

UTC TA7784P LINEAR INTEGRATED CIRCUIT

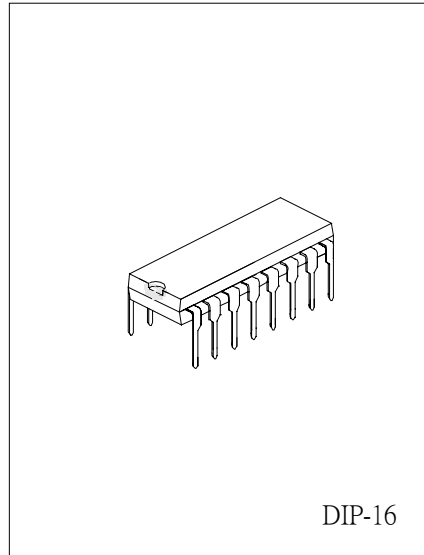
DUAL PRE-AMPLIFIER FOR AUTO-REVERSE

DESCRIPTION

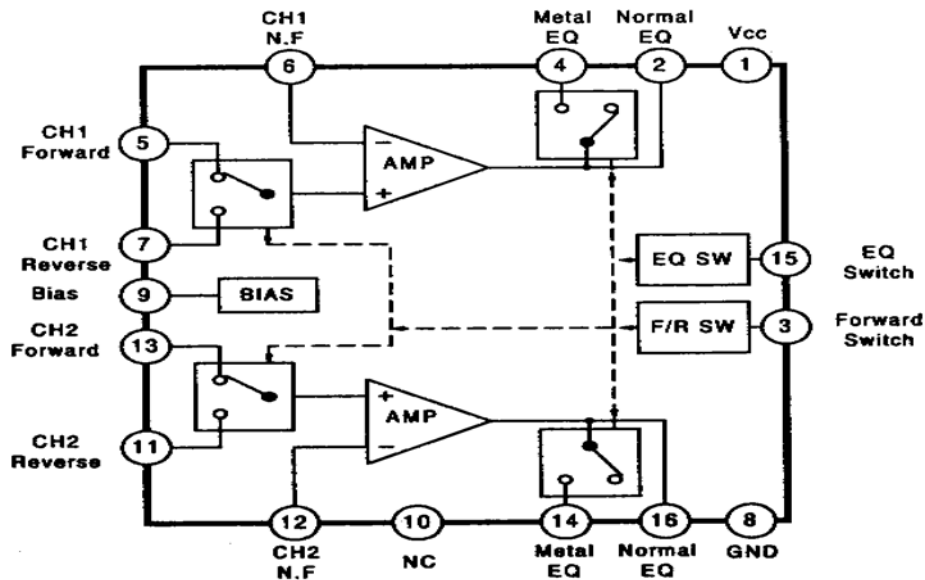
The UTC TA7784P is a dual pre-amplifier for auto-reverse type and W-cassette type tape player. This IC contains dual pre-amplifier, forward/ reverse control switches and metal/ normal tape equalizer control switches.

FEATURES

- *High voltage gain: $G_{vo}=95\text{dB}(\text{typ})$ at $V_{cc}=6\text{V}$, $f=1\text{kHz}$
- *Wide operating supply voltage ($V_{cc}=3.5\text{V}\sim 15\text{V}$)
- *No input coupling capacitor
- *Low noise ($V_{NI}=1\mu\text{Vrms}(\text{typ})$ at $R_g=600\Omega$, $BW=20\text{Hz}\sim 20\text{kHz}$, NAB EQ)



BLOCK DIAGRAM



UTC TA7784P LINEAR INTEGRATED CIRCUIT

ABSOLUTE MAXIMUM RATINGS(Ta=25°C)

| PARAMETER | SYMBOL | VALUE | UNIT |
|-----------------------|--------|---------|------|
| Supply Voltage | Vcc | 16 | V |
| Power Dissipation | PD | 750 | mW |
| Operating Temperature | Topr | -25~75 | °C |
| Storage Temperature | Tstg | -55~150 | °C |

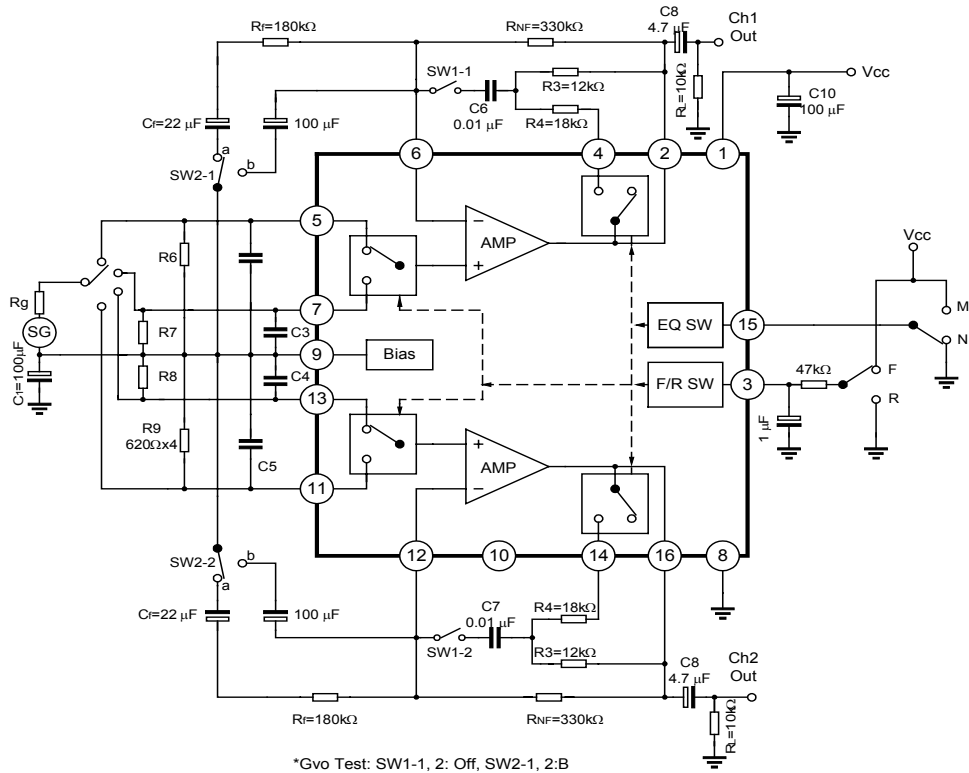
Note: de-rated above Ta=25°C in the proportion of 6mW/°C.

ELECTRICAL CHARACTERISTICS(Ta=25°C,Vcc=6V,Rg=600Ω, f=1kHz, unless otherwise specified)

| PARAMETER | SYMBOL | TEST CIRCUIT | TEST CONDITIONS | MIN | TYP | MAX | UNIT |
|-----------------------------|---------|--------------|--|-----|-------|------|-------|
| Quiescent Current | ICCQ1 | 1 | VIN=0, Normal EQ | | 5.5 | | mA |
| | ICCQ1 | 1 | VIN=0, Metal EQ | | 7 | 11 | |
| Open Loop Voltage Gain | GVo | 1 | Cf=100μF,Rf=0 | | 95 | | dB |
| Maximum Output Voltage | VOM | 1 | THD=0.5% | 1.1 | 1.5 | | Vrms |
| Total Harmonic Distortion | THD | 1 | Vout=0.5Vrms | | 0.035 | 0.12 | % |
| Equivalent Input Noise | VNI | 1 | Rg=620Ω,NAB BW:20Hz~20kHz Metal EQ | | 1 | 1.7 | μVrms |
| Ripple Rejection | RR | 1 | f=100Hz,Vin=1Vrms | | 55 | | dB |
| Cross Talk | CT | 1 | Vout=0dBm | 50 | 60 | | dB |
| Forward/ Reverse Cross Talk | CT(F/R) | | Vout=0dBm | 60 | 70 | | dB |

UTC TA7784P LINEAR INTEGRATED CIRCUIT

TEST CIRCUIT (Pin Configuration and DC Voltage)



*Gvo Test: SW1-1, 2: Off, SW2-1, 2:B

Pin Configuration and DC Voltage (Vcc=6V, Ta=25°C, Unless otherwise specified)

DC VOLTAGE

| PIN NO. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
|-----------|-----|-----|---------|-----|-----|-----|-----|-----|-----|----|-----|-----|-----|-----|---------|-----|
| VALUE (V) | Vcc | 2.3 | Vcc/GND | 2.2 | 2.2 | 2.2 | 2.2 | GND | 2.2 | NC | 2.2 | 2.2 | 2.2 | 2.2 | Vcc/GND | 2.2 |

UTC TA7784P LINEAR INTEGRATED CIRCUIT

APPLICATION INFORMATION

1. Forward/Reverse select switch

- 1) Threshold voltage: Pin 3 is coupled to the base of Q1 (PNP-Tr) as Fig. 1. The threshold voltage is 0~0.3V at reverse stage and is 1.1~Vcc at the Forward stage.
- 2) The recommended Forward/ Reverse select circuit is shown in Fig. 2
- 3) $I_3(\text{Fig. 1})=12\mu\text{A}, T_a=25^\circ\text{C}.$

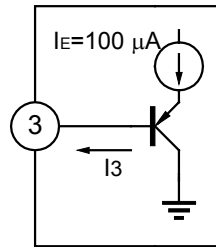


Fig 1

2. Equalizer control switch

Pin 15 is coupled to the base of Q2 (PNP Tr) as shown Fig. 3. The emitter potential of Q2 is 2.6V. The threshold voltage is 21~Vcc at Metal EQ stage and is 0~1.2V at the Normal EQ stage.

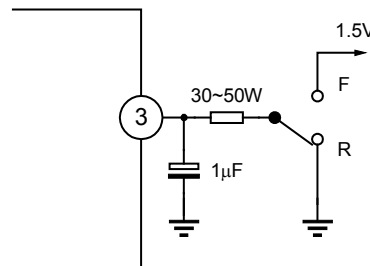


Fig 2

3. C2/C3/C4/C5

Capacitor C2~C5 may be required for preventing an instability caused by the pattern layout or interference of external high frequency signal.

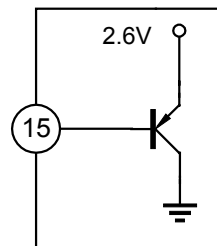


Fig 3

UTC assumes no responsibility for equipment failures that result from using products at values that exceed, even momentarily, rated values (such as maximum ratings, operating condition ranges, or other parameters) listed in products specifications of any and all UTC products described or contained herein. UTC products are not designed for use in life support appliances, devices or systems where malfunction of these products can be reasonably expected to result in personal injury. Reproduction in whole or in part is prohibited without the prior written consent of the copyright owner. The information presented in this document does not form part of any quotation or contract, is believed to be accurate and reliable and may be changed without notice.