



## MPSA05/55

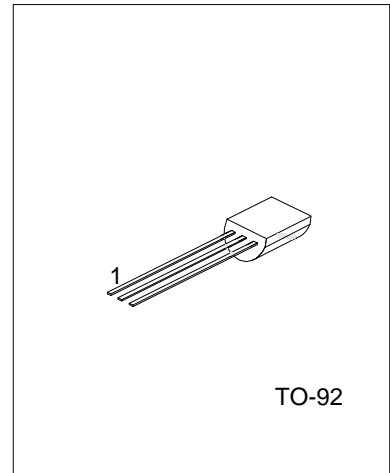
## AMPLIFIER TRANSISTOR

NPN MPSA05

PNP MPSA55

### ■ FEATURES

\* Collector-Emitter Voltage:  $V_{CE0}=60V$



### ■ ORDERING INFORMATION

Ordering Number			Package	Pin Assignment			Packing
Normal	Lead Free	Halogen Free		1	2	3	
MPSA05-T92-B	MPSA05L-T92-B	MPSA05G-T92-B	TO-92	E	B	C	Tape Box
MPSA05-T92-K	MPSA05L-T92-K	MPSA05G-T92-K	TO-92	E	B	C	Bulk
MPSA55-T92-B	MPSA55L-T92-B	MPSA55G-T92-B	TO-92	E	B	C	Tape Box
MPSA55-T92-K	MPSA55L-T92-K	MPSA55G-T92-K	TO-92	E	B	C	Bulk

Note: Pin assignment: E: EMITTER, C: COLLECTOR, B: BASE

<p>MPSA05L-T92-B</p> <p>(1)Packing Type (2)Package Type (3)Lead Free</p>	<p>(1) B: Tape Box, K: Bulk (2) T92: TO-92 (3) G: Halogen Free, L: Lead Free, Blank: Pb/Sn</p>
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■ ABSOLUTE MAXIMUM RATING ( $T_A=25^\circ\text{C}$ , unless otherwise specified)

PARAMETER	SYMBOL	RATINGS	UNIT
Collector-base voltage	$V_{CBO}$	60	V
Collector-emitter voltage	$V_{CEO}$	60	V
Emitter-base voltage	$V_{EBO}$	4	V
Collector current - Continuous	$I_C$	500	mA
Total device dissipation, @ $T_A=25^\circ\text{C}$ Derate above $25^\circ\text{C}$	$P_D$	625 5	mW mW/ $^\circ\text{C}$
Total device dissipation, @ $T_C=25^\circ\text{C}$ Derate above $25^\circ\text{C}$	$P_D$	1500 12	mW mW/ $^\circ\text{C}$
Junction Temperature	$T_J$	125	$^\circ\text{C}$
Storage Temperature	$T_{STG}$	-40 ~ +150	$^\circ\text{C}$

Note: 1. Absolute maximum ratings are those values beyond which the device could be permanently damaged.  
Absolute maximum ratings are stress ratings only and functional device operation is not implied.

■ THERMAL DATA

PARAMETER	SYMBOL	RATINGS	UNIT
Thermal resistance, junction to ambient (Note)	$R_{\theta JA}$	200	$^\circ\text{C}/\text{W}$
Thermal resistance, junction to case	$R_{\theta JC}$	83.3	$^\circ\text{C}/\text{W}$

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

■ 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 (note 1)	$V_{(BR)CEO}$	$I_C=1.0\text{mA}, I_B=0$	60			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E=100\mu\text{A}, I_C=0$	4			V
Collector cutoff current	$I_{CES}$	$V_{CE}=60\text{V}, I_B=0$			0.1	$\mu\text{A}$
Collector cutoff current	$I_{CBO}$	$V_{CB}=60\text{V}, I_E=0$			0.1	$\mu\text{A}$
<b>ON CHARACTERISTICS</b>						
DC current gain	$h_{FE}$	$I_C=10\text{mA}, V_{CE}=1\text{V}$ $I_C=100\text{mA}, V_{CE}=1\text{V}$	100 100			
Collector-emitter saturation voltage	$V_{CE(SAT)}$	$I_C=100\text{mA}, I_B=10\text{mA}$			0.25	V
Base-emitter on voltage	$V_{BE(ON)}$	$I_C=100\text{mA}, V_{CE}=1\text{V}$			1.2	V
<b>SMALL-SIGNAL CHARACTERISTICS</b>						
Current gain bandwidth product (note 2)	MPSA05	$f_T$	$I_C=10\text{mA}, V_{CE}=2\text{V}, f=100\text{MHz}$	100		MHz
	MPSA55			50		MHz

Note 1. Pulse test:  $PW \leq 300\mu\text{s}$ , Duty Cycle  $\leq 2\%$

2.  $f_T$  is defined as the frequency at which  $I_{hfe}$  extrapolates to unity.

■ SWITCHING TIME TEST CIRCUIT

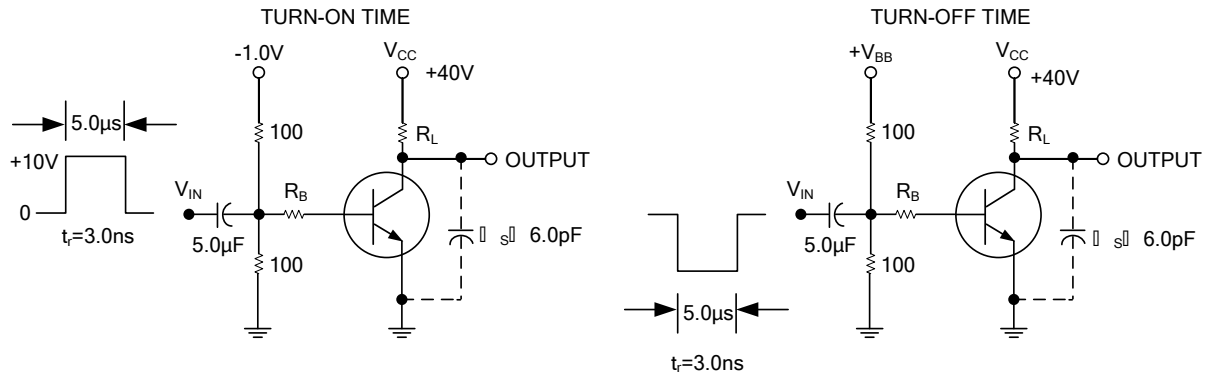


Figure 1. (Note: Total shunt capacitance of test jig and connectors for PNP test circuits, reverse all voltage polarities.)

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