



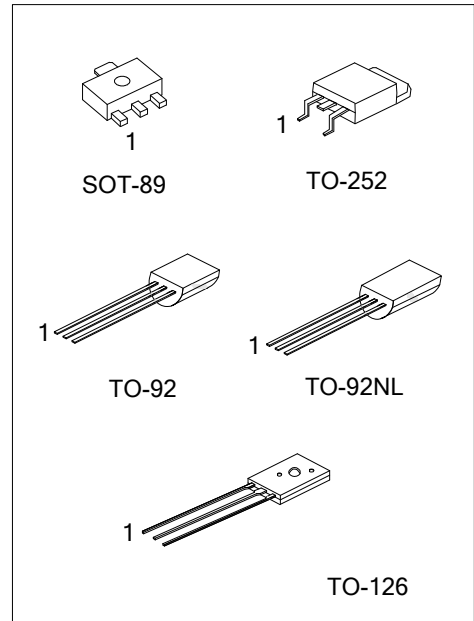
## MPSA44/45

## NPN SILICON TRANSISTOR

### HIGH VOLTAGE TRANSISTOR

#### ■ FEATURES

- \* Collector-Emitter Voltage:
- \*  $V_{CEO}=400V$  (UTC **MPSA44**)
- \*  $V_{CEO}=350V$  (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
MPSA44L-AN3-R	MPSA44G-TN3-R	TO-252	B	C	E	Tape Reel
MPSA44L-T60-K	MPSA44G-T60-K	TO-126	B	C	E	Bulk
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-A-B	MPSA44G-T92-A-B	TO-92	E	C	B	Tape Box
MPSA44L-T92-A-K	MPSA44G-T92-A-K	TO-92	E	C	B	Bulk
MPSA44L-T9N-B	MPSA44G-T9N-B	TO-92NL	E	C	B	Tape Box
MPSA44L-T9N-K	MPSA44G-T9N-K	TO-92NL	E	C	B	Bulk
MPSA45L-AB3-R	MPSA45G-AB3-R	SOT-89	B	C	E	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-T9N-B	MPSA45G-T9N-B	TO-92NL	E	B	C	Tape Box
MPSA45L-T9N-K	MPSA45G-T9N-K	TO-92NL	E	B	C	Bulk

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

<p>MPSA44G-T92-A-B</p>	<p>(1) Packing Type (2) Pin Assignment (3) Package Type (4) Green Package</p>	<p>(1) B: Tape Box, K: Bulk, R: Tape Reel (2) refer to Pin Assignment (3) AB3: SOT-89, TN3: TO-252, T60: TO-126, T92: TO-92, T9N: TO-92NL (4) G: Halogen Free and Lead Free, L: Lead Free</p>
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## MARKING

Package	MPSA44	MPSA45
SOT-89		
TO-252		-
TO-126		-
TO-92		
TO-92NL		

### ■ 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 Current (Peak)		$I_{CM}$	1000	mA
Collector Dissipation( $T_A=25^{\circ}C$ )	SOT-89	$P_C$	500	mW
	TO-252		1400	
	TO-126		1200	
	TO-92		625	
	TO-92NL			
Junction Temperature		$T_J$	+150	$^{\circ}C$
Operating Temperature		$T_{OPR}$	-40 ~ +125	$^{\circ}C$
Storage Temperature		$T_{STG}$	-40 ~ +150	$^{\circ}C$

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

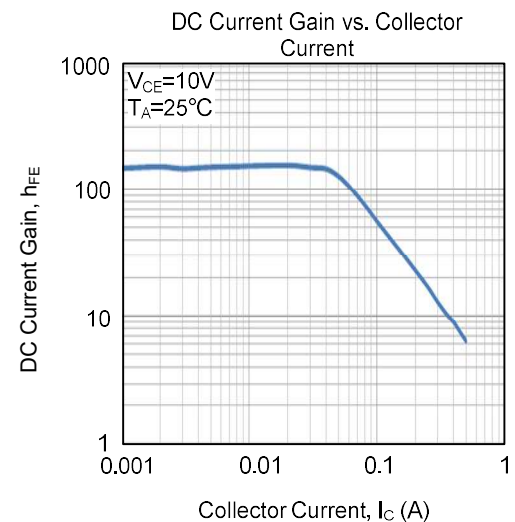
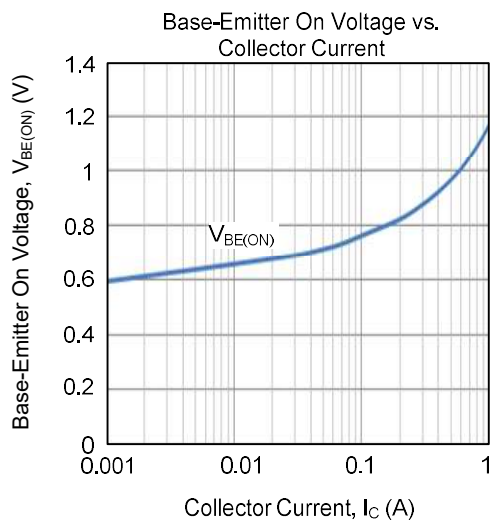
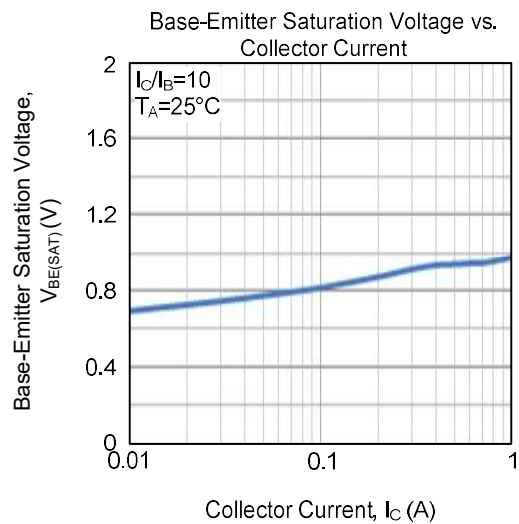
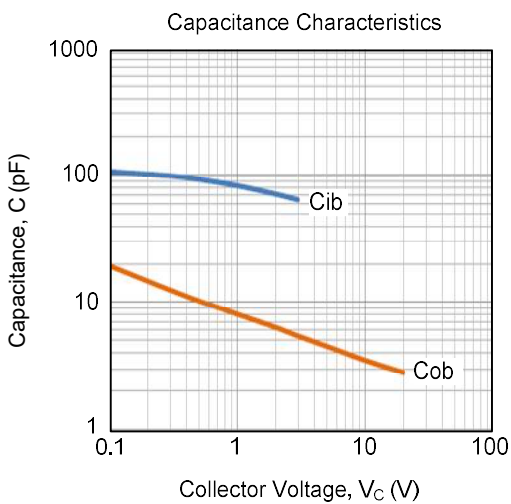
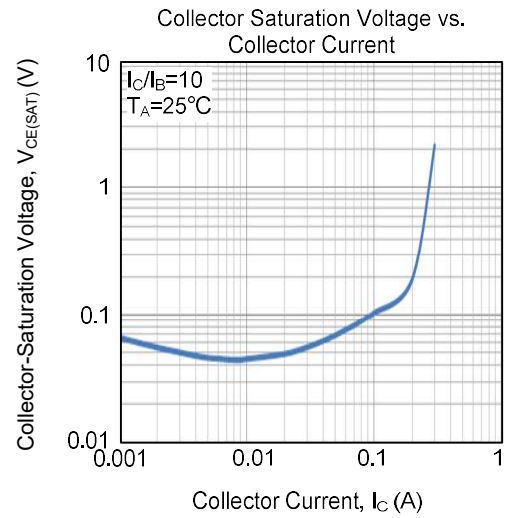
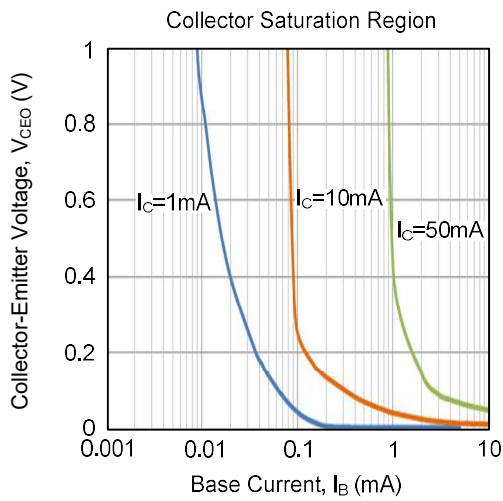
PARAMETER		SYMBOL	RATINGS	UNIT
Junction to Ambient	SOT-89	$\theta_{JA}$	250	$^{\circ}C/W$
	TO-252		89	$^{\circ}C/W$
	TO-126		105	$^{\circ}C/W$
	TO-92		200	$^{\circ}C/W$
	TO-92NL			
Junction to Case	SOT-89	$\theta_{JC}$	167	$^{\circ}C/W$
	TO-252		4	$^{\circ}C/W$
	TO-126		5	$^{\circ}C/W$
	TO-92		100	$^{\circ}C/W$
	TO-92NL			

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

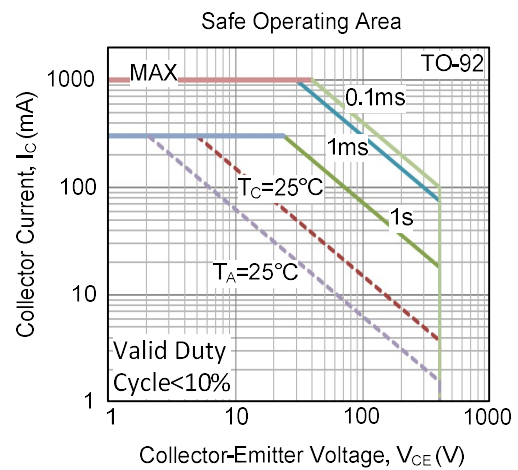
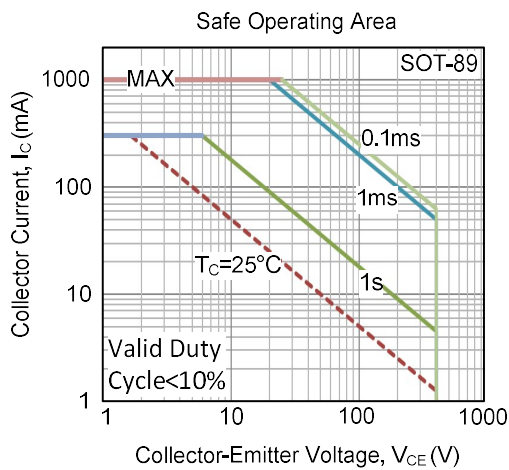
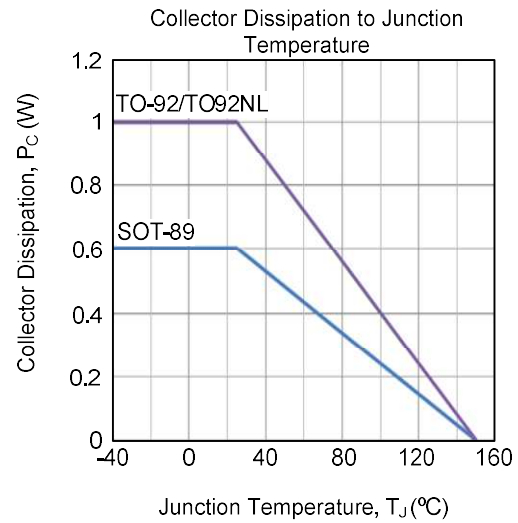
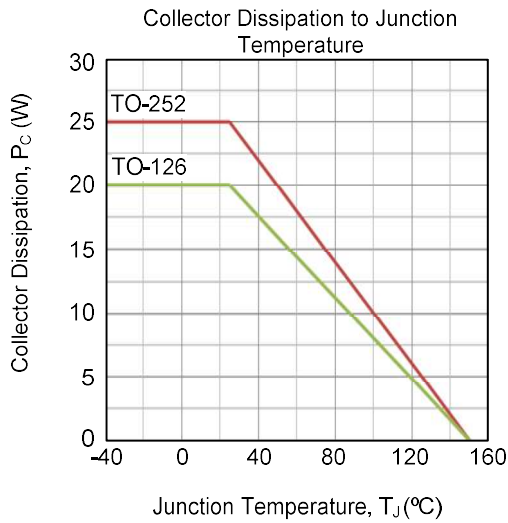
PARAMETER		SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Collector-Base Breakdown Voltage	MPSA44	$BV_{CBO}$	$I_C=100\mu\text{A}, I_E=0$	500			V
	MPSA45			400			
Collector-Emitter Breakdown Voltage	MPSA44	$BV_{CEO}$	$I_C=1\text{mA}, I_B=0$	400			V
	MPSA45			350			
Emitter-Base Breakdown Voltage		$BV_{EBO}$	$I_E=100\mu\text{A}, I_C=0$	6			V
Collector-Base 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	$I_{CES}$	$V_{CE}=400\text{V}, I_B=0$			0.5	$\mu\text{A}$
	MPSA45		$V_{CE}=320\text{V}, I_B=0$			0.5	
Emitter-Base Cutoff Current		$I_{EBO}$	$V_{EB}=4\text{V}, I_C=0$			0.1	$\mu\text{A}$
<b>ON CHARACTERISTICS</b>							
DC Current Gain (Note)		$h_{FE}$	$V_{CE}=10\text{V}, I_C=1\text{mA}$	40		240	
			$V_{CE}=10\text{V}, I_C=10\text{mA}$	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
<b>SMALL-SIGNAL CHARACTERISTICS</b>							
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



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