



## MPSA42/43

## NPN SILICON TRANSISTOR

### HIGH VOLTAGE TRANSISTOR

#### DESCRIPTION

The UTC MPSA42/43 are high voltage transistors, designed for telephone switch and high voltage switch.

#### FEATURES

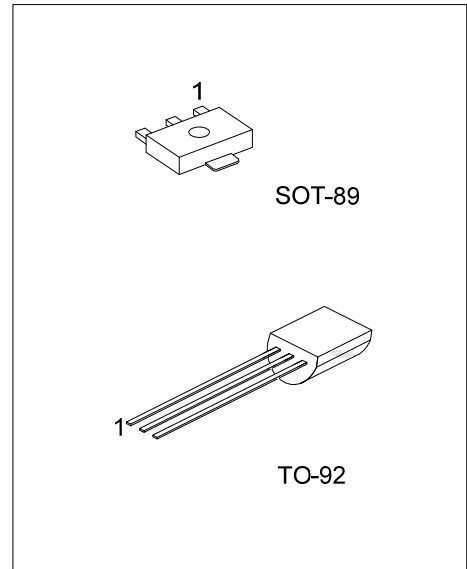
\*Collector-Emitter voltage:

$V_{CE0}=300V$ (UTC MPSA42)

$V_{CE0}=200V$ (UTC MPSA43)

\*High current gain

\*Complement to UTC MPSA92/93



\*Pb-free plating product number: MPSA42L  
MPSA43L

#### ORDERING INFORMATION

Ordering Number			Package	Pin Assignment			Packing
Normal	Lead Free	Halogen Free		1	2	3	
MPSA42-AB3-R	MPSA42L-AB3-R	MPSA42G-AB3-R	SOT-89	B	C	E	Tape Reel
MPSA42-T92-B	MPSA42L-T92-B	MPSA42G-T92-B	TO-92	E	B	C	Tape Box
MPSA42-T92-K	MPSA42L-T92-K	MPSA42G-T92-K	TO-92	E	B	C	Bulk
MPSA43-AB3-R	MPSA43L-AB3-R	MPSA43G-AB3-R	SOT-89	B	C	E	Tape Reel
MPSA43-T92-B	MPSA43L-T92-B	MPSA43G-T92-B	TO-92	E	B	C	Tape Box
MPSA43-T92-K	MPSA43L-T92-K	MPSA43G-T92-K	TO-92	E	B	C	Bulk

<p>MPSA42L-AB3-R</p> <p>(1)Packing Type</p> <p>(2)Package Type</p> <p>(3)Lead Plating</p>	<p>(1) B: Tape Box, K: Bulk, R: Tape Reel</p> <p>(2) AB3: SOT-89, T92: TO-92</p> <p>(3) G:Halogen Free, L: Lead Free Plating, Blank: Pb/Sn</p>
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■ ABSOLUTE MAXIMUM RATINGS (Operating temperature range applies unless otherwise specified)

PARAMETER		SYMBOL	RATINGS	UNIT
Collector-Base Voltage	MPSA42	$V_{CBO}$	300	V
	MPSA43		200	V
Collector-Emitter Voltage	MPSA42	$V_{CEO}$	300	V
	MPSA43		200	V
Emitter-Base Voltage		$V_{EBO}$	6	V
Collector Current		$I_C$	500	mA
Collector Dissipation ( $T_a=25^\circ\text{C}$ )	SOT-89	$P_C$	500	mW
	TO-92		625	mW
Junction Temperature		$T_J$	150	$^\circ\text{C}$
Storage Temperature		$T_{STG}$	-55 ~ +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.

■ ELECTRICAL CHARACTERISTICS ( $T_J = 25^\circ\text{C}$ , unless otherwise specified)

PARAMETER		SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Collector-Base Breakdown Voltage	MPSA42	$BV_{CBO}$	$I_C=100\mu\text{A}, I_E=0$	300			V
	MPSA43			200			V
Collector-Emitter Breakdown Voltage	MPSA42	$BV_{CEO}$	$I_C=1\text{mA}, I_B=0$	300			V
	MPSA43			200			V
Emitter-Base Breakdown Voltage		$BV_{EBO}$	$I_E=100\mu\text{A}, I_C=0$	6			V
Collector Cut-Off Current	MPSA42	$I_{CBO}$	$V_{CB}=200\text{V}, I_E=0$			100	nA
	MPSA43		$V_{CB}=160\text{V}, I_E=0$			100	nA
Emitter Cut-Off Current	MPSA42	$I_{EBO}$	$V_{EB}=6\text{V}, I_C=0$			100	nA
	MPSA43		$V_{EB}=4\text{V}, I_C=0$			100	nA
DC Current Gain		$h_{FE}$	$V_{CE}=10\text{V}, I_C=1\text{mA}$	80			
			$V_{CE}=10\text{V}, I_C=10\text{mA}$	80		300	
			$V_{CE}=10\text{V}, I_C=30\text{mA}$	80			
Collector-Emitter Saturation Voltage		$V_{CE(SAT)}$	$I_C=20\text{mA}, I_B=2\text{mA}$			0.2	V
Base-Emitter Saturation Voltage		$V_{BE(SAT)}$	$I_C=20\text{mA}, I_B=2\text{mA}$			0.90	V
Current Gain Bandwidth Product		$f_T$	$V_{CE}=20\text{V}, I_C=10\text{mA}, f=100\text{MHz}$	50			MHz
Collector Base Capacitance	MPSA42	$C_{cb}$	$V_{CB}=20\text{V}, I_E=0, f=1\text{MHz}$			3	pF
	MPSA43					4	pF

## TYPICAL CHARACTERISTICS

Fig.1 DC Current Gain

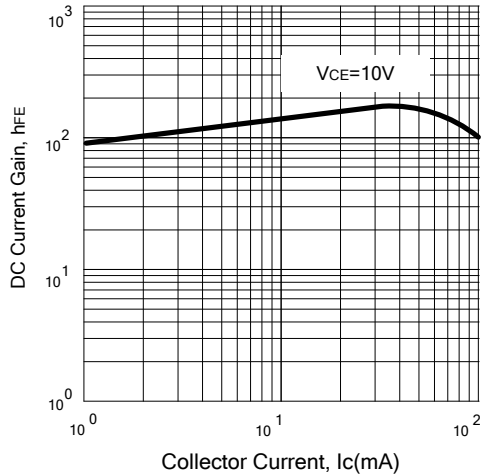


Fig.2 Saturation Voltage

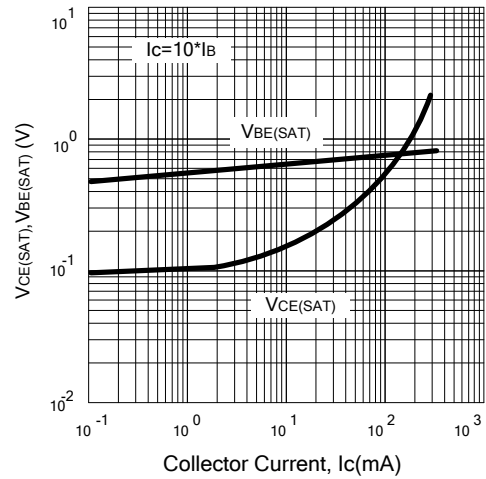


Fig.3 Capacitance

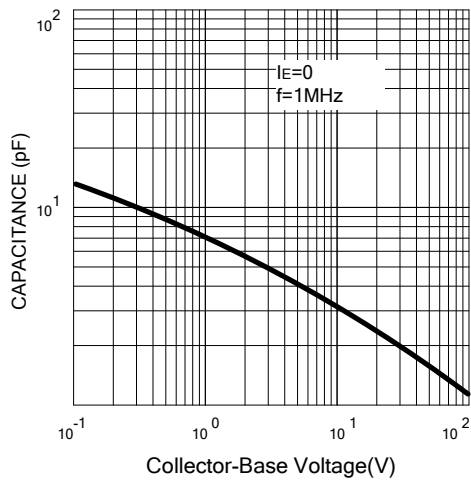
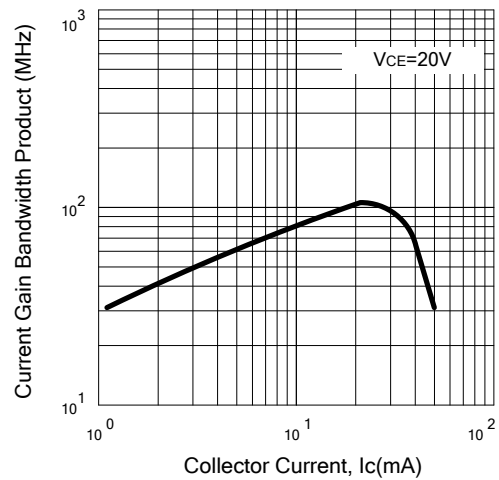


Fig.4 Current Gain Bandwidth Product



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