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## NTE2685 (NPN) & NTE2686 (PNP) Silicon Complementary Darlington Transistors Audio Power Output TO3PML Type Package

**Features:**

- Collector–Emitter Breakdown Voltage:  $V_{(BR)CEO} = 150V$  Min
- High DC Current Gain:  $h_{FE} = 5000$  Min @  $I_C = 6A, V_{CE} = 4V$
- Low Collector–Emitter Saturation Voltage:  $V_{CE(sat)} = 2.5V$  Max @  $I_C = 6A, I_B = 6mA$

**Applications:**

- Audio
- Series Regulator
- General Purpose

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

Collector–Base Voltage, $V_{CBO}$ .....	160V
Collector–Emitter Voltage, $V_{CEO}$ .....	150V
Emitter–Base Voltage, $V_{EBO}$ .....	5V
Continuous Collector Current, $I_C$ .....	8A
Continuous Base Current, $I_B$ .....	1A
Collector Power Dissipation ( $T_C = +25^{\circ}C$ ), $P_D$ .....	75W
Operating Junction Temperature, $T_J$ .....	$+150^{\circ}C$
Storage Temperature Range, $T_{stg}$ .....	$-55^{\circ}$ to $+150^{\circ}C$

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector–Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C = 30mA, I_B = 0$	150	–	–	V
Collector–Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 6A, I_B = 6mA$	–	–	2.5	V
Base–Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C = 6A, I_B = 6mA$	–	–	3.0	V
Collector Cutoff Current	$I_{CBO}$	$V_{CB} = 160V, I_E = 0$	–	–	100	$\mu A$
Emitter Cutoff Current	$I_{EBO}$	$V_{EB} = 5V, I_C = 0$	–	–	100	$\mu A$
DC Current Gain	$h_{FE}$	$V_{CE} = 4V, I_C = 6A$	4000	–	–	
Output Capacitance	$C_{OB}$	$I_E = 0, V_{CB} = 10V, f_{test} = 1MHz$	–	85	–	pF
Transition Frequency	$f_T$	$V_{CE} = 12V, I_C = 1A$	–	80	–	MHz
NTE2685			–	65	–	MHz
NTE2686						

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Turn-On Time NTE2685	$t_{on}$	$I_C = 6\text{A}, I_{B1} = -I_{B1} = 6\text{mA},$ $V_{CC} = 60\text{V}, R_L = 10\Omega$	-	0.6	-	$\mu\text{s}$
NTE2686			-	0.7	-	$\mu\text{s}$
Storage Time NTE2685	$t_{stg}$		-	10	-	$\mu\text{s}$
NTE2686			-	0.6	-	$\mu\text{s}$
Fall Time	$t_f$		-	0.9	-	$\mu\text{s}$

