



**ELECTRONICS, INC.**  
 44 FARRAND STREET  
 BLOOMFIELD, NJ 07003  
 (973) 748-5089  
<http://www.nteinc.com>

## 2N6340 Silicon NPN Transistor Power Amp, Switch TO-3 Type Package

**Description:**

The 2N6340 is a silicon NPN transistor in a TO-3 type package designed for use in industrial power amplifier and switching circuit applications.

**Features:**

- High DC Current Gain
- Low Collector-Emmitter Saturation Voltage

**Absolute Maximum Ratings:** (Note 1)

Collector-Emmitter Voltage, $V_{CEO}$ .....	140V
Collector-Base Voltage, $V_{CBO}$ .....	160V
Emitter-Base Voltage, $V_{EBO}$ .....	6V
Collector Current, $I_C$	
Continuous .....	25A
Peak .....	50A
Base Current, $I_B$ .....	10A
Total Device Dissipation ( $T_C = +25^\circ C$ ), $P_D$ .....	200W
Derate Above $25^\circ C$ .....	1.14W/ $^\circ C$
Operating Junction Temperature Range, $T_J$ .....	$-65^\circ$ to $+200^\circ C$
Storage Temperature Range, $T_{stg}$ .....	$-65^\circ$ to $+200^\circ C$
Maximum Thermal Resistance, Junction-to-Case, $R_{thJC}$ .....	$0.875^\circ C/W$

Note 1. Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

**Electrical Characteristics:** ( $T_C = +25^\circ C$  unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
<b>OFF Characteristics</b>						
Collector-Emmitter Sustaining Voltage	$V_{CEO(sus)}$	$I_C = 50mA, I_B = 0$ , Note 2	140	-	-	V
Collector Cutoff Current	$I_{CEO}$	$V_{CE} = 70V, I_B = 0$	-	-	50	$\mu A$
	$I_{CBO}$	$V_{CB} = 160V, I_E = 0$	-	-	10	$\mu A$
Emitter Cutoff Current	$I_{EBO}$	$V_{BE} = 6V, I_C = 0$	-	-	100	$\mu A$

Note 2. Pulse Test: Pulse Width =  $300\mu s$ , Duty Cycle  $\leq 2\%$ .

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
<b>ON Characteristics (Note 2)</b>						
DC Current Gain	$h_{FE}$	$V_{CE} = 2\text{V}, I_C = 0.5\text{A}$	50	-	-	
		$V_{CE} = 2\text{V}, I_C = 10\text{A}$	30	-	120	
		$V_{CE} = 2\text{V}, I_C = 25\text{A}$	12	-	-	
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 10\text{A}, I_B = 1.0\text{A}$	-	-	1.0	V
		$I_C = 25\text{A}, I_B = 2.5\text{A}$	-	-	1.8	V
Base-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C = 10\text{A}, I_B = 1.0\text{A}$	-	-	1.8	V
		$I_C = 25\text{A}, I_B = 2.5\text{A}$	-	-	2.5	V
Base-Emitter ON Voltage	$V_{BE(on)}$	$I_C = 10\text{A}, V_{CE} = 2\text{V}$	-	-	1.8	V
<b>Dynamic Characteristics</b>						
Current Gain-Bandwidth Product	$f_T$	$V_{CE} = 10\text{V}, I_C = 1\text{A}, f = 10\text{MHz},$ Note 3	40	-	-	MHz
Output Capacitance	$C_{ob}$	$V_{CB} = 10\text{V}, I_E = 0, f = 0.1\text{MHz}$	-	-	300	pF
<b>Switching Characteristics</b>						
Rise Time	$t_r$	$V_{CC} = 80\text{V}, I_C = 10\text{A},$ $I_{B1} = -I_{B2} = 1\text{A}, V_{BE(off)} = 6\text{V}$	-	-	0.4	$\mu\text{s}$
Storage Time	$t_s$		-	-	1.5	$\mu\text{s}$
Fall Time	$t_f$		-	-	0.6	$\mu\text{s}$

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

Note 3.  $f_T = |h_{fe}| \cdot f_{test}$ .

