

## NTE2513 (NPN) & NTE2514 (PNP) Silicon Complementary Transistors High Current Switch

**Features:**

- Low Collector Emitter Saturation Voltage
- High Gain–Bandwidth Product
- Excellent Linearity of  $h_{FE}$
- Fast Switching Time

**Applications:**

- Display Drivers
- High Speed Inverters
- Converters

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

Collector Base Voltage, $V_{CBO}$ .....	60V
Collector Emitter Voltage, $V_{CEO}$ .....	50V
Emitter Base Voltage, $V_{EBO}$ .....	6V
Collector Current, $I_C$	
Continuous .....	8A
Peak .....	12A
Collector Power Dissipation, $P_C$	
$T_A = +25^\circ\text{C}$ .....	1.2W
$T_C = +25^\circ\text{C}$ .....	20W
Operating Junction Temperature, $T_J$ .....	$+150^\circ\text{C}$
Storage Temperature Range, $T_{stg}$ .....	$-55^\circ$ to $+150^\circ\text{C}$

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector Cutoff Current	$I_{CBO}$	$V_{CB} = 40\text{V}, I_E = 0$	–	–	1.0	$\mu\text{A}$
Emitter Cutoff Current	$I_{EBO}$	$V_{EB} = 4\text{V}, I_C = 0$	–	–	1.0	$\mu\text{A}$
DC Current Gain	$h_{FE}$	$V_{CE} = 2\text{V}, I_C = 500\text{mA}$	140	–	240	
		$V_{CE} = 2\text{V}, I_C = 6\text{A}$	35	–	–	
Gain–Bandwidth Product	$f_T$	$V_{CE} = 5\text{V}, I_C = 1\text{A}$	–	180	–	MHz
NTE2513			–	130	–	MHz
NTE2514						

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Output Capacitance NTE2513	$C_{ob}$	$V_{CB} = 10\text{V}, f = 1\text{MHz}$	-	65	-	pF
NTE2514			-	95	-	pF
Collector Emitter Saturation Voltage NTE2513	$V_{CE(sat)}$	$I_C = 4\text{A}, I_B = 200\text{mA}$	-	200	400	mV
NTE2514			-	250	500	mV
Base Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C = 4\text{A}, I_B = 200\text{mA}$	-	0.95	1.3	V
Collector Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C = 10\mu\text{A}, I_E = 0$	60	-	-	V
Collector Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C = 1\text{mA}, R_{BE} = \infty$	50	-	-	V
Emitter Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E = 10\mu\text{A}, I_C = 0$	6	-	-	V
Turn-On Time	$t_{on}$	$V_{CC} = 25\text{V}, V_{BE} = -5\text{V},$ $10I_{B1} = -10I_{B2} = I_C = 4\text{A},$ Pulse Width = $20\mu\text{s},$ Duty Cycle $\leq 1\%$ , Note 1	-	50	-	ns
Storage Time NTE2513	$t_{stg}$		-	500	-	ns
NTE2514			-	450	-	ns
Fall Time	$t_f$		-	20	-	ns

Note 1. For NTE2514, the polarity is reversed.

