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## NTE1799 Integrated Circuit Electronics Switch for VCR & Audio Applications

### **Description:**

The NTE1799 is a 3-channel 2-position high-performance analog switch in a 16-Lead DIP type package having wide applications from audio band to video band. It is also provided with 2 channels of muting function.

### **Features:**

- 3-Channel 2-Position Switch
- Wide Input Dynamic Range
- Low Distortion
- Good Frequency Characteristic
- Muting Available

### **Absolute Maximum Ratings:** ( $T_A = +25^\circ\text{C}$ unless otherwise specified)

Maximum Supply Voltage,  $V_{CCmax}$  ..... 15V  
 Allowable Power Dissipation ( $T_A \leq +65^\circ\text{C}$ ),  $P_dmax$  ..... 500mW  
 Operating Temperature Range,  $T_{opg}$  .....  $-20^\circ$  to  $+65^\circ\text{C}$   
 Storage Temperature Range,  $T_{stg}$  .....  $-40^\circ$  to  $+125^\circ\text{C}$

### **Operating Characteristics:** ( $T_A = +25^\circ\text{C}$ , $V_{CC} = 12\text{V}$ unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Current Dissipation	$I_{CC}$		–	30	39	mA
Total Harmonic Distortion	THD	$R_g = 600\Omega$ , $4.5V_{P-P}$ , $f = 1\text{kHz}$ , $R_L = \infty$ , Note 1	–	0.00 7	0.1	%
Noise Voltage	$V_N$	$R_g = 600\Omega$ , $f = 20$ to $20\text{kHz}$ , $R_L = \infty$ , Note 1	–	–93	–80	dB
Crosstalk Ch1	CR1	Input 1: $R_g = 50\Omega$ , $2V_{P-P}$ , $f = 3.58\text{MHz}$ , Input 2: $R_g = 500\Omega$ , Note 2	–	–50	–	dB
Ch2	CR2		–	–60	–	dB
Ch3	CR3		–	–50	–	dB
Pedestal Level	$\Delta V_{ped}$	$V_{CTL}$ (Pin10, Pin13, Pin15) = 0 to 12V, Note 1	–100	0	+100	mV
Maximum Input Voltage	$V_{INmax}$	$R_g = 600\Omega$ , $f = 1\text{kHz}$ , $R_L = \infty$ , THD = 1%, Note 1	5.0	–	–	$V_{P-P}$
2 <sup>nd</sup> Harmonic Voltage	H2	$R_g = 50\Omega$ , $4V_{P-P}$ , $f = 1\text{MHz}$ , $R_L = \infty$ , Note 1	–46	–55	–	dB
3 <sup>rd</sup> Harmonic Voltage	H3		–46	–55	–	dB

Note 1. Measurements are made for each of Ch1, Ch2, and Ch3 using input A and input B.  
 Input A:  $V_{CTL}$  (Pin10, Pin13, Pin15) is 12V at the measurement mode.  
 Input B:  $V_{CTL}$  is 0V at the measurement mode.

**Operating Characteristics (Cont'd):** ( $T_A = +25^\circ\text{C}$ ,  $V_{CC} = 12\text{V}$  unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Switch Changeover Voltage	$V_{CTLs}$	Note 1	2.6	3.1	4.0	V
Mute Threshold Voltage	$V_{ML}$	Low Level, Note 3	1.2	1.6	1.9	V
	$V_{MH}$	High Level, Note 3	5.5	6.9	8.2	V
Crosstalk Between Channels		$R_g = 500\Omega$ , $R_L = \infty$ , Other channel input $R_g = 50\Omega$ , $2V_{P-P}$ , $f = 3.58\text{MHz}$ , Note 4	-50	-68	-	dB
Ch1						
Ch2						
Ch3			-50	-60	-	dB
Mute Compression Ratio		$R_g = 600\Omega$ , $2V_{P-P}$ , $f = 1\text{kHz}$ , $R_L = \infty$ , Series Resistance $10\text{k}\Omega$ , Note 3	-	-60	-	dB
Control Pin Flow-In Current	$I_{CTL}$	Note 1	-	3.8	-	$\mu\text{A}$
Input Impedance	$Z_{in}$	Note 1	-	10	-	$\text{k}\Omega$
Output Impedance	$Z_{out}$	Note 1	-	29	-	$\Omega$
Pin Voltage (Pin1)	$V_1$	$V_{15} = 0\text{V}$	-	7.9	-	V
		$V_{15} = 12\text{V}$	-	7.9	-	V
Pin Voltage (Pin2)	$V_2$		-	7.2	-	V
Pin Voltage (Pin5)	$V_5$	$V_{13} = 0\text{V}$	-	7.9	-	V
		$V_{13} = 12\text{V}$	-	7.9	-	V
Pin Voltage (Pin6)	$V_6$		-	7.2	-	V
Pin Voltage (Pin7)	$V_7$		-	7.2	-	V
Pin Voltage (Pin8)	$V_8$	$V_{10} = 0\text{V}$	-	7.9	-	V
		$V_{10} = 12\text{V}$	-	7.9	-	V
Pin Voltage (Pin9)	$V_9$	$V_{10} = 0\text{V}$	-	7.9	-	V
		$V_{10} = 12\text{V}$	-	7.9	-	V
Pin Voltage (Pin12)	$V_{12}$	$V_{13} = 0\text{V}$	-	7.9	-	V
		$V_{13} = 12\text{V}$	-	7.9	-	V
Pin Voltage (Pin16)	$V_{16}$	$V_{15} = 0\text{V}$	-	7.9	-	V
		$V_{15} = 12\text{V}$	-	7.9	-	V

Note 1. Measurements are made for each of Ch1, Ch2, and Ch3 using input A and input B.

Input A:  $V_{CTL}$  (Pin10, Pin13, Pin15) is 12V at the measurement mode.

Input B:  $V_{CTL}$  is 0V at the measurement mode.

Note 2. Measurements are made using input A and input B.

Note 3. Measurements are made for Ch2, Ch3.

Note 4. Measurements are made for each of Ch1, Ch2, and Ch3 using input A and input B on other channel.

### Pin Connection Diagram

