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## NTE42 (NPN) & NTE43 (PNP) Silicon Complementary Transistors Dual, Differential Amp, High Gain, Low Noise, Common Emitter

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

Collector-Base Voltage, $V_{CBO}$ .....	50V
Collector-Emitter Voltage, $V_{CEO}$ .....	50V
Emitter-Base Voltage, $V_{EBO}$ .....	5V
Collector Current, $I_C$ .....	100mA
Collector Power Dissipation (Per Unit), $P_C$ .....	200mW
Total Power Dissipation, $P_T$ .....	400mW
Junction Temperature, $T_J$ .....	+125°C
Storage Temperature Range, $T_{stg}$ .....	-55° to +125°C

**Electrical Characteristics:** ( $T_A = +25^\circ\text{C}$  unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C = 100\mu\text{A}, R_{BE} = \infty$	50	-	-	V
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C = 10\mu\text{A}, I_E = 0$	50	-	-	V
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E = 10\mu\text{A}, I_C = 0$	5	-	-	V
Collector-Cutoff Current	$I_{CBO}$	$V_{CB} = 35\text{V}, I_E = 0$	-	-	0.1	$\mu\text{A}$
	$I_{CEO}$	$V_{CE} = 35\text{V}, R_{BE} = \infty$	-	-	10	$\mu\text{A}$
Emitter-Cutoff Current	$I_{EBO}$	$V_{EB} = 2\text{V}, I_C = 0$	-	-	0.1	$\mu\text{A}$
DC Current Gain	$h_{FE}$	$V_{CE} = 6\text{V}, I_C = 1\text{mA}$	400	-	800	
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 10\text{mA}, I_B = 1\text{mA}$	-	-	0.6	V
Base-Emitter Voltage Differential	$V_{BE1} - V_{BE2}$	$V_{CE} = 6\text{V}, I_C = 1\text{mA}$	-	1	10	mV
Small Signal Current Gain Ratio	$h_{fe1}/h_{fe2}$	$V_{CE} = 6\text{V}, I_C = 1\text{mA}$	0.8	0.98	1.0	
Transistion Frequency	$f_T$	$V_{CE} = 6\text{V}, I_E = 1\text{mA}$	-	150	-	MHz
Collector Output Capacitance	$C_{ob}$	$V_{CB} = 6\text{V}, I_E = 0, f = 1\text{MHz}$	-	2.5	-	pF
Noise Figure	NF	$V_{CE} = 6\text{V}, I_E = 0, f = 1\text{kHz}, R_G = 10\text{k}\Omega$	-	0.5	-	dB
Noise Voltage RMS	$NV_1$	$V_{CE} = 10\text{V}, I_E = 1\text{mA}, R_g = 100\text{k}\Omega, G_V = 80\text{dB}$	-	100	-	mV
	$NV_2$		-	0.5	-	V

