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

*Preferred Devices

Amplifier Transistors

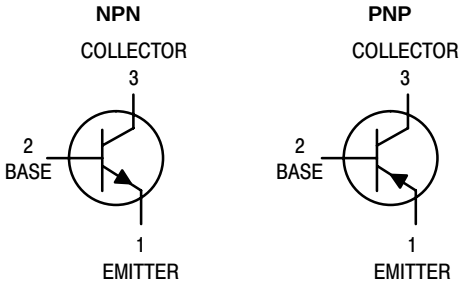
Voltage and Current are Negative for PNP Transistors

ON Semiconductor®

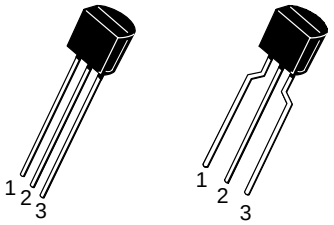
http://onsemi.com

Features

- Pb−Free Packages are Available*



TO−92
CASE 29
STYLE 1



STRAIGHT LEAD
BULK PACK

BENT LEAD
TAPE & REEL
AMMO PACK

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°C Derate above 25°C	P_D	625 5.0	W mW/°C
Total Device Dissipation @ T_C = 25°C Derate above 25°C	P_D	1.5 12	W mW/°C
Operating and Storage Junction Temperature Range	T_J, T_{stg}	−55 to +150	°C

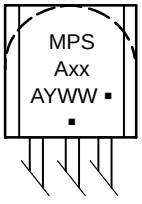
THERMAL CHARACTERISTICS

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

MARKING DIAGRAM



xx = 05, 06, 55, or 56
A = Assembly Location
Y = Year
WW = Work Week
▪ = Pb−Free Package

(Note: Microdot may be in either location)

ORDERING INFORMATION

See detailed ordering and shipping information in the package dimensions section on page 6 of this data sheet.

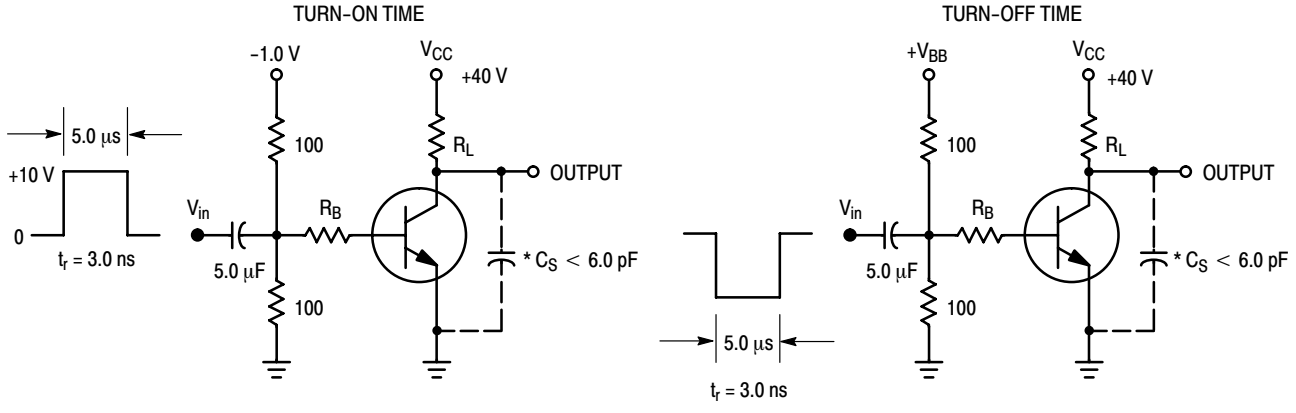
*For additional information on our Pb−Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.

Preferred devices are recommended choices for future use and best overall value.

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted)

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

2. Pulse Test: Pulse Width ≤ 300 μs, Duty Cycle ≤ 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