

## NTE36 (NPN) & NTE37 (PNP) Silicon Complementary Transistors AF Power Amplifier, High Current Switch

### Description:

The NTE36 (NPN) and NTE37 (PNP) are silicon complementary transistors in a TO3P type case designed for AF power amplifier and high current switching applications.

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

Collector–Emitter Voltage, $V_{CEO}$ .....	140V
Collector–Base Voltage, $V_{CBO}$ .....	160V
Emitter–Base Voltage, $V_{EBO}$ .....	6V
Collector Current, $I_C$	
Continuous .....	12A
Peak .....	15A
Total Power Dissipation ( $T_C = +25^\circ\text{C}$ ), $P_D$ .....	100W
Operating Junction Temperature, $T_J$ .....	+150°C
Storage Temperature Range, $T_{stg}$ .....	–40° to +150°C

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector Cutoff Current	$I_{CEO}$	$V_{CB} = 80\text{V}, I_E = 0$	–	–	0.1	mA
Emitter Cutoff Current	$I_{EBO}$	$V_{BE} = 4\text{V}, I_C = 0$	–	–	0.1	mA
DC Current Gain	$h_{FE1}$	$V_{CE} = 5\text{V}, I_C = 1\text{A}$	60	–	200	
	$h_{FE2}$	$V_{CE} = 5\text{V}, I_C = 6\text{A}$	20	–	–	
Gain Bandwidth Product	$f_T$	$V_{CE} = 5\text{V}, I_C = 1\text{A}$	–	15	–	MHz
Output Capacitance NTE36 NTE37	$C_{ob}$	$V_{CB} = 10\text{V}, f = 1\text{MHz}$	–	210	–	pF
			–	300	–	
Base–Emitter Voltage	$V_{BE}$	$V_{CE} = 5\text{V}, I_C = 1\text{A}$	–	–	1.5	V
Collector–Emitter Saturation Voltage NTE36 NTE37	$V_{CE(sat)}$	$I_C = 5\text{A}, I_B = 500\text{mA}$	–	0.6	2.5	V
			–	1.1	–	

**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	$V_{(BR)CBO}$	$I_C = 5\text{mA}, I_E = 0$	160	-	-	V
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C = 5\text{mA}, R_{BE} = \infty$	140	-	-	V
		$I_C = 50\text{mA}, R_{BE} = \infty$	140	-	-	V
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E = 5\text{mA}, I_C = 0$	6	-	-	V
Turn-On Time NTE36 NTE37	$t_{on}$	$10I_{B1} = -10I_{B2} = I_C = 1\text{A},$ $PW = 20\mu\text{s}$	-	0.26	-	$\mu\text{s}$
Fall Time NTE36 NTE37	$t_f$		-	0.68	-	$\mu\text{s}$
Storage Time NTE36 NTE37	$t_{on}$		-	6.88	-	$\mu\text{s}$
			-	1.61	-	$\mu\text{s}$

Note 1. Matched complementary pairs are available upon request (NTE37MCP). Matched complementary pairs have their gain specification ( $h_{FE}$ ) matched to within 10% of each other.

