



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

## MPSA55 & MPSA56 Silicon PNP Transistor General Purpose Amplifier

### Absolute Maximum Ratings:

Collector–Emitter Voltage, $V_{CES}$		
MPSA55	.....	60V
MPSA56	.....	80V
Collector–Base Voltage, $V_{CBO}$		
MPSA55	.....	60V
MPSA56	.....	80V
Emitter–Base Voltage, $V_{EBO}$	.....	4V
Continuous Collector Current, $I_C$	.....	500mA
Total Device Dissipation ( $T_A = 25^\circ\text{C}$ ), $P_D$	.....	625mW
Derate Above $25^\circ\text{C}$	.....	5mW/ $^\circ\text{C}$
Total Device Dissipation ( $T_C = 25^\circ\text{C}$ ), $P_D$	.....	1.5W
Derate Above $25^\circ\text{C}$	.....	12mW/ $^\circ\text{C}$
Operating Junction Temperature Range, $T_J$	.....	$-55^\circ$ to $+150^\circ\text{C}$
Storage Temperature Range, $T_{stg}$	.....	$-55^\circ$ to $+150^\circ\text{C}$
Thermal Resistance, Junction–to–Case, $R_{qJC}$	.....	83.3 $^\circ\text{C}/\text{W}$
Thermal Resistance, Junction–to–Ambient, $R_{qJA}$ (Note 1)	.....	200 $^\circ\text{C}/\text{W}$

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
<b>OFF Characteristics</b>						
Collector–Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C = 1.0\text{mA}, I_B = 0$ , Note 2	60	–	–	V
MPSA55						
MPSA56			80	–	–	V
Emitter–Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E = 100\text{mA}, I_C = 0$	4.0	–	–	V
Collector Cutoff Current	$I_{CES}$	$V_{CE} = 60\text{V}, I_B = 0$	–	–	0.1	mA
Collector Cutoff Current	$I_{CBO}$	$V_{CB} = 60\text{V}, I_E = 0$	–	–	0.1	mA
MPSA55						
MPSA56		$V_{CB} = 80\text{V}, I_E = 0$	–	–	0.1	mA
<b>ON Characteristics</b>						
DC Current Gain	$h_{FE}$	$V_{CE} = 1.0\text{V}, I_C = 10\text{mA}$	100	–	–	
		$V_{CE} = 1.0\text{V}, I_C = 100\text{mA}$	100	–	–	
Collector–Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 100\text{mA}, I_B = 10\text{mA}$	–	–	0.25	V
Base–Emitter Saturation Voltage	$V_{BE(on)}$	$I_C = 100\text{mA}, V_{CE} = 1.0\text{V}$	–	–	1.2	V

Note 1.  $R_{qJA}$  is measured with the device soldered into a typical printed circuit board.

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

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
<b>Small Signal Characteristics</b>						
Current Gain Bandwidth Product	$f_t$	$I_C = 100\text{mA}$ , $V_{CE} = 1\text{V}$ , $f = 100\text{MHz}$ , Note 3	50	-	-	MHz

Note 3.  $f_t$  is defined as the frequency at which  $|h_{fe}|$  extrapolates to unity.

