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NTE15039 Integrated Circuit VHS/VCR Chroma Signal Processor for NTSC/PAL/SECAM Systems

Description:

The NTE15039 is a multifunctional IC in a 24-Lead DIP type package that contains VHS VCT chroma signal processing circuitry. Since the package is small and a minimum number of external components are required, the NTE15039 occupies much less space on the PC board thus facilitating VCR design. The chroma section is made adjustment-free (except REC chroma level) thus streamlining the manufacture of VCRs

Features:

- Designed for NTSC/PAL/MESECAM Systems
- Adjustment-Free Chroma Section (Except REC Chroma Level)
- Few External Components Required
- LPF Usable for REC/PB
- Multifunctional:
 - 2f_{SC} Generator for CCD Drive
 - Function to Select APC Loop Input Signal Passed/Not Passed Through Comb Filter
 - 3_{rd} Lock Protector of VXO

Absolute Maximum Ratings: (T_A = +25°C unless otherwise specified)

Maximum Supply Voltage, V_{CCmax} 7V
 Allowable Power Dissipation (T_A ≤ +65°C), P_{Dmax} 850mW
 Operating Temperature Range, T_{opg} -10° to +65°C
 Storage Temperature Range, T_{stg} -40° to +125°C

Recommended Operating Conditions: (T_A = +25°C unless otherwise specified)

Recommended Supply Voltage, V_{CC} 5V
 Operating Voltage Range, V_{CCop} 4.8 to 5.5V

Electrical Characteristics: (T_A = +25°C, V_{CC} = 5V unless otherwise specified)

| Parameter | Symbol | Test Conditions | Min | Typ | Max | Unit |
|-------------------------|--------------------|-----------------|------|------|------|-------------------|
| REC Current Dissipation | I _{CC(R)} | | 49 | 62 | 75 | mA |
| REC Output Level | V _{O(R)} | | 75 | 110 | 145 | mV _{P-P} |
| REC ACC Characteristics | ΔV _{O(R)} | Input ± 6dB | -0.5 | ±0.1 | +0.5 | dB |

Electrical Characteristics (Cont'd): ($T_A = +25^\circ\text{C}$, $V_{CC} = 5\text{V}$ unless otherwise specified)

| Parameter | Symbol | Test Conditions | Min | Typ | Max | Unit |
|---|-------------------|---------------------------|-----------|-------|------|-------------------|
| ACC Killer Input Level | V_{ACK} | | -25 | -22 | -19 | dB |
| VXO Control Sensitivity | S_{VXO} | | 3.1 | 4.6 | 6.9 | Hz/mV |
| VXO OSC Level | $V_{VXO(R)}$ | | 0.77 | 1.01 | 1.19 | V_{P-P} |
| Subconverter Output Level | V_{SUB} | | 97 | 122 | 147 | mV_{P-P} |
| BGP Delay Time | t_D | | - | 3.35 | - | μs |
| BGP Width | t_W | | - | 4.9 | - | μs |
| REC APC Pull-in Range | Δf_{APC} | | ± 350 | - | - | Hz |
| REC AFC Pull-in Range | Δf_{AFC} | | ± 1.0 | - | - | kHz |
| 160f _H VCO Control Sensitivity | S_{VCO} | | 0.75 | 1.06 | 1.38 | kHz/mV |
| PB Current Dissipation | $I_{CC(P)}$ | | 51 | 64 | 77 | mA |
| PB Output Level | $V_{O(P)}$ | | 340 | 390 | 450 | mV_{P-P} |
| PB ACC Characteristic | $\Delta V_{O(P)}$ | Input $\pm 6\text{dB}$ | -0.5 | - | +0.5 | dB |
| PB Main Converter Carrier Leak | $CL_{(p)}$ | 5.06MHz component | - | -38 | -33 | dB |
| PB XO Output Level | $V_{XO(P)}$ | | 540 | 680 | 840 | mV_{P-P} |
| PB XO Free-Running Frequency | $f_{XO(f)}$ | Difference from 4433619Hz | -9 | 0 | +9 | Hz |
| 2f _{SC} Output Amplitude | V_{2fsc} | | 300 | 430 | 560 | mV_{P-P} |
| Burst Emphasis Amount | G_{BE} | NTSC Mode | 5.5 | 6.0 | 6.5 | dB |
| Burst De-Emphasis Amount | G_{BD} | NTSC Mode | -5.8 | -5.55 | -5.3 | dB |
| PAL/NTSC Select Voltage | $V_{P/N}$ | | 1.0 | 1.35 | 1.7 | V |
| NTSC/SECAM Select Voltage | $V_{N/S}$ | | 3.2 | 3.55 | 3.9 | V |

Pin Connection Diagram



