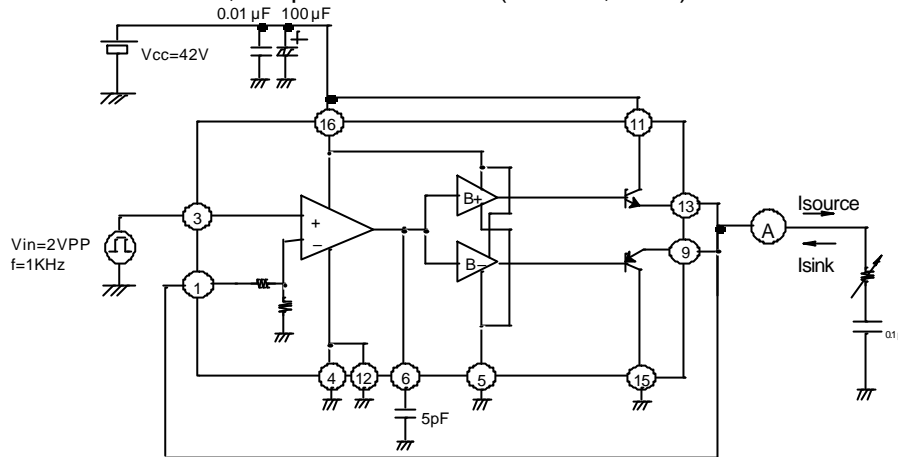
Measure rise/fall for the pulse output of power Tr. by inputting pulse signal to 3pin.

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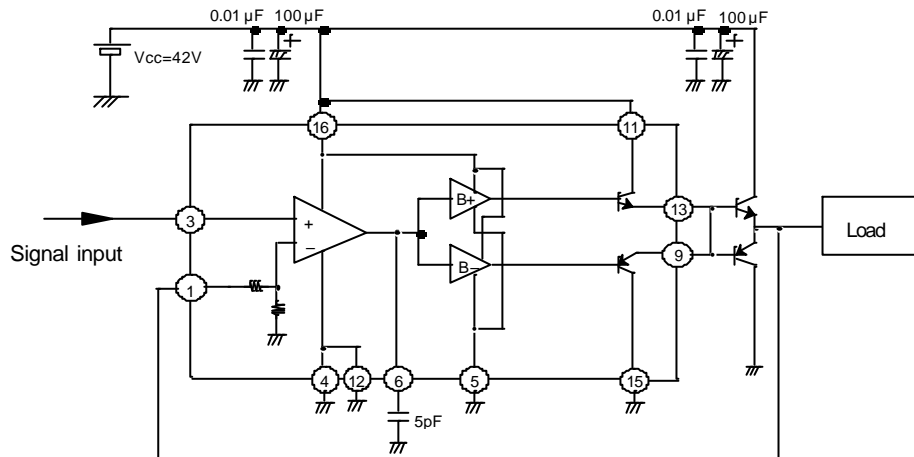
Measurement circuit (continued)

7. Output source current, Output sink current (I_{source}, I_{sink})



Connect resistor and capacitor to 9pin, 13pin output and input pulse signal to 3pin.
Measure peak current to load by current probe

Application circuit



Note:

- (1) Connect ceramic capacitor(approx. 0.01μF) and electrolytic capacitor(10μF or more) for decoupling between 11pin, 16pin supply voltage terminal and 4pin, 5pin, 15pin GND terminal by the shortest possible wire.
- (2) Utmost care should be taken to heat dissipation by making the GND pattern layout as broad as possible because operation is made under high speed and high voltage.
- (3) Connect phase compensating capacitor for 6pin. 5pF is recommendable.