



**PE8050/PE8550** *7-29-23*  
 NPN-PNP General Purpose  
 Complementary Amplifiers & Output  
 Drivers

- $V_{CEO}$  ... 25 V (Min)
- $h_{FE}$  ... Outstanding Beta Linearity to 1.0 A
- Three  $h_{FE}$  Groups
- Guaranteed SOA
- Complements ... PE8050, (NPN), PE8550, (PNP)

PACKAGE	
PE8050	TO-92
PE8550	TO-92

**ABSOLUTE MAXIMUM RATINGS** (Note 1)

Temperatures	
Storage Temperature	-55° C to 150° C
Operating Junction Temperature	150° C

Power Dissipation ( $V_{CE} = 8.0$ V) (Notes 2 & 3)	
Total Dissipation at 25° C Ambient Temperature	0.625 W
25° C Case Temperature	1.0 W

Voltages & Currents	
$V_{CEO}$ Collector to Emitter Voltage (Note 4)	25 V
$V_{CBO}$ Collector to Base Voltage	30 V
$V_{EBO}$ Emitter to Base Voltage	6.0 V
$I_C$ Collector Current (Continuous)	1.5 A
$I_C$ Collector Current (Pulsed)	1.5 A

**ELECTRICAL CHARACTERISTICS** (25° C Ambient Temperature unless otherwise noted) (Note 6)

SYMBOL	CHARACTERISTIC	MIN	MAX	UNITS	TEST CONDITIONS
$V_{CEO}$	Collector to Emitter Breakdown Voltage (Note 5)	25		V	$I_C = 10$ mA, $I_B = 0$
$V_{CBO}$	Collector to Base Breakdown Voltage	30		V	$I_C = 100$ $\mu$ A, $I_E = 0$
$V_{EBO}$	Emitter to Base Breakdown Voltage	6.0		V	$I_E = 100$ $\mu$ A, $I_C = 0$
$I_{CBO}$	Collector Cutoff Current		100	nA	$V_{CB} = 20$ V, $I_E = 0$
$h_{FE}$	DC Current Gain (Note 5)	50	200		$I_C = 10$ mA, $V_{CE} = 1.0$ V
		65	200		$I_C = 100$ mA, $V_{CE} = 1.0$ V
		65	200		$I_C = 500$ mA, $V_{CE} = 1.0$ V
		40	200		$I_C = 1.0$ A, $V_{CE} = 1.0$ V
	Gain Grouping A	65	130		$I_C = 100$ mA, $V_{CE} = 1.0$ V
	Gain Grouping B	85	160		
Gain Grouping C	120	200			

**NOTES:**

1. These ratings are limiting values above which the serviceability of any individual semiconductor device may be impaired.
2. These are steady state limits. The factory should be consulted on applications involving pulsed or low duty cycle operations.
3. These ratings give a maximum junction temperature of 150° C and (TO-92) junction-to-case thermal resistance of 125° C/W (derating factor of 5.0 mW/°C); junction-to-ambient thermal resistance of 8.0 mW/°C).
4. Rating refers to a high current point where collector to emitter voltage is lowest.
5. Pulse conditions; length = 300  $\mu$ s; duty cycle = 1%.
6. For product family characteristic curves, refer to Curve Set T124 for PE8050 & T202 for PE8550.

**ELECTRICAL CHARACTERISTICS** (25° C Ambient Temperature unless otherwise noted) (Note 6)

SYMBOL	CHARACTERISTIC	MIN	MAX	UNITS	TEST CONDITIONS
$h_{FE1}/h_{FE2}$	Beta Ratio at Two Currents	0.8	1.8		$I_{C1} = 100 \text{ mA}$ , $I_{C2} = 800 \text{ mA}$ , $V_{CE} = 1.0 \text{ V}$
$h_{FE3}/h_{FE4}$	Beta Ratio at Two Currents	0.8	1.5		$I_{C1} = 150 \text{ mA}$ , $I_{C4} = 500 \text{ mA}$ , $V_{CE} = 1.0 \text{ V}$
$h_{fe}$	High Frequency Current Gain	1.0			$I_C = 50 \text{ mA}$ , $V_{CE} = 10 \text{ V}$ , $f = 100 \text{ MHz}$
$V_{CE(sat)}$	Collector to Emitter Saturation Voltage (Note 5)		0.15 0.5	V V	$I_C = 200 \text{ mA}$ , $I_B = 20 \text{ mA}$ $I_C = 1.0 \text{ A}$ , $I_B = 100 \text{ mA}$
$V_{BE(sat)}$	Base to Emitter Saturation Voltage (Note 5)		0.9 1.2	V V	$I_C = 200 \text{ mA}$ , $I_B = 20 \text{ mA}$ $I_C = 1.0 \text{ A}$ , $I_B = 100 \text{ mA}$
$C_{cb}$	Collector to Base Capacitance		40	pF	$V_{CB} = 10 \text{ V}$ , $I_C = 0$ , $f = 1.0 \text{ MHz}$