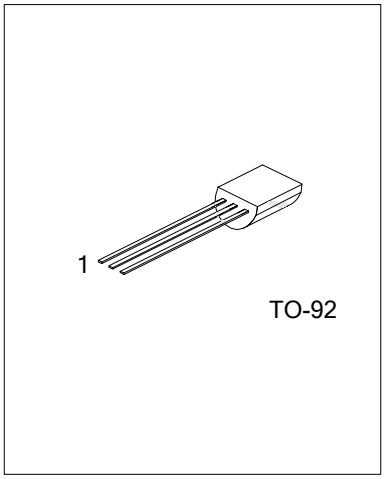
MPSA05/55

AMPLIFIER TRANSISTOR

NPN MPSA05
PNP MPSA55



■ FEATURES

* Collector-Emitter Voltage: V_{CEO}=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

MPSA55L-T92-A-B
(1)Packing Type
(2)Pin Assignment
(3)Package Type
(4)Lead Free

(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

■ MARKING INFORMATION

PACKAGE	MARKING	
	MPSA05	MPSA55
TO-92	UTC MPSA05□ L: Lead Free G: Halogen Free Pin Code Data Code 1	UTC MPSA55□ L: Lead Free G: Halogen Free Pin Code Data Code 1

■ ABSOLUTE MAXIMUM RATING (T_A=25°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°C	P_D	625	mW
	T_C=25°C		1500	
Total device dissipation (Derate above 25°C)	T_A=25°C		5	mW/°C
	T_C=25°C		12	
Junction Temperature		T_J	125	°C
Storage Temperature		T_{STG}	-40 ~ +150	°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	°C/W
Thermal resistance, junction to case	θ_{JC}	83.3	°C/W

Note: θ_{JA} is measured with the device soldered into a typical printed circuit board.

■ ELECTRICAL CHARACTERISTICS (T_A=25°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=1.0mA, I_B=0	60			V
Emitter-base breakdown voltage		$V_{(BR)EBO}$	I_E=100μA, I_C=0	4			V
Collector cutoff current		I_{CES}	V_{CE}=60V, I_B=0			0.1	μA
Collector cutoff current		I_{CBO}	V_{CB}=60V, I_E=0			0.1	μA
ON CHARACTERISTICS							
DC current gain		h_{FE}	I_C=10mA, V_{CE}=1V	100			
			I_C=100mA, V_{CE}=1V	100			
Collector-emitter saturation voltage		$V_{CE(SAT)}$	I_C=100mA, I_B=10mA			0.25	V
Base-emitter on voltage		$V_{BE(ON)}$	I_C=100mA, V_{CE}=1V			1.2	V
SMALL-SIGNAL CHARACTERISTICS							
Current gain bandwidth product (note 2)	MPSA05	f_T	I_C=10mA, V_{CE}=2V, f=100MHz	100			MHz
	MPSA55		I_C=100mA, V_{CE}=1V, f=100MHz	50			MHz

Note: 1. Pulse test: P_W<=300μs, Duty Cycle<=2%
2. f_T is defined as the frequency at which Ihfel extrapolates to unity.

■ SWITCHING TIME TEST CIRCUIT

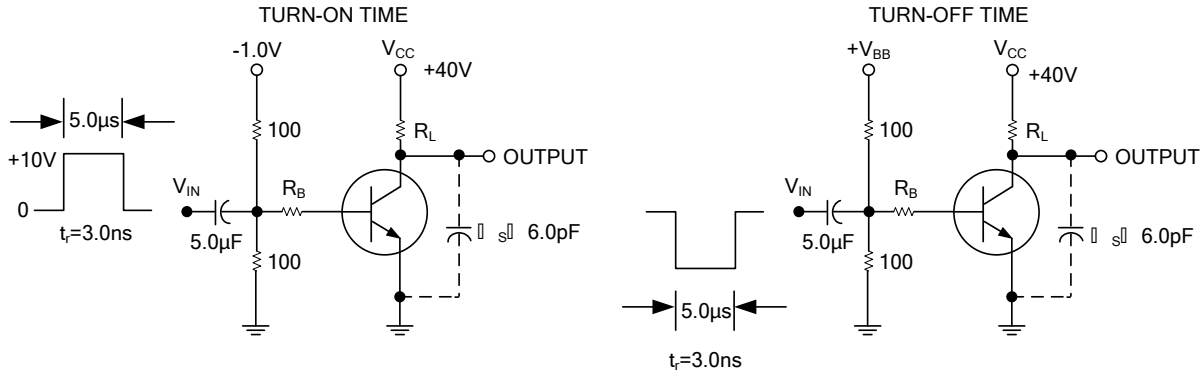
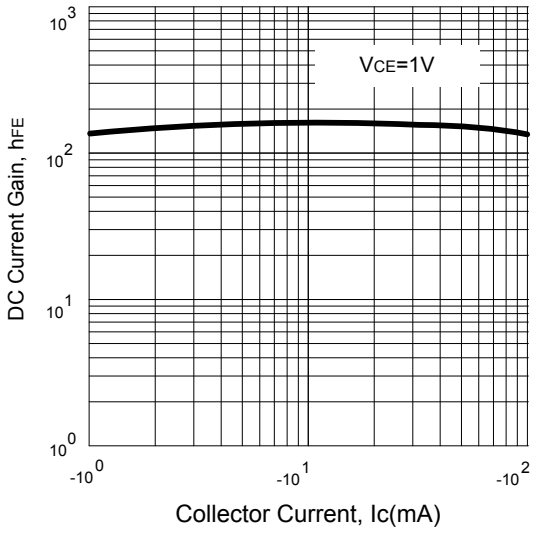


Figure 1. (Note: Total shunt capacitance of test jig and connectors for PNP test circuits, reverse all voltage polarities.)

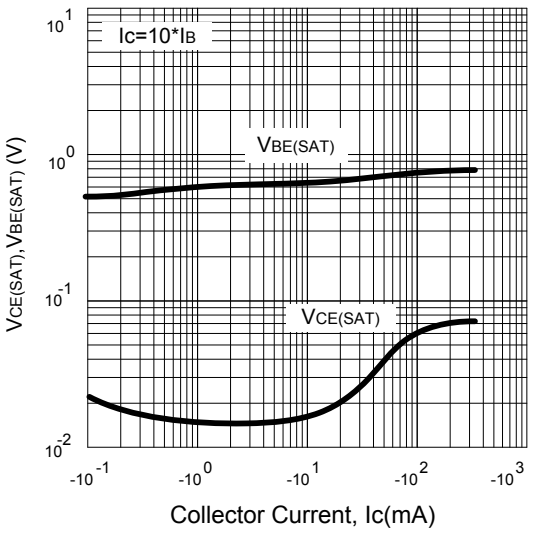
■ TYPICAL CHARACTERISTICS

MPSA55

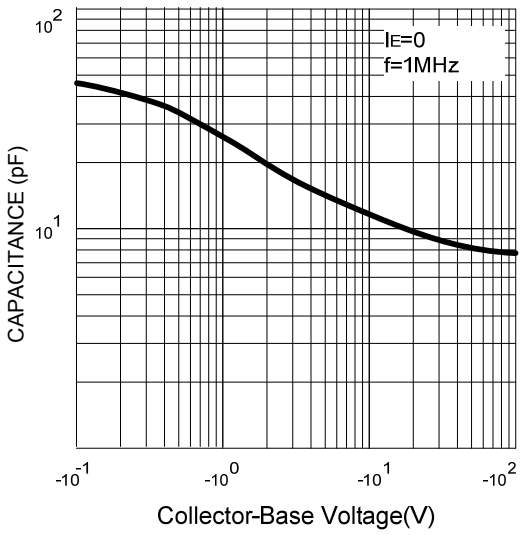
DC Current Gain



Saturation Voltage



Capacitance



Current Gain Bandwidth Product