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NTE2522 (NPN) & NTE2523 (PNP) Silicon Complementary Transistors High Speed Switch

Features:

- High Current Capacity
- High Collector–Emitter Saturation Voltage

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

Collector Base Voltage, V_{CBO}		
NTE2522	.....	60V
NTE2523	.....	50V
Collector Emitter Voltage, V_{CEO}		
NTE2522	.....	45V
NTE2523	.....	40V
Emitter Base Voltage, V_{EBO}		5V
Collector Current, I_C		
Continuous	.....	8A
Pulse	.....	12A
Collector Power Dissipation, P_C		
$T_A = +25^\circ\text{C}$	.....	1W
$T_C = +25^\circ\text{C}$	.....	15W
Operating Junction Temperature, T_J		+150°C
Storage Temperature Range, T_{stg}		-55° to +150°C

Note 1. **NTE2523** is a **discontinued** device and **no longer available**.

Note 2. For NTE2523, the polarity is reversed.

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector Cutoff Current NTE2522	I_{CBO}	$V_{CB} = 45V, I_E = 0$	-	-	1.0	μA
		$V_{CB} = 3V, I_E = 0$	-	-	1.0	μA
Emitter Cutoff Current	I_{EBO}	$V_{EB} = 4V, I_C = 0$	-	-	1.0	μA
DC Current Gain NTE2522	h_{FE1}	$V_{CE} = 2V, I_C = 500\text{mA}$	140	-	400	
			100	-	400	
NTE2523	h_{FE2}	$V_{CE} = 2V, I_C = 8A$	40	-	-	
			25	-	-	
Gain–Bandwidth Product	f_T	$V_{CE} = 2V, I_C = 500\text{mA}$	-	250	-	MHz

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Output Capacitance NTE2522	C_{ob}	$V_{CB} = 10\text{V}, f = 1\text{MHz}$	-	65	-	pF
NTE2523			-	100	-	pF
Collector-Emitter Saturation Voltage NTE2522	$V_{CE(sat)}$	$I_C = 4\text{A}, I_B = 200\text{mA}$	-	0.25	0.7	V
NTE2523			-	0.3	0.8	V
Base-Emitter Saturation Voltage NTE2522	$V_{BE(sat)}$	$I_C = 4\text{A}, I_B = 200\text{mA}$	-	0.95	1.8	V
NTE2523			-	0.95	1.3	V
Collector-Base Breakdown Voltage NTE2522	$V_{(BR)CBO}$	$I_C = 100\mu\text{A}, I_E = 0$	60	-	-	V
NTE2523			50	-	-	V
Collector-Emitter Breakdown Voltage NTE2522	$V_{(BR)CEO}$	$I_C = 1\text{mA}, R_{BE} = \infty$	45	-	-	V
NTE2523			40	-	-	V
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E = 10\mu\text{A}, I_C = 0$	5	-	-	V
Turn-On Time	t_{on}	$V_{CC} = 25\text{V}, V_{BE} = 1\text{V},$ $20I_{B1} = -20I_{B2} = I_C = 4\text{A},$ Pulse Width = $20\mu\text{s},$ Duty Cycle $\leq 1\%,$ Note 1	-	50	100	ns
Storage Time NTE2522	t_{stg}		-	150	270	ns
NTE2523			-	120	220	ns
Turn-Off Time NTE2522	t_{off}		-	180	350	ns
NTE2523		-	150	300	ns	

Note 2. For NTE2523, the polarity is reversed.

