

NTE16004 (PNP) & NTE16005 (NPN) Silicon Complementary Transistors High Current, General Purpose

Absolute Maximum Ratings:

Collector–Emitter Voltage, V_{CEO}	75V
Collector–Base Voltage, V_{CBO}	100V
Emitter–Base Voltage, V_{EBO}	7V
Continuous Collector Current, I_C	2A
Base Current, I_B	1A
Total Device Dissipation ($T_C = +25^\circ\text{C}$), P_D	10W
Derate Above 25°C	0.057mW/ $^\circ\text{C}$
Operating Junction Temperature Range, T_J	-65° to $+200^\circ\text{C}$
Storage Temperature Range, T_{stg}	-65° to $+200^\circ\text{C}$
Thermal Resistance, Junction–to–Case, R_{thJC}	17.5 $^\circ\text{C/W}$

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
OFF Characteristics						
Collector–Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C = 100\text{mA}$, $I_B = 0$	75	–	–	V
Collector Cutoff Current	I_{CEX}	$V_{CE} = 100\text{V}$, $V_{BE} = 1.5\text{V}$	–	–	0.1	mA
		$V_{CE} = 70\text{V}$, $V_{BE} = 1.5\text{V}$, $T_C = +150^\circ\text{C}$	–	–	5.0	mA
Emitter Cutoff Current	I_{EBO}	$V_{BE} = 7\text{V}$, $I_C = 0$	–	–	0.1	mA
ON Characteristics (Note 1)						
DC Current Gain	h_{FE}	$I_C = 500\text{mA}$, $V_{CE} = 4\text{V}$	30	–	130	
		$I_C = 1\text{A}$, $V_{CE} = 2\text{V}$	10	–	–	
Collector–Emitter Saturation Voltage NTE16004	$V_{CE(sat)}$	$I_C = 500\text{mA}$, $I_B = 50\text{mA}$	–	–	0.7	V
NTE16005			–	–	0.5	V
Base–Emitter ON Voltage	$V_{BE(on)}$	$I_C = 500\text{mA}$, $V_{CE} = 4\text{V}$	–	–	1.1	V
Small–Signal Characteristics						
Small–Signal Current Gain	h_{fe}	$I_C = 50\text{mA}$, $V_{CE} = 4\text{V}$, $f = 10\text{MHz}$	5	–	–	

Note 1. Pulse Test: Pulse Width $\leq 300\mu\text{s}$, Duty Cycle $\leq 2\%$.

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Switching Characteristics						
Turn-On Time NTE16004	t_{on}	$V_{CC} = 30\text{V}, I_C = 500\text{mA}, I_{B1} = 50\text{mA}$	–	–	100	ns
NTE16005			–	–	80	ns
Turn-Off Time NTE16004	t_{off}	$V_{CC} = 30\text{V}, I_C = 500\text{mA}, I_{B1} = I_{B2} = 50\text{mA}$	–	–	1000	ns
NTE16005			–	–	800	ns

