



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° 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}	$V_{CB} = 40V, I_E = 0$	–	–	1.0	μA
Emitter Cutoff Current	I_{EBO}	$V_{EB} = 4V, I_C = 0$	–	–	1.0	μA
DC Current Gain	h_{FE}	$V_{CE} = 2V, I_C = 500\text{mA}$	140	–	240	
		$V_{CE} = 2V, I_C = 6A$	35	–	–	
Gain–Bandwidth Product NTE2513	f_T	$V_{CE} = 5V, I_C = 1A$	–	180	–	MHz
NTE2514			–	130	–	MHz

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} = 10V, f = 1MHz	–	65	–	pF
NTE2514			–	95	–	pF
Collector Emitter Saturation Voltage NTE2513	V _{CE(sat)}	I _C = 4A, I _B = 200mA	–	200	400	mV
NTE2514			–	250	500	mV
Base Emitter Saturation Voltage	V _{BE(sat)}	I _C = 4A, I _B = 200mA	–	0.95	1.3	V
Collector Base Breakdown Voltage	V _{(BR)CBO}	I _C = 10μA, I _E = 0	60	–	–	V
Collector Emitter Breakdown Voltage	V _{(BR)CEO}	I _C = 1mA, R _{BE} = ∞	50	–	–	V
Emitter Base Breakdown Voltage	V _{(BR)EBO}	I _E = 10μA, I _C = 0	6	–	–	V
Turn–On Time	t _{on}	V _{CC} = 25V, V _{BE} = –5V, 10I _{B1} = –10I _{B2} = I _C = 4A, Pulse Width = 20μs, Duty Cycle ≤ 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.

