



## MPSA92/93

## PNP SILICON TRANSISTOR

### HIGH VOLTAGE PNP TRANSISTOR

#### DESCRIPTION

The UTC **MPSA92/93** are high voltage PNP transistors, designed for telephone signal switching and for high voltage amplifier.

#### FEATURES

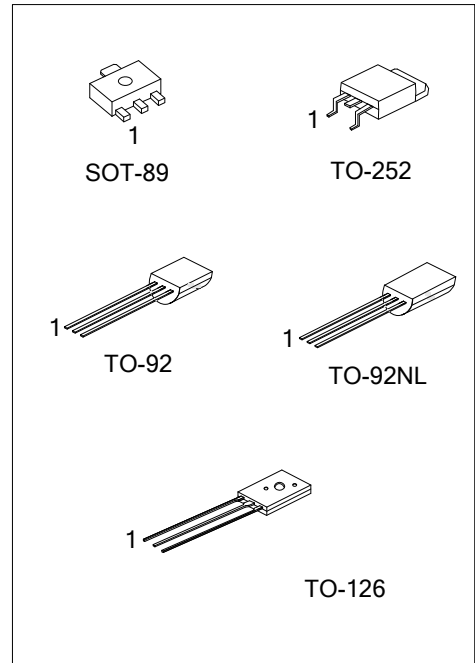
\* High Collector-Emitter voltage:

$V_{CE0} = -300V$  (UTC **MPSA92**)

$V_{CE0} = -200V$  (UTC **MPSA93**)

\* Collector Dissipation:

$P_C (max.) = 625mW$



#### ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
MPSA92L-AB3-R	MPSA92G-AB3-R	SOT-89	B	C	E	Tape Reel
MPSA92L-TN3-R	MPSA92G-TN3-R	TO-252	B	C	E	Tape Reel
MPSA92L-T60-K	MPSA92G-T60-K	TO-126	E	C	B	Bulk
MPSA92L-T92-B	MPSA92G-T92-B	TO-92	E	B	C	Tape Box
MPSA92L-T92-K	MPSA92G-T92-K	TO-92	E	B	C	Bulk
MPSA92L-T9N-B	MPSA92G-T9N-B	TO-92NL	E	C	B	Tape Box
MPSA92L-T9N-K	MPSA92G-T9N-K	TO-92NL	E	C	B	Bulk
MPSA93L-AB3-R	MPSA93G-AB3-R	SOT-89	B	C	E	Tape Reel
MPSA93L-TN3-R	MPSA93G-TN3-R	TO-252	B	C	E	Tape Reel
MPSA93L-T92-B	MPSA93G-T92-B	TO-92	E	B	C	Tape Box
MPSA93L-T92-K	MPSA93G-T92-K	TO-92	E	B	C	Bulk

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

<p>MPSA92G-AB3-R</p> <p>(1)Packing Type</p> <p>(2)Package Type</p> <p>(3)Green Package</p>	<p>(1) B: Tape Box, K: Bulk, R: Tape Reel</p> <p>(2) AB3: SOT-89, TN3: TO-252, T60: TO-126 T92: TO-92, T9N: TO-92NL</p> <p>(3) G: Halogen Free and Lead Free, L: Lead Free</p>
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## MARKING

Package	MPSA92	MPSA93
SOT-89	<p>                     Date Code                      L: Lead Free                      G: Halogen Free                 </p>	<p>                     Date Code                      L: Lead Free                      G: Halogen Free                 </p>
TO-252	<p>                     L: Lead Free                      G: Halogen Free                      Date Code                 </p>	<p>                     L: Lead Free                      G: Halogen Free                      Date Code                 </p>
TO-126	<p>                     Date Code                      L: Lead Free                      G: Halogen Free                 </p>	-
TO-92	<p>                     L: Lead Free                      G: Halogen Free                      Date Code                 </p>	<p>                     L: Lead Free                      G: Halogen Free                      Date Code                 </p>
TO-92NL	<p>                     L: Lead Free                      G: Halogen Free                      Date Code                 </p>	-

■ ABSOLUTE MAXIMUM RATING (T<sub>A</sub>=25°C unless otherwise specified)

PARAMETER		SYMBOL	RATINGS	UNIT
Collector-Base Voltage	MPSA92	V <sub>CBO</sub>	-300	V
	MPSA93		-200	V
Collector-Emitter Voltage	MPSA92	V <sub>CEO</sub>	-300	V
	MPSA93		-200	V
Emitter-Base Voltage		V <sub>EBO</sub>	-5	V
Base Current		I <sub>B</sub>	-100	mA
Collector Current		I <sub>C</sub>	-500	mA
Collector Dissipation	SOT-89	P <sub>C</sub>	0.5	W
	TO-252		1.1	W
	TO-126		1	W
	TO-92/TO-92NL		0.62	W
Junction Temperature		T <sub>J</sub>	150	°C
Storage Temperature		T <sub>STG</sub>	-55~ +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 CHARACTERISTICS

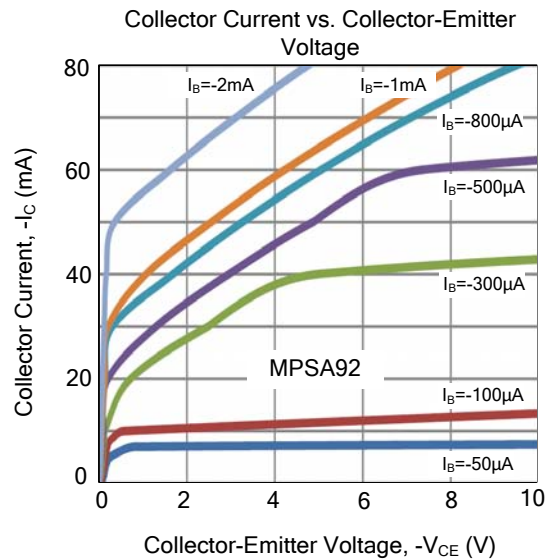
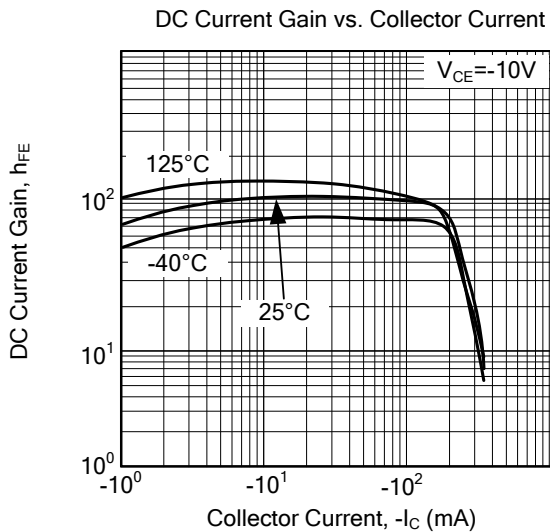
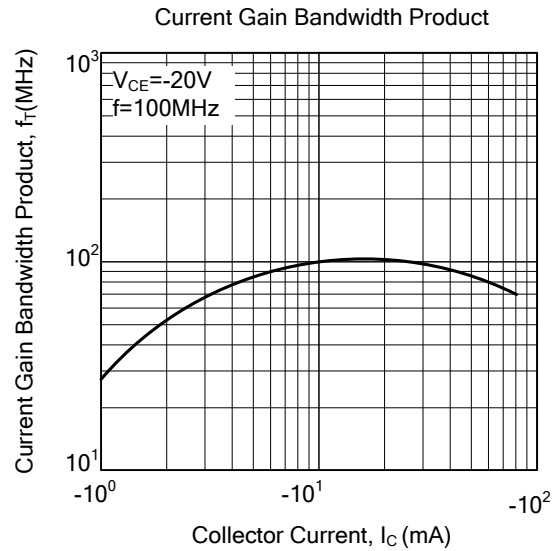
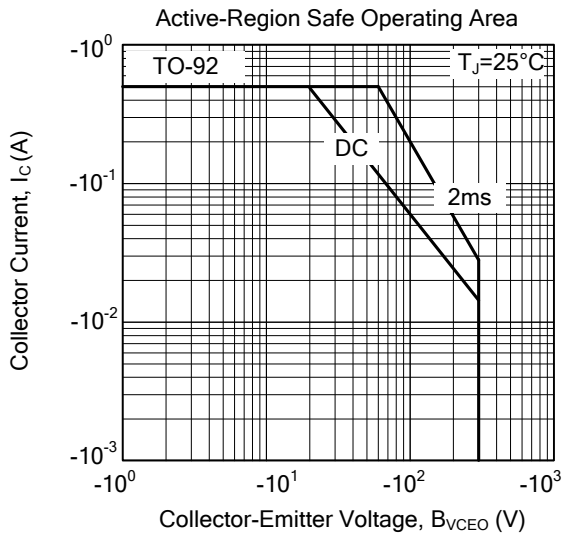
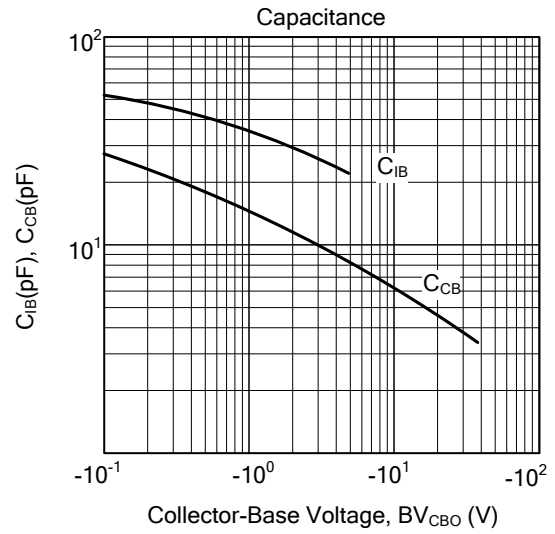
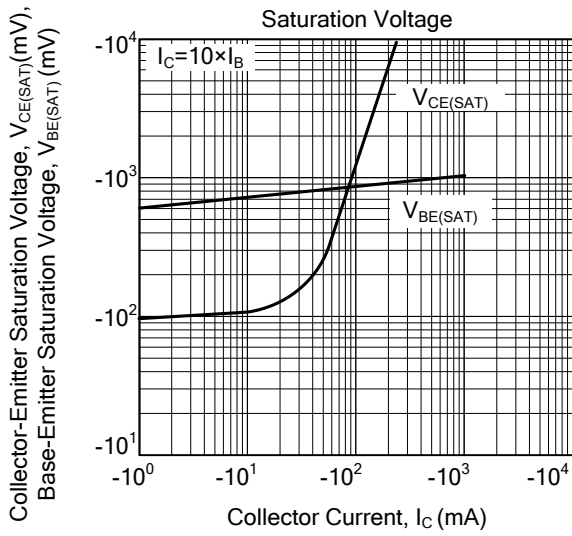
PARAMETER		SYMBOL	RATINGS	UNIT
Junction to Ambient	SOT-89	θ <sub>JA</sub>	250	°C/W
	TO-252		110	°C/W
	TO-126		125	°C/W
	TO-92/TO-92NL		200	°C/W
Junction to Case	SOT-89	θ <sub>JC</sub>	43	°C/W
	TO-252		8.3	°C/W
	TO-126		12.5	°C/W
	TO-92/TO-92NL		83.3	°C/W

■ ELECTRICAL CHARACTERISTICS (T<sub>A</sub>=25°C, unless otherwise specified)

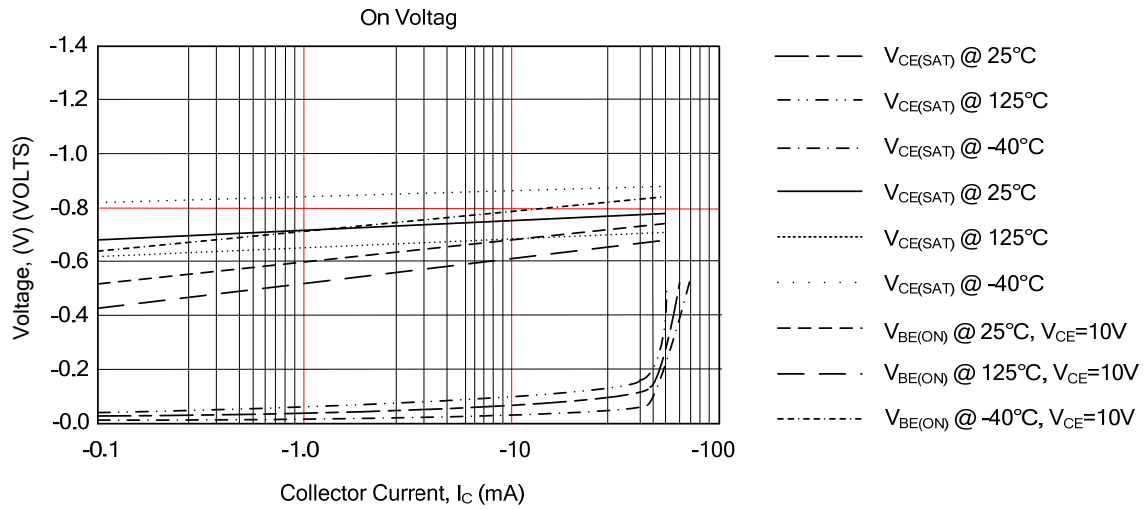
PARAMETER		SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
<b>OFF CHARACTERISTICS</b>							
Collector-Base Breakdown Voltage	MPSA92	BV <sub>CBO</sub>	I <sub>C</sub> =-100μA, I <sub>E</sub> =0	-300			V
	MPSA93			-200			V
Collector-Emitter Breakdown Voltage	MPSA92	BV <sub>CEO</sub>	I <sub>C</sub> =-1mA, I <sub>B</sub> =0	-300			V
	MPSA93			-200			V
Emitter-Base Breakdown Voltage		BV <sub>EBO</sub>	I <sub>E</sub> =-100μA, I <sub>C</sub> =0	-5			V
Collector Cut-Off Current	MPSA92	I <sub>CBO</sub>	V <sub>CB</sub> =-200V, I <sub>E</sub> =0			-0.25	μA
	MPSA93					-0.25	μA
Emitter Cut-Off Current		I <sub>EBO</sub>	V <sub>EB</sub> =-3V, I <sub>C</sub> =0			-0.10	μA
<b>ON CHARACTERISTICS</b>							
DC Current Gain(note)		h <sub>FE</sub>	V <sub>CE</sub> =-10V, I <sub>C</sub> =-1mA	60			
			V <sub>CE</sub> =-10V, I <sub>C</sub> =-10mA	80			
			V <sub>CE</sub> =-10V, I <sub>C</sub> =-30mA	80			
Collector-Emitter Saturation Voltage		V <sub>CE(SAT)</sub>	I <sub>C</sub> =-20mA, I <sub>B</sub> =-2mA			-0.5	V
Base-Emitter Saturation Voltage		V <sub>BE(SAT)</sub>	I <sub>C</sub> =-20mA, I <sub>B</sub> =-2mA			-0.90	V
<b>SMALL SIGNAL CHARACTERISTICS</b>							
Current Gain Bandwidth Product		f <sub>T</sub>	V <sub>CE</sub> =-20V, I <sub>C</sub> =-10mA, f=100MHz	50			MHz
Output Capacitance	MPSA92	C <sub>ob</sub>	V <sub>CB</sub> =-20V, I <sub>E</sub> =0, f=1MHz			6	pF
	MPSA93					8	pF

Note: Pulse test: P<sub>W</sub><300μs, Duty Cycle<2%, V<sub>CE(SAT)</sub><200mV

## TYPICAL CHARACTERISTICS



### ■ TYPICAL CHARACTERISTICS (Cont.)



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