

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

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}	$V_{CB} = 45\text{V}, I_E = 0$	–	–	1.0	μA
		$V_{CB} = 3\text{V}, I_E = 0$	–	–	1.0	μA
NTE2523						
Emitter Cutoff Current	I_{EBO}	$V_{EB} = 4\text{V}, I_C = 0$	–	–	1.0	μA
DC Current Gain NTE2522	h_{FE1}	$V_{CE} = 2\text{V}, I_C = 500\text{mA}$	140	–	400	
			100	–	400	
NTE2523						
NTE2522	h_{FE2}	$V_{CE} = 2\text{V}, I_C = 8\text{A}$	40	–	–	
			25	–	–	
NTE2523						
Gain–Bandwidth Product	f_T	$V_{CE} = 2\text{V}, I_C = 500\text{mA}$	–	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}	$V_{CB} = 10V, f = 1MHz$	–	65	–	pF
NTE2523			–	100	–	pF
Collector–Emitter Saturation Voltage NTE2522	$V_{CE(sat)}$	$I_C = 4A, I_B = 200mA$	–	0.25	0.7	V
NTE2523			–	0.3	0.8	V
Base–Emitter Saturation Voltage NTE2522	$V_{BE(sat)}$	$I_C = 4A, I_B = 200mA$	–	0.95	1.8	V
NTE2523			–	0.95	1.3	V
Collector–Base Breakdown Voltage NTE2522	$V_{(BR)CBO}$	$I_C = 100\mu A, I_E = 0$	60	–	–	V
NTE2523			50	–	–	V
Collector–Emitter Breakdown Voltage NTE2522	$V_{(BR)CEO}$	$I_C = 1mA, R_{BE} = \infty$	45	–	–	V
NTE2523			40	–	–	V
Emitter–Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E = 10\mu A, I_C = 0$	5	–	–	V
Turn–On Time	t_{on}	$V_{CC} = 25V, V_{BE} = 1V,$ $20I_{B1} = -20I_{B2} = I_C = 4A,$ Pulse Width = $20\mu s,$ Duty Cicle $\leq 1\%,$ 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 1. For NTE2523, the polarity is reversed.

