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## NTE7019 Integrated Circuit Digital Tuning System Interface for TV Systems

### Description:

The NTE7019 is an integrated circuit in a 16-Lead DIP type package developed to facilitate the Phase Lock Loop (PLL) digital tuning system interface for TV systems. Since all the peripheral blocks are incorporated into this device, the number of peripheral parts can be greatly reduced.

### Features:

- All-in-One Chip Incorporating the Peripheral Blocks of the PLL System
- Built-In Synchronized Separate for Channel Detecting Circuit
- Externally Controllable Channel Detection Level
- High Current Low-Saturation-Voltage Band Switch Output:  $V_{O(sat)} = 0.3V$  Typ @  $I_{OH} = -40mA$
- Built-In Channel Tuning Voltage: 34V Typ

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

Supply Voltage, $V_{CC1}$ .....	14.4V
Band Output Current, $I_{OH}$ .....	-60mA
Band Output Applied Voltage, $V_{OL}$ .....	-15V
Zener Terminal Current, $I_z$ .....	15mA
Channel Detection Output Applied Voltage, $V_{OH}$ .....	$V_{CC1}$ V
Band Input Voltage, $V_I$ .....	0 to $V_{CC1}$ V
Video Signal Input Voltage, $V_{CV}$ .....	0 to 5V
Error Amplifier Input Voltage, $V_{AI}$ .....	0 to $V_{CC1}$ V
Error Amplifier Output Current, $I_{AO}$ .....	-5mA
Flyback Pulse Input Voltage, $V_{FBP}$ .....	$V_{CC1}$ $V_P$
Allowable Power Dissipation ( $T_A = +60^\circ C$ ), $P_D$ .....	600mW
Operating Temperature Range, $T_{opr}$ .....	-20° to +65°C
Storage Temperature Range, $T_{stg}$ .....	-40° to +150°C

### Recommended Operating Conditions:

Parameter	Symbol	Min	Typ	Max	Unit
Supply Voltage	$V_{CC1}$	8.1	12.0	13.2	V
Band Signal High-Level Input Voltage	$e_{BIH} (V_1H, V_2H)$	3.1	-	5.5	V
Band Signal Low-Level Input Voltage	$e_{BIL} (V_1L, V_2L)$	0	-	0.8	V
Video Signal Input Voltage	$e_{iv} (V_3)$	-	2	-	$V_{P-P}$
Flyback Pulse High-Level Input Voltage	$e_{FBPH} (V_4H)$	5.0	-	8.0	V
Flyback Pulse Low-Level Input Voltage	$e_{FBPL} (V_4L)$	0	-	0.7	V
Incoming Current to Pin11	$I_{11}$	5	-	6	mA

**Electrical Characteristics:** ( $T_A = +25^{\circ}\text{C} \pm 3^{\circ}\text{C}$ ,  $V_{CC} = 12\text{V}$  unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Circuit Current	$I_{CC}$	Error amp output (High) connected to the band output $V_{CC}$	2.0	6.0	12.0	mA
Band Input Threshold Voltage	$V_{ITH}$		1.0	2.0	3.0	V
Band Output Saturation Voltage	$V_{O(sat)}$	$I_{OH} = -40\text{mA}$ , $I_{11} = 5\text{mA}$	–	0.3	0.7	V
Band Output Leakage Current	$I_{OL}$	$V_{OL} = -15\text{V}$	–	–	-50	$\mu\text{A}$
Zener Stabilization Voltage	$V_Z$	$I_Z = 5\text{mA}$	32	34	36	V
Stabilization Voltage Temperature Factor	$\Delta V_Z/\Delta T$	$T_A = -20^{\circ}\text{C}$ to $+65^{\circ}\text{C}$ , $I_Z = 5\text{mA}$	-5	0	+5	$\text{mV}/^{\circ}\text{C}$
Operating Resistance	$V_Z$	$I_Z = 5\text{mA}$	–	10	25	$\Omega$
Error Amplifier Input Bias Current	$I_{BIAS}$		–	–	200	nA
Error Amplifier Minimum Output Voltage	$V_{AOL}$	$R_L = 8.2\text{k}\Omega$	–	0.2	0.5	V
Error Amplifier Maximum Output Voltage	$V_{AOH}$	$R_L = 8.2\text{k}\Omega$	$V_Z - 1.5$	$V_Z$	–	V
Error Amplifier Reference Input Voltage	$V_{Aref}$		1.5	2.0	2.5	V
Comparator Reference Voltage 1	$V_{Cref1}$	No signal voltage compared with voltage when signal is input	6.5	7.0	7.5	V
Comparator Reference Voltage 2	$V_{Cref2}$	Signal voltage compared with no signal voltage	4.5	5.0	5.5	V
Channel Detection Output Low-Level Voltage	$V_{OL}$	$I_{OL} = 1\text{mA}$	–	0.2	0.5	V
Channel Detection Output Leakage Current	$I_{OH}$	$V_{OH} = 13.2\text{V}$	–	–	5	$\mu\text{A}$

**Band Output Format:**

$BIN_1$	$BIN_2$	$BAND_1$	$BAND_2$	$BAND_3$	$BAND_4$
L	L	H	Z	Z	Z
H	L	Z	H	Z	Z
L	H	Z	Z	H	Z
H	H	Z	Z	Z	H

Z: High Impedance



