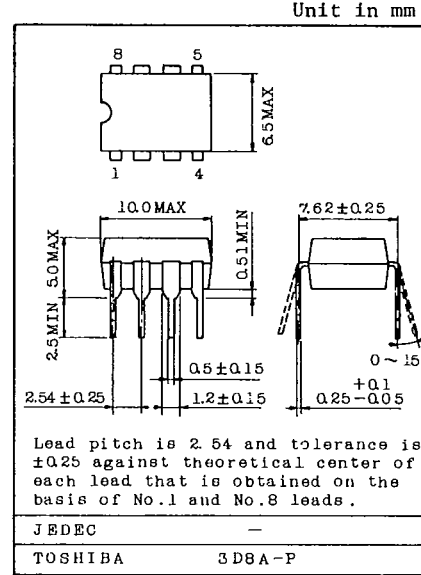
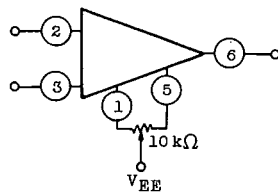


SINGLE OPERATIONAL AMPLIFIER
OPERATIONAL AMPLIFIER
DC AMPLIFIER

- . High Gain : $G_V=1 \times 10^5$ (Typ.)
- . Low Power Dissipation : $P_D=50\text{mW}$ (Typ.)
- . High Common Mode Input Voltage : $CMV_{IN}=\pm 13\text{V}$ (Typ.)
- . High Differential Input Voltage: $DV_{IN}=30$ (Typ.)
- . Low Input Offset Voltage : $V_{IO}=1\text{mV}$ (Typ.)
- . No Frequency Compensation
- . Absence of Latch-up
- . Offset Null Capability
- . Short Circuit Protection

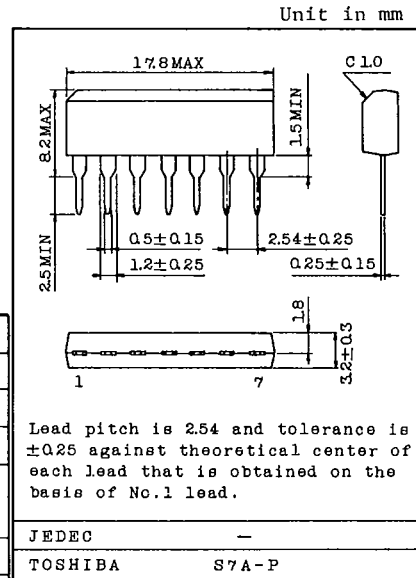


VOLTAGE OFFSET NULL CIRCUIT



MAXIMUM RATINGS ($T_a=25^\circ\text{C}$)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Supply Voltage	V_{CC}, V_{EE}	± 18	V
Differential Input Voltage	DV_{IN}	± 30	V
Input Voltage	V_{IN}	$V_{CC} \sim V_{EE}$	V
Power Dissipation	TA7504P	300	mW
	TA7504S	400	
Operating Temperature	T_{opr}	$-30 \sim 75$	$^\circ\text{C}$
Storage Temperature	T_{stg}	$-55 \sim 125$	$^\circ\text{C}$

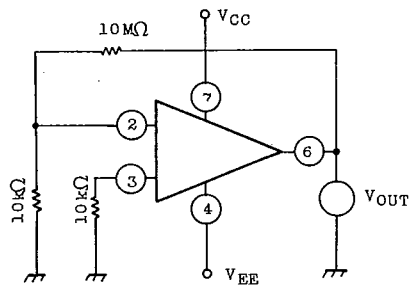


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TEST CIRCUIT

(1) V_{IO} , $\Delta V_{IO}/\Delta T$, SVRR



$$V_{IO} = V_{OUT}/1000$$

$$SVRR = \frac{V_{OUT} - V_{OUT2}}{1000 \times 5}$$

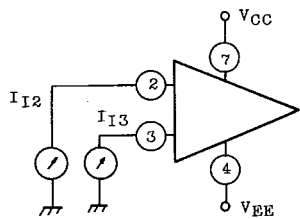
V_{OUT1} ; (V_{CC} , $-V_{EE} = 17.5(V)$)

V_{OUT2} ; (V_{CC} , $-V_{EE} = 12.5(V)$)

$$\Delta V_{IO}/\Delta T = |V_{IO}(25^{\circ}C) - V_{IO}(-30^{\circ}C)| / 55$$

$$\Delta V_{IO}/\Delta T = |V_{IO}(25^{\circ}C) - V_{IO}(75^{\circ}C)| / 50$$

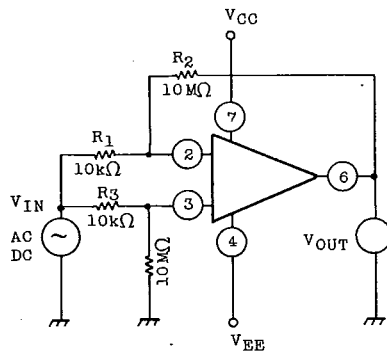
(2) I_I , I_{IO}



$$I_{IO} = |I_{I2} - I_{I3}|$$

$$I_I = \frac{I_{I2} + I_{I3}}{2}$$

(3) CMV_{IN} , $CMRR$



CMV_{IN} : $V_{OUT} = \pm 10(V_{DC})$, V_{IN} MEASURED

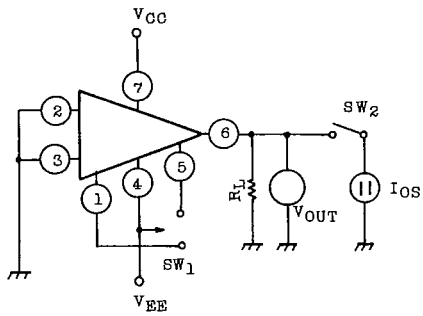
$CMRR$: $V_{IN} = 7.07(V_{rms})$, V_{OUT} MEASURED

$$CMRR = 20 \log \frac{V_{IN}}{\frac{V_{OUT}}{1000}} = 20 \log \frac{7070}{V_{OUT}} \text{ (dB)}$$

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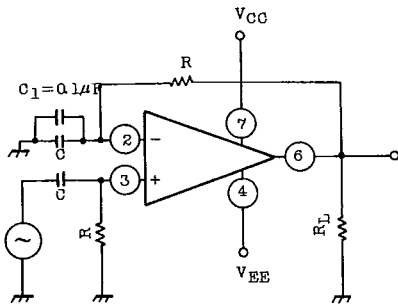
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(4) V_{OM} , V_{OMR} , I_{OS}



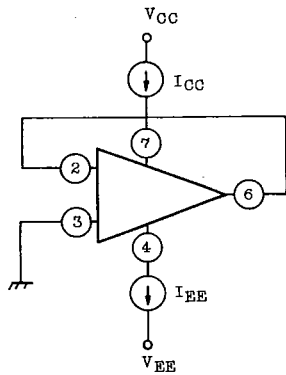
V_{OM}, V_{OMR} : SW₂ : OPEN CIRCUIT
 SW₁ : TERMINAL 1 OR 5
 I_{OS} : SW₂ : SHORT CIRCUIT
 SW₁ : TERMINAL 1 OR 5

(5) G_V , V_{Op-p}



C : DC COUPLE
 C₁ : HF BYPASS
 $\omega \gg 1/RC$
 $G_V = V_{OUT}/V_{IN}$

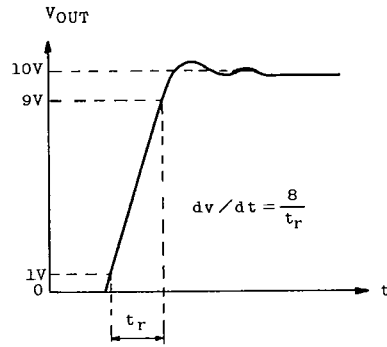
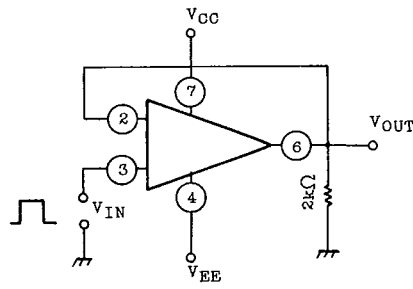
(6) P_D



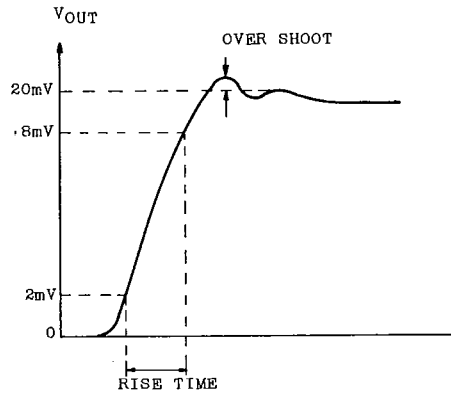
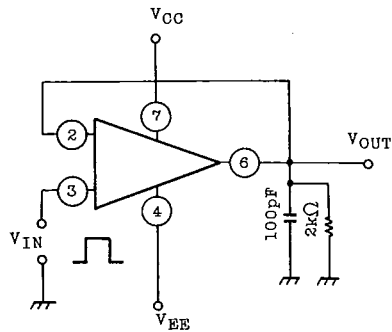
$$P_D = (V_{CC} - V_{EE}) I_{CC}$$

$$= (V_{CC} - V_{EE}) I_{EE}$$

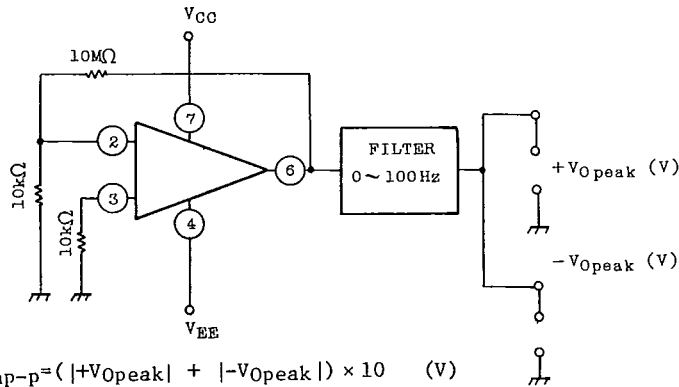
(7) SR



(8) RESPONSE TIME



(9) e_{np-p}



$$e_{np-p} = (|+V_{0peak}| + |-V_{0peak}|) \times 10 \quad (V)$$

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