



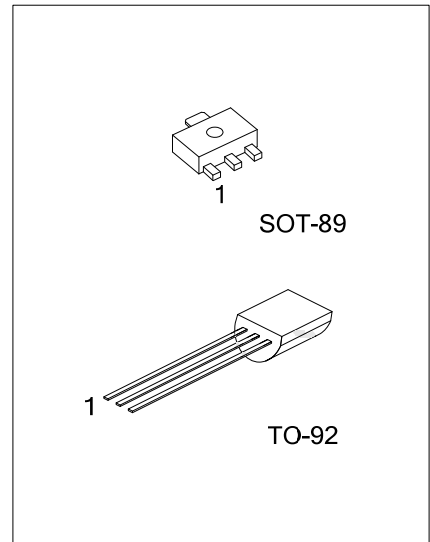
## MPSA44/45

## NPN SILICON TRANSISTOR

### HIGH VOLTAGE TRANSISTOR

#### ■ FEATURES

- \* Collector-Emitter Voltage:  
V<sub>CEO</sub>=400V (UTC **MPSA44**)  
V<sub>CEO</sub>=350V (UTC **MPSA45**)
- \* Collector Current up to 300mA



#### ■ ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
MPSA44L-AB3-R	MPSA44G-AB3-R	SOT-89	B	C	E	Tape Reel
MPSA45L-AB3-R	MPSA45G-AB3-R	SOT-89	B	C	E	Tape Reel
MPSA44L-T92-B	MPSA44G-T92-B	TO-92	E	B	C	Tape Box
MPSA44L-T92-K	MPSA44G-T92-K	TO-92	E	B	C	Bulk
MPSA44L-T92-R	MPSA44G-T92-R	TO-92	E	B	C	Tape Reel
MPSA45L-T92-B	MPSA45G-T92-B	TO-92	E	B	C	Tape Box
MPSA45L-T92-K	MPSA45G-T92-K	TO-92	E	B	C	Bulk
MPSA45L-T92-R	MPSA45G-T92-R	TO-92	E	B	C	Tape Reel

<p>MPSA44L-AB3-R</p> <p>(1)Packing Type</p> <p>(2)Package Type</p> <p>(3)Lead Free</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</p>
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### ■ ABSOLUTE MAXIMUM RATING

PARAMETER		SYMBOL	RATINGS	UNIT
Collector-Base Voltage	MPSA44	$V_{CBO}$	500	V
	MPSA45		400	
Collector-Emitter Voltage	MPSA44	$V_{CEO}$	400	V
	MPSA45		350	
Emitter-Base Voltage		$V_{EBO}$	6	V
Collector Current		$I_C$	300	mA
Collector Dissipation	SOT-89	$P_C$	500	mW
	TO-92		625	
Junction Temperature		$T_J$	125	°C
Operating Temperature		$T_{OPR}$	-20 ~ +85	°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.

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

PARAMETER		SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Collector-Base Breakdown Voltage	MPSA44	$BV_{CBO}$	$I_C=100\mu\text{A}, I_E=0$	500			V
	MPSA45			400			
Collector-Emitter Breakdown Voltage	MPSA44	$BV_{CEO}$	$I_C=1\text{mA}, I_B=0$	400			V
	MPSA45			350			
Emitter-Base Breakdown Voltage		$BV_{EBO}$	$I_E=100\mu\text{A}, I_C=0$	6			V
Collector Cutoff Current	MPSA44	$I_{CBO}$	$V_{CB}=400\text{V}, I_E=0$			0.1	$\mu\text{A}$
	MPSA45		$V_{CB}=320\text{V}, I_E=0$			0.1	
Collector Cutoff Current	MPSA44	$I_{CEO}$	$V_{CE}=400\text{V}, I_B=0$			0.5	$\mu\text{A}$
	MPSA45		$V_{CE}=320\text{V}, I_B=0$			0.5	
Emitter Cutoff Current		$I_{EBO}$	$V_{EB}=4\text{V}, I_C=0$			0.1	$\mu\text{A}$

#### ON CHARACTERISTICS

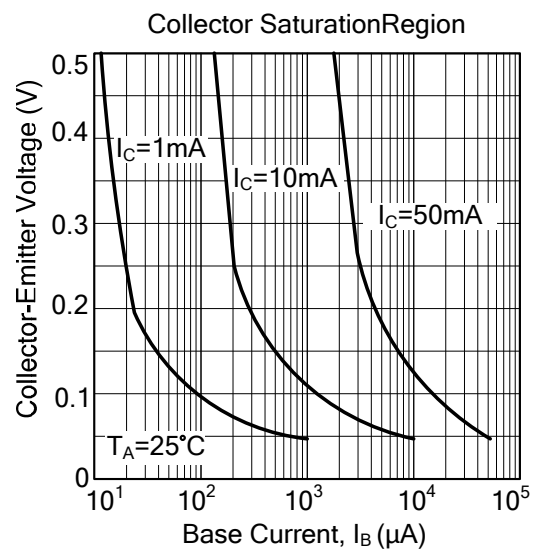
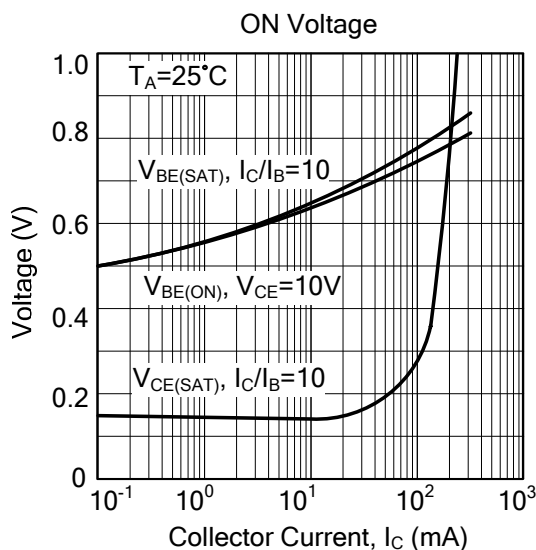
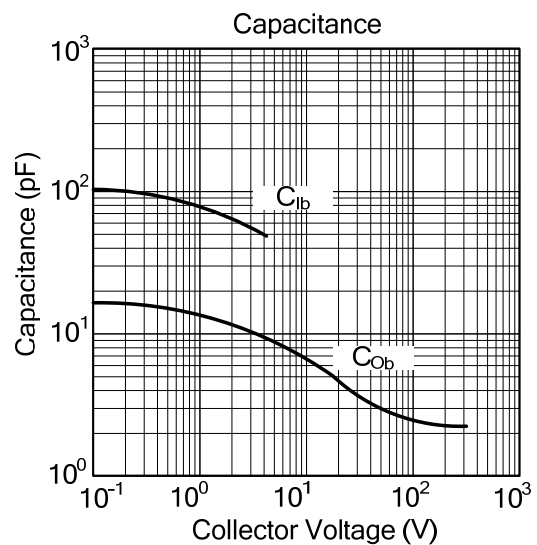
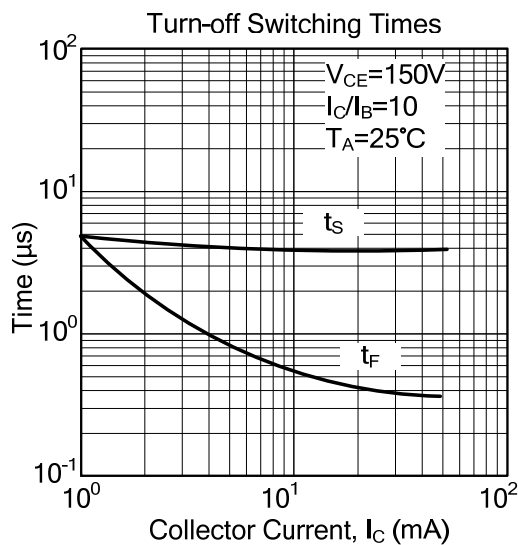
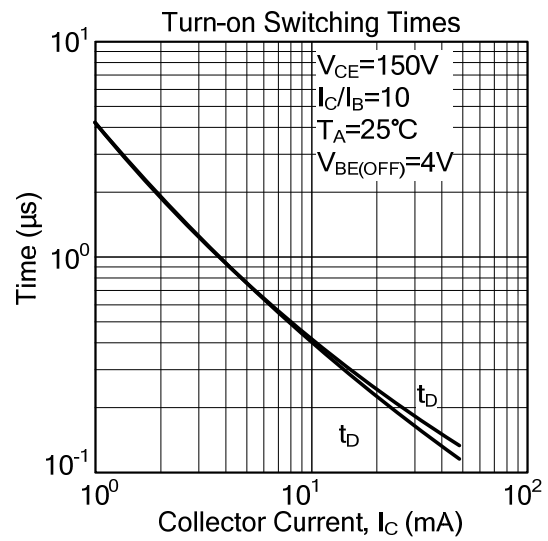
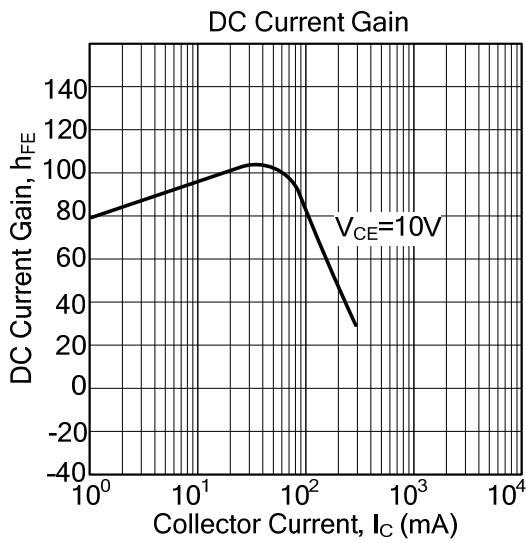
DC Current Gain (Note)	$h_{FE}$	$V_{CE}=10\text{V}, I_C=1\text{mA}$	40		240	V
		$V_{CE}=10\text{V}, I_C=10\text{mA}$	82		240	
		$V_{CE}=10\text{V}, I_C=50\text{mA}$	45		240	
		$V_{CE}=10\text{V}, I_C=100\text{mA}$	40		240	
Collector-Emitter Saturation Voltage	$V_{CE(SAT)}$	$I_C=1\text{mA}, I_B=0.1\text{mA}$			0.4	V
		$I_C=10\text{mA}, I_B=1\text{mA}$			0.5	
		$I_C=50\text{mA}, I_B=5\text{mA}$			0.75	
Base-Emitter Saturation Voltage	$V_{BE(SAT)}$	$I_C=10\text{mA}, I_B=1\text{mA}$			0.75	V

#### SMALL-SIGNAL CHARACTERISTICS

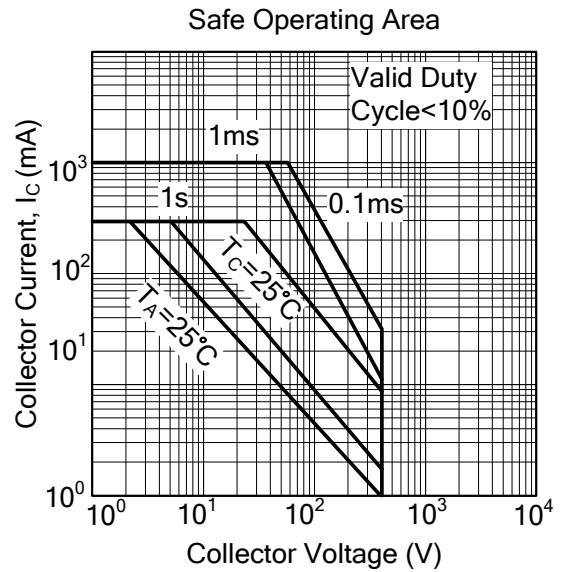
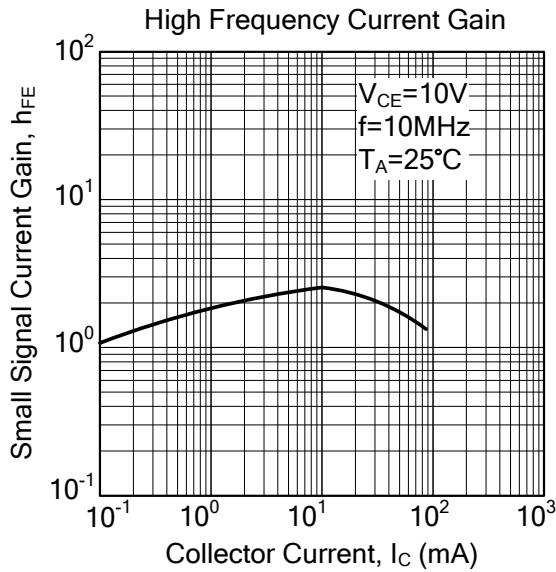
Current Gain Bandwidth Product	$f_T$	$V_{CE}=20\text{V}, I_C=10\text{mA}, f=100\text{MHz}$	50			MHz
Output Capacitance	$C_{OB}$	$V_{CB}=20\text{V}, I_E=0, f=1\text{MHz}$			7	pF

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

## TYPICAL CHARACTERISTICS



■ TYPICAL CHARACTERISTICS(Cont.)



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