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## NTE16002 Silicon NPN Transistor RF Power Output, $P_O = 13.5W, 175MHz$

### Absolute Maximum Ratings:

Collector–Emitter Voltage, $V_{CEO}$ .....	40V
Collector–Base Voltage, $V_{CB}$ .....	65V
Emitter–Base Voltage, $V_{EB}$ .....	4V
Collector Current, $I_C$ .....	3A
Total Device Dissipation ( $T_C = +25^\circ C$ ), $P_D$ .....	23W
Derate Above $25^\circ C$ .....	131mW/ $^\circ C$
Operating Junction Temperature Range, $T_J$ .....	$-65^\circ$ to $+200^\circ C$
Storage Temperature Range, $T_{stg}$ .....	$-65^\circ$ to $+200^\circ C$

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
<b>OFF Characteristics</b>						
Collector–Emitter Sustaining Voltage	$V_{(BR)CEO(sus)}$	$I_C = 200mA, I_B = 0$ , Note 1	40	–	–	V
Emitter–Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E = 0.25mA, I_C = 0$	4	–	–	V
Collector Cutoff Current	$I_{CEO}$	$V_{CE} = 30V, I_B = 0$	–	–	0.25	mA
	$I_{CEX}$	$V_{CE} = 30V, V_{BE(off)} = 1.5V,$ $T_C = +200^\circ C$	–	–	10	mA
		$V_{CE} = 65V, V_{BE(off)} = 1.5V$	–	–	5	mA
	$I_{CBO}$	$V_{CB} = 65V, I_E = 0$	–	–	1	mA
Emitter Cutoff Current	$I_{EBO}$	$V_{BE} = 4V, I_C = 0$	–	–	0.25	mA
<b>ON Characteristics</b>						
DC Current Gain	$h_{FE}$	$V_{CE} = 5V, I_C = 1A$	5	–	–	
Collector–Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 500mA, I_B = 100mA$	–	–	1.0	V
Base–Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C = 1A, I_B = 5A$	–	–	1.5	V
<b>Dynamic Characteristics</b>						
Current Gain–Bandwidth Product	$f_T$	$V_{CE} = 28V, I_C = 150mA, f = 100MHz$	–	400	–	MHz
Output Capacitance	$C_{ob}$	$V_{CB} = 30V, I_E = 0, f = 100kHz$	–	16	20	pF

Note 1. Pulsed through 25mH inductor.



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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
<b>Functional Tests</b>						
Power Input	$P_{in}$	$V_{CE} = 28\text{V}, P_{out} = 2.5\text{W}, f = 175\text{MHz}$	–	–	0.25	W
Common-Emitter Amplifier Power Gain	$G_{pe}$		10	–	–	dB
Collector Efficiency	$\eta$		50	–	–	%



