

NPN - MPSA05, MPSA06*; PNP - MPSA55, MPSA56*

*Preferred Devices

Amplifier Transistors

Voltage and Current are Negative
for PNP Transistors

MAXIMUM RATINGS

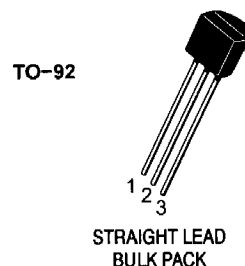
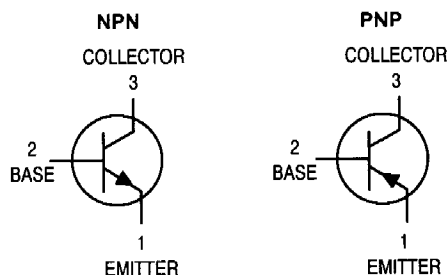
Rating	Symbol	Value	Unit
Collector - Emitter Voltage MPSA05, MPSA55 MPSA06, MPSA56	V_{CEO}	60 80	Vdc
Collector - Base Voltage MPSA05, MPSA55 MPSA06, MPSA56	V_{CBO}	60 80	Vdc
Emitter - Base Voltage	V_{EBO}	4.0	Vdc
Collector Current - Continuous	I_C	500	mAdc
Total Device Dissipation @ $T_A = 25^\circ\text{C}$ Derate above 25°C	P_D	625 5.0	W mW/ $^\circ\text{C}$
Total Device Dissipation @ $T_C = 25^\circ\text{C}$ Derate above 25°C	P_D	1.5 12	W mW/ $^\circ\text{C}$
Operating and Storage Junction Temperature Range	T_J, T_{stg}	-55 to +150	$^\circ\text{C}$

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction-to-Ambient (Note 1)	$R_{\theta JA}$	200	$^\circ\text{C/W}$
Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	83.3	$^\circ\text{C/W}$

Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

1. $R_{\theta JA}$ is measured with the device soldered into a typical printed circuit board.



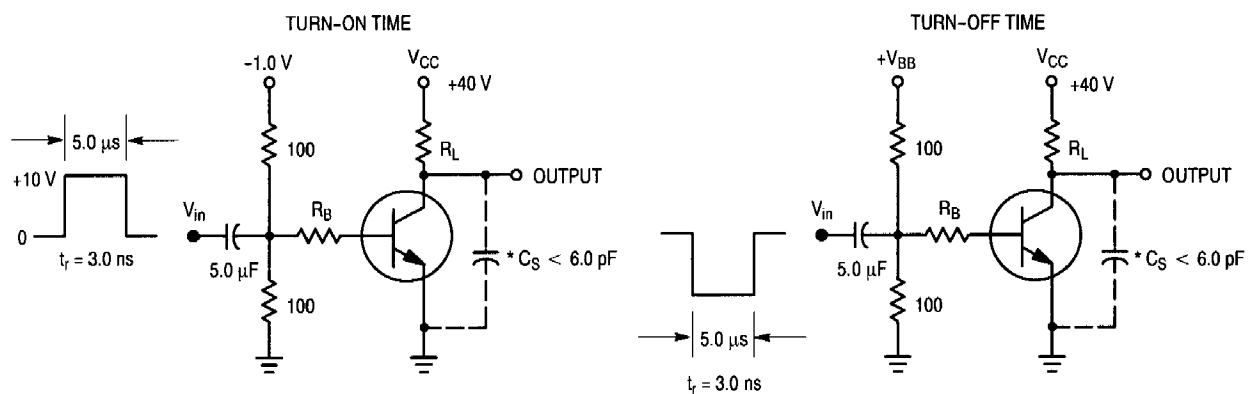
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ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted)

Characteristic	Symbol	Min	Max	Unit	
OFF CHARACTERISTICS					
Collector – Emitter Breakdown Voltage (Note 2) ($I_C = 1.0\text{ mA}$, $I_B = 0$)	MPSA05, MPSA55 MPSA06, MPSA56	$V_{(BR)CEO}$	60 80	-	Vdc
Emitter – Base Breakdown Voltage ($I_E = 100\ \mu\text{A}$, $I_C = 0$)		$V_{(BR)EBO}$	4.0	-	Vdc
Collector Cutoff Current ($V_{CE} = 60\text{ Vdc}$, $I_B = 0$)		I_{CES}	-	0.1	μA
Collector Cutoff Current ($V_{CB} = 60\text{ Vdc}$, $I_E = 0$) ($V_{CB} = 80\text{ Vdc}$, $I_E = 0$)	MPSA05, MPSA55 MPSA06, MPSA56	I_{CBO}	-	0.1 0.1	μA
ON CHARACTERISTICS					
DC Current Gain ($I_C = 10\text{ mA}$, $V_{CE} = 1.0\text{ Vdc}$) ($I_C = 100\text{ mA}$, $V_{CE} = 1.0\text{ Vdc}$)		h_{FE}	100 100	-	-
Collector – Emitter Saturation Voltage ($I_C = 100\text{ mA}$, $I_B = 10\text{ mA}$)		$V_{CE(sat)}$	-	0.25	Vdc
Base – Emitter On Voltage ($I_C = 100\text{ mA}$, $V_{CE} = 1.0\text{ Vdc}$)		$V_{BE(on)}$	-	1.2	Vdc
SMALL-SIGNAL CHARACTERISTICS					
Current – Gain – Bandwidth Product (Note 3) ($I_C = 10\text{ mA}$, $V_{CE} = 2.0\text{ V}$, $f = 100\text{ MHz}$) ($I_C = 100\text{ mA}$, $V_{CE} = 1.0\text{ Vdc}$, $f = 100\text{ MHz}$)	MPSA05 MPSA06 MPSA55 MPSA56	f_T	100 50	-	MHz

2. Pulse Test: Pulse Width $\leq 300\ \mu\text{s}$, Duty Cycle $\leq 2\%$.
3. f_T is defined as the frequency at which $|h_{fe}|$ extrapolates to unity.



*Total Shunt Capacitance of Test Jig and Connectors For PNP Test Circuits, Reverse All Voltage Polarities

Figure 1. Switching Time Test Circuits