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## NTE2691 (NPN) & NTE2692 (PNP) Silicon Complementary Transistors High Voltage Switch

**Features:**

- High Breakdown Voltage
- Large Current Capacity

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

Collector–Base Voltage, $V_{CBO}$ .....	180V
Collector–Emitter Voltage, $V_{CEO}$ .....	160V
Emitter–Base Voltage, $V_{EBO}$ .....	6V
Collector Current, $I_C$	
Continuous .....	1.5A
Pulse .....	2.5A
Collector Dissipation, $P_C$ .....	1W
Maximum 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	$I_{CBO}$	$V_{CB} = 120\text{V}, I_E = 0$	–	–	1	$\mu\text{A}$
Emitter Cutoff Current	$I_{EBO}$	$V_{EB} = 4\text{V}, I_C = 0$	–	–	1	$\mu\text{A}$
DC Current Gain NTE2691	$h_{FE1}$	$V_{CE} = 5\text{V}, I_C = 100\text{mA}$	140	–	280	
NTE2692			200	–	400	
DC Current Gain	$h_{FE2}$	$V_{CE} = 5\text{V}, I_C = 10\text{mA}$	80	–	–	
Gain–Bandwidth Product	$f_T$	$V_{CE} = 10\text{V}, I_C = 50\text{mA}$	–	120	–	MHz
Output Capacitance NTE2691	$C_{ob}$	$V_{CB} = 10\text{V}, f = 1\text{MHz}$	–	14	–	$\text{pF}$
NTE2692			–	22	–	$\text{pF}$
Collector–Emitter Saturation Voltage NTE2691	$V_{CE(sat)}$	$I_C = 500\text{mA}, I_B = 50\text{mA}$	–	130	450	mV
NTE2692			–	200	500	mV
Base–Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C = 500\text{mA}, I_B = 50\text{mA}$	–	0.85	1.2	V



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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C = 10\mu\text{A}, I_E = 0$	180	-	-	V
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C = 1\text{mA}, R_{BE} = \infty$	160	-	-	V
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E = 10\mu\text{A}, I_C = 0$	6	-	-	V
Turn-On Time	$t_{on}$	$I_C = 10\text{I}_{B1} = -10\text{I}_{B1} = 700\text{mA},$ $V_{CC} = 100\text{V}, \text{Pulse Width} = 20\mu\text{s},$ $\text{Duty Cycle} \leq 1\%$	-	40	-	$\mu\text{s}$
Storage Time NTE2691	$t_{stg}$		-	1.2	-	$\mu\text{s}$
NTE2692			-	0.7	-	$\mu\text{s}$
Fall Time NTE2691	$t_f$		-	80	-	ns
NTE2692		-	40	-	ns	

