



ELECTRONICS, INC.

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## **NTE7168 Integrated Circuit NTSC Single Chip Color TV**

### **Description:**

The NTE7168 combines all the functions required for an NTSC color TV system in a 56-Lead DIP type package. This device includes PIF/SIF circuits, video/chroma/deflection circuits, chroma band pass filters, red and green OSD interfaces, and 1ch Audio Video switches.

### **Features:**

#### **PIF Stage**

- 3-Stage Variable-Gain PIF Amplification Stage
- High-Speed Response AGC with Dual Time Constants (Peak AGC)
- Single End AFT Output with Defeat Function
- RF Delay AGC Output (Reverse AGC)
- Sync. Negative Detected Video Output Polarity
- Internal Black/White Noise Inverter
- Minimum Externally Mounted Parts and Adjusting Spots

#### **SIF Stage**

- 3-Stage limiter Amplification Stage
- Quadrature FM Detector Circuit with Sound Mute Function
- 1 Channel External Audio Input
- High-Performance Electronic Attenuator Circuit
- Pre-amplifier Circuit

#### **Video Stage**

- 2<sup>nd</sup> Order-Differential-Type Picture Sharpness Circuit (DC Control)
- Contrast Control with Unicolor Function
- Brightness Control with Pedestal Clamping Circuit (Variable DC Restoration Ratio)
- External Video Input

#### **Chroma Stage**

- Internal  $1/2f_{SC}$  Trap
- Internal band Pass Filter
- ACC Circuit
- Color Control Circuit
- Unicolor Control Circuit
- Color Differential Output
- Tint Control Circuit
- Adjustment-Free APC Circuit

**Features (Cont'd):**

**Deflection Stage**

- High-Performance Sync Separation Circuit
- Adjustment-Free Horizontal Oscillation Circuit
- Stable Vertical Synchronization
- Sawtooth-Type AFC (Internal sawtooth Wave Generator)
- Horizontal Predrive Output
- X-Ray Protection Circuit
- Vertical NFB Amplification Circuit

**OSD Interface Stage**

- Fast Blanking SW

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

Power Supply Voltage, $V_{CC}$ .....	13V
Input Terminal Voltage, $V_{in}$ .....	GND-0.3V to $V_{CC}+0.3V$
Input Signal Amplitude, $e_{in}$ .....	$4V_{P-P}$
Power Dissipation (Note 1), $P_D$ .....	1.92W
Operating Temperature Range, $T_{opr}$ .....	$-20^\circ$ to $+65^\circ\text{C}$
Storage Temperature Range, $T_{stg}$ .....	$-55^\circ$ to $+150^\circ\text{C}$

Note 1. When using the device at above  $T_A = +25^\circ\text{C}$ , decrease the power dissipation by 15.3mW for each increase of  $+1^\circ\text{C}$ .

**Recommended Power Supply Voltage:**

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Power Supply Voltage	$V_{CC}$	Pin14, Pin48	8.5	9.0	9.5	V
	H. $V_{CC}$	Pin26	8.5	9.0	9.5	V

**OSD Logic Table:**

Mode	Input				Output		
	$Y_S$ (Pin29)	R (Pin19)	G (Pin20)	B (Pin28)	R-Y (Pin15)	B-Y (Pin17)	G-Y (Pin18)
TV	L	L	L	L	TV	TV	TV
Black	H	L	L	L	L	L	L
Red	(*)	H	L	L	H	L	L
Blue	(*)	L	L	H	L	H	L
Green	(*)	L	H	L	L	L	H
Yellow	(*)	H	H	L	H	L	H
Magenta	(*)	H	L	H	H	H	L
Cyan	(*)	L	H	H	L	H	H
White	(*)	H	H	H	H	H	H

(\*): Don't Care.

### Pin Connection Diagram

Audio Output	<b>1</b>	<b>56</b>	Audio Control
RF AGC Output	<b>2</b>	<b>55</b>	Audio TV Input
RF AGC Delay	<b>3</b>	<b>54</b>	De-Emphasis
SIF Tank	<b>4</b>	<b>53</b>	SIF Input
1 <sup>st</sup> AGC	<b>5</b>	<b>52</b>	AFT Output
External Audio Input	<b>6</b>	<b>51</b>	AFT Tank
2 <sup>nd</sup> AGC	<b>7</b>	<b>50</b>	PIF Tank (2)
PIF/SIF GND	<b>8</b>	<b>49</b>	PIF Tank (1)
PIF Input (1)	<b>9</b>	<b>48</b>	PIF/SIF V <sub>CC</sub>
PIF Input (2)	<b>10</b>	<b>47</b>	TV Detection Output
f <sub>c</sub> Adjustment	<b>11</b>	<b>46</b>	Tint Control
APC Filter	<b>12</b>	<b>45</b>	TV Input
3.58 X'tal	<b>13</b>	<b>44</b>	Color Control
V/C/D V <sub>CC</sub>	<b>14</b>	<b>43</b>	Contrast Control
R-Y Output	<b>15</b>	<b>42</b>	External Video Input
-Y Output	<b>16</b>	<b>41</b>	V/C/D GND
G-Y Output	<b>17</b>	<b>40</b>	Video OUT (1)
B-Y Output	<b>18</b>	<b>39</b>	Vert Sync Sep Filter
R OSD Input	<b>19</b>	<b>38</b>	Brightness Control
G OSD Input	<b>20</b>	<b>37</b>	Video IN
FBP Input	<b>21</b>	<b>36</b>	Sharpness Control
X-Ray	<b>22</b>	<b>35</b>	OSD Bright Control
Horizontal Output	<b>23</b>	<b>34</b>	Video Out (2)
Horizontal AFC	<b>24</b>	<b>33</b>	Chroma Input
32f <sub>H</sub> VCO	<b>25</b>	<b>32</b>	Killer Filter
H. V <sub>CC</sub>	<b>26</b>	<b>31</b>	Vertical Ramp
Vertical Output	<b>27</b>	<b>30</b>	Vertical NFB
B OSD Input	<b>28</b>	<b>29</b>	Y <sub>S</sub> OSD Input

