



UNISONIC TECHNOLOGIES CO., LTD

MPSA05/55

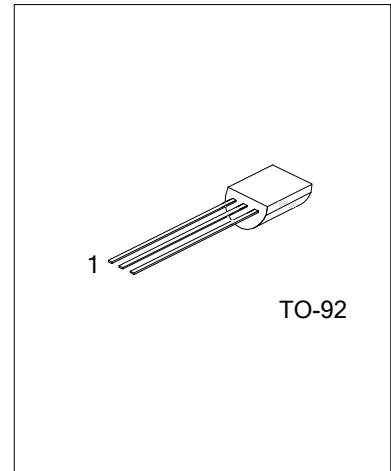
AMPLIFIER TRANSISTOR

NPN MPSA05

PNP MPSA55

FEATURES

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



ORDERING INFORMATION

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

Note: Pin Assignment: B: Base C: Collector E: Emitter

<p>MPSA55L-T92-A-B</p> <p>(1) Packing Type (2) Pin Assignment (3) Package Type (4) Lead Free</p>	<p>(1) B: Tape Box, K: Bulk (2) refer to Pin Assignment (3) AB3: SOT-89, T92: TO-92 (4) L: Lead Free, G: Halogen Free</p>
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MARKING INFORMATION

PACKAGE	MARKING	
	MPSA05	MPSA55
TO-92		

■ 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	$T_A=25^\circ\text{C}$	P_D	625	mW
	$T_C=25^\circ\text{C}$		1500	
Total device dissipation (Derate above 25°C)	$T_A=25^\circ\text{C}$		5	mW/ $^\circ\text{C}$
	$T_C=25^\circ\text{C}$		12	
Junction Temperature		T_J	125	$^\circ\text{C}$
Storage Temperature		T_{STG}	-40 ~ +150	$^\circ\text{C}$

Note: 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)	θ_{JA}	200	$^\circ\text{C}/\text{W}$
Thermal resistance, junction to case	θ_{JC}	83.3	$^\circ\text{C}/\text{W}$

Note: θ_{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
OFF CHARACTERISTICS						
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	μA
Collector cutoff current	I_{CBO}	$V_{CB}=60\text{V}, I_E=0$			0.1	μA
ON CHARACTERISTICS						
DC current gain	h_{FE}	$I_C=10\text{mA}, V_{CE}=1\text{V}$	100			
		$I_C=100\text{mA}, V_{CE}=1\text{V}$	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
SMALL-SIGNAL CHARACTERISTICS						
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					

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

2. f_T is defined as the frequency at which $|h_{fe}|$ extrapolates to unity.

■ SWITCHING TIME TEST CIRCUIT

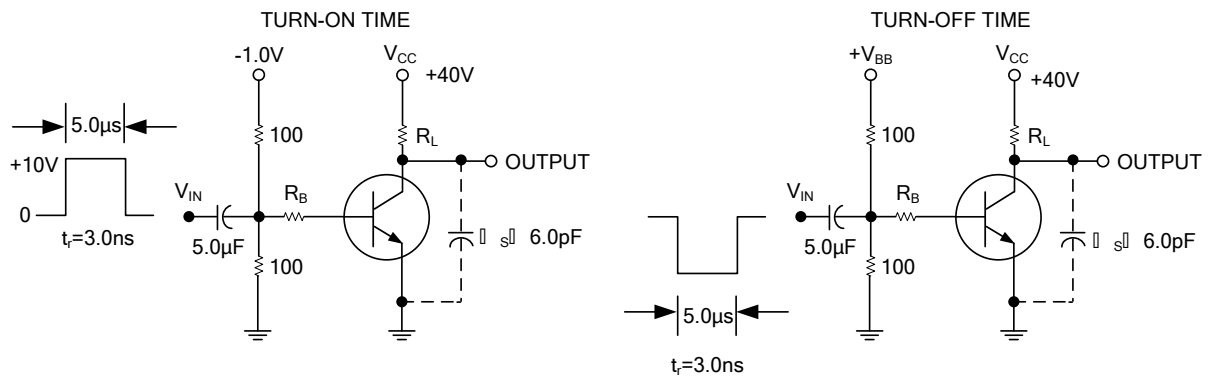
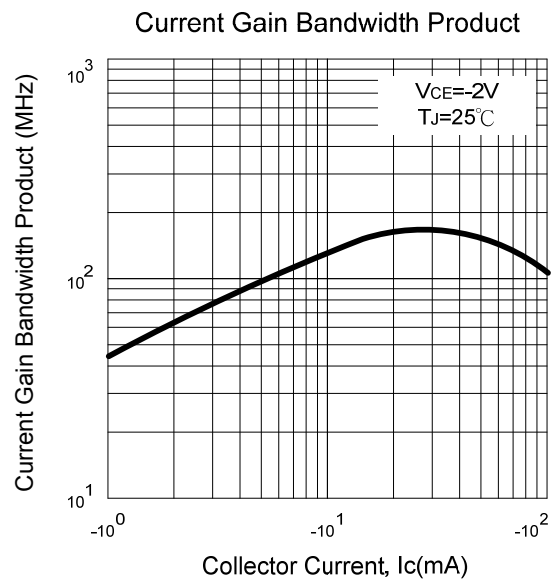
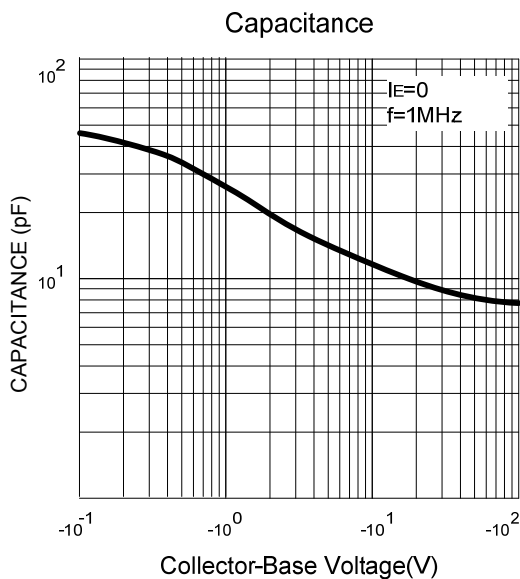
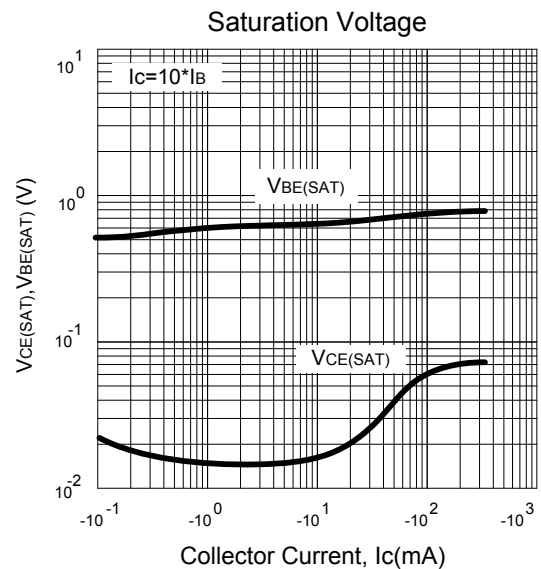
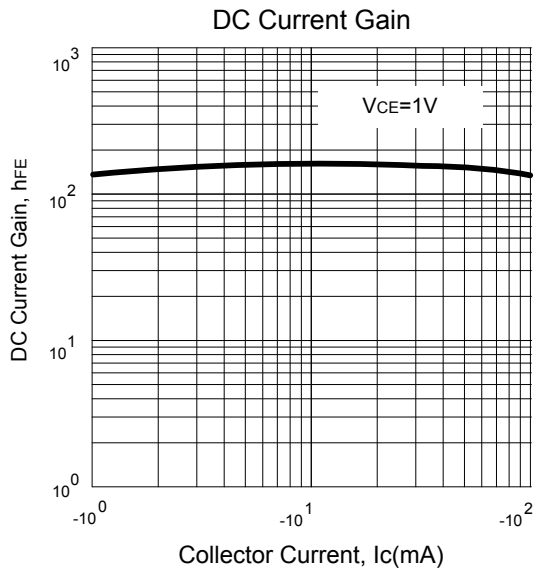


Figure 1. (Note: Total shunt capacitance of test jig and connectors for PNP test circuits, reverse all voltage polarities.)

TYPICAL CHARACTERISTICS

MPSA55



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