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## NTE1904 Integrated Circuit Positive 3 Terminal Voltage Regulator, Low Dropout Voltage, 3.3V, 1A

**Description:**

The NTE1904 is a positive voltage regulator in a TO220 type package and features very low dropout voltage and very low quiescent current making it particularly suitable for low noise, low power applications and specifically in battery powered systems.

**Features:**

- Very Low Dropout Voltage: 0.45V
- Very Low Quiescent Current
- Logic-Controlled Electronic Shutdown
- Internal Current and Thermal Limit

**Absolute Maximum Ratings:**

Input Voltage,  $V_i$  ..... -0.5 to 40V  
 Output Current,  $I_o$  ..... Internally Limited  
 Power Dissipation,  $P_{tot}$  ..... Internally Limited  
 Operating Junction Temperature Range,  $T_{opr}$  ..... -40° to +125°C  
 Storage Temperature Range,  $T_{stg}$  ..... -40° to +150°C  
 Thermal Resistance, Junction-to-Case,  $R_{thJC}$  ..... 3°C/W  
 Thermal Resistance, Junction-to-Ambient,  $R_{thJA}$  ..... 50°C/W

**Electrical Characteristics:** ( $T_J = +25^\circ\text{C}$ ,  $C_i = 0.1\mu\text{F}$ ,  $C_o = 2.2\mu\text{F}$ , unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Output Voltage	$V_o$	$I_o = 50\text{mA}$ , $V_i = 5.3\text{V}$	3.234	3.3	3.366	V
		$-25^\circ < T_A < +85^\circ\text{C}$	3.168	-	3.432	V
Operating Input Voltage	$V_i$	$I_o = 500\text{mA}$	-	-	16	V
Output Current Limit	$I_{out}$		-	1	-	A
Line Regulation	$Reg_{line}$	$V_i = 4.3\text{V to } 16\text{V}$ , $I_o = 5\text{ mA}$	-	2	12	mV
Load Regulation	$Reg_{load}$	$V_i = 4.6\text{V}$ , $I_o = 5\text{mA to } 500\text{mA}$	-	2	10	mV
Quiescent Current ON Mode	$I_d$	$V_i = 4.3\text{V to } 16\text{V}$ , $I_o = 0\text{mA}$	-	0.5	1.0	mA
		$V_i = 4.6\text{V to } 16\text{V}$ , $I_o = 500\text{mA}$	-	-	12	mA
		$V_i = 6\text{V}$	-	50	100	$\mu\text{A}$
OFF Mode						

**Electrical Characteristics (Cont'd):** ( $T_J = +25^\circ\text{C}$ ,  $C_i = 0.1\mu\text{F}$ ,  $C_o = 2.2\mu\text{F}$ , unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit	
Supply Voltage Rejection	SVR	$I_O = 5\text{mA}$ , $V_i = 5.3\text{V} \pm 1\text{V}$	$f = 120\text{Hz}$	-	80	-	dB
			$f = 1\text{kHz}$	-	75	-	dB
			$f = 10\text{kHz}$	-	60	-	dB
Output Noise Voltage	$e_N$	$B = 10\text{Hz to } 100\text{kHz}$	-	50	-	$\mu\text{V}$	
Dropout Voltage	$V_d$	$I_O = 200\text{mA}$	-	0.2	0.35	V	
		$I_O = 500\text{mA}$	-	0.4	0.7	V	
Control Input Logic, Low	$V_{il}$	$-40^\circ < T_A < +125^\circ\text{C}$	-	-	0.8	V	
Control Input Logic, High	$V_{ih}$		2	-	-	V	
Control Input Current	$I_i$	$V_i = 6\text{V}$ , $V_c = 6\text{V}$	-	10	-	$\mu\text{A}$	
Output Bypass Capacitance	$C_O$	$\text{ESR} = 0.1\Omega \text{ to } 10\Omega$ , $I_O = 0 \text{ to } 500\text{mA}$	2	10	-	$\mu\text{F}$	

