



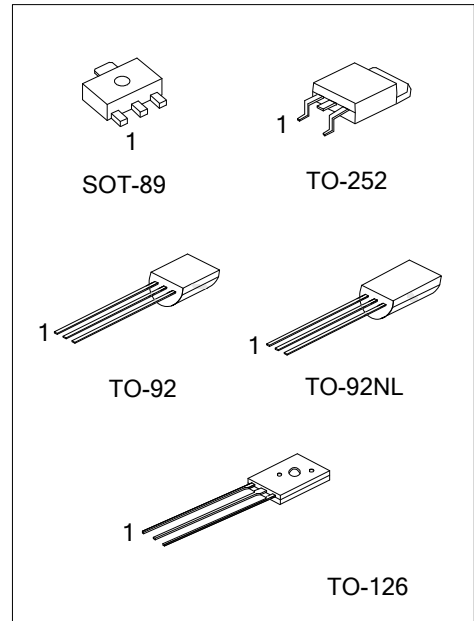
MPSA44/45

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	<p> Date Code L: Lead Free G: Halogen Free </p>	<p> Date Code L: Lead Free G: Halogen Free </p>
TO-252	<p> Lot Code Date Code L: Lead Free G: Halogen Free </p>	-
TO-126	<p> Date Code L: Lead Free G: Halogen Free </p>	-
TO-92	<p> Pin Code Date Code L: Lead Free G: Halogen Free </p>	<p> Date Code L: Lead Free G: Halogen Free </p>
TO-92NL	<p> L: Lead Free G: Halogen Free Date Code </p>	<p> L: Lead Free G: Halogen Free Date Code </p>

■ 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

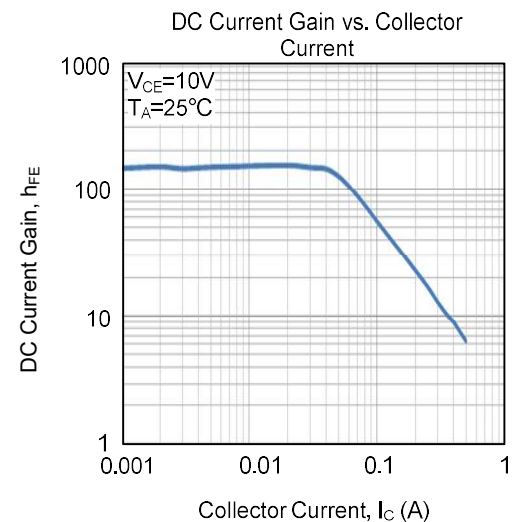
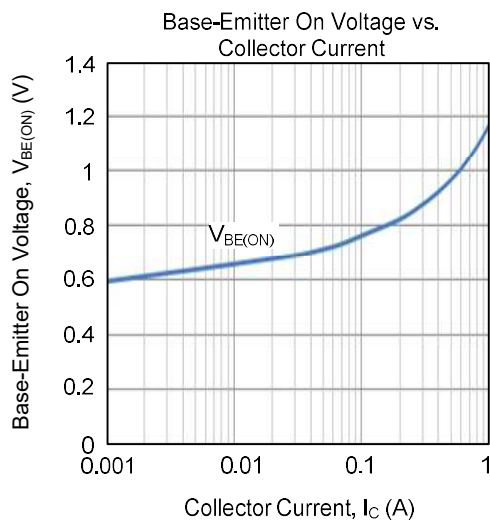
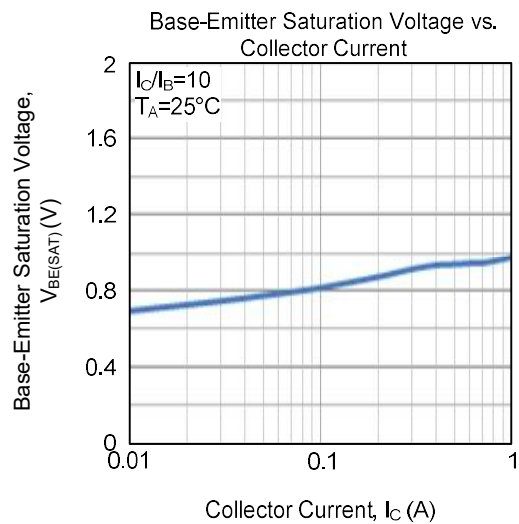
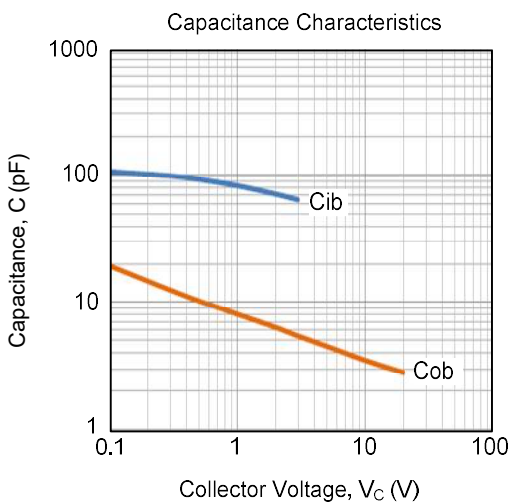
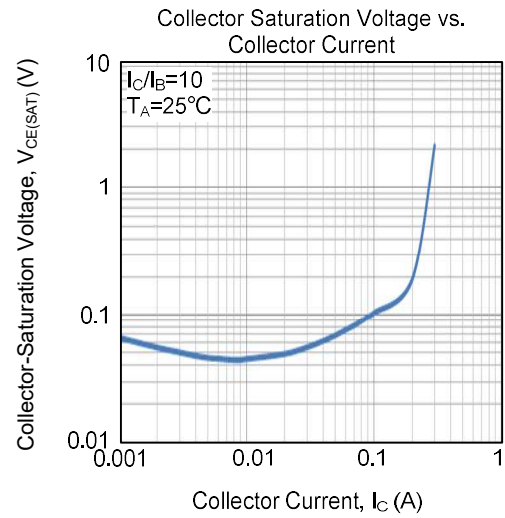
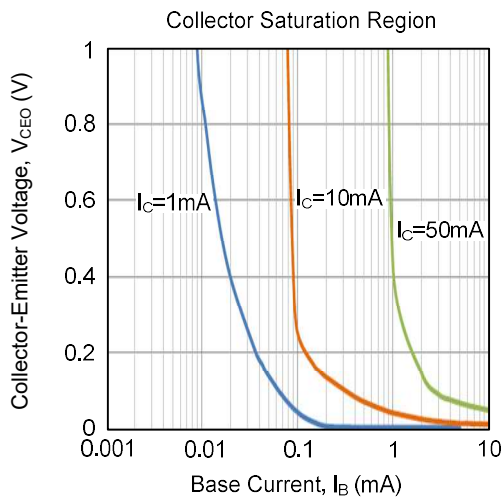
PARAMETER		SYMBOL	RATINGS	UNIT
Junction to Ambient	SOT-89	θ_{JA}	250	$^{\circ}C/W$
	TO-252		89	$^{\circ}C/W$
	TO-126		105	$^{\circ}C/W$
	TO-92		200	
	TO-92NL			$^{\circ}C/W$
Junction to Case	SOT-89	θ_{JC}	167	$^{\circ}C/W$
	TO-252		4	$^{\circ}C/W$
	TO-126		5	$^{\circ}C/W$
	TO-92		100	
	TO-92NL			$^{\circ}C/W$

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

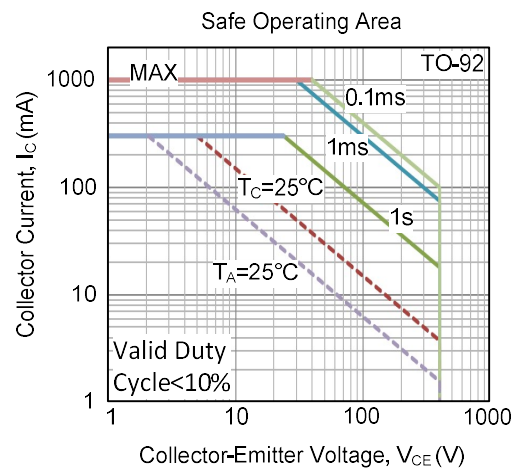
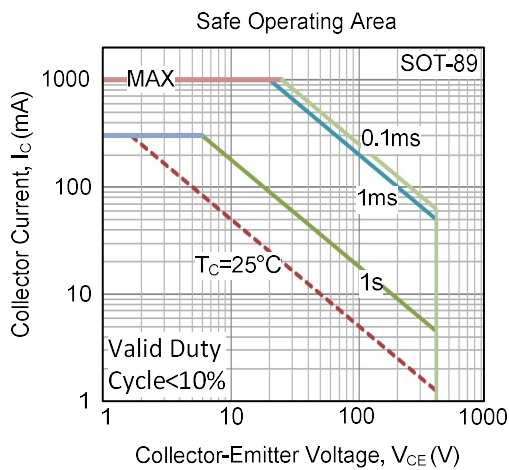
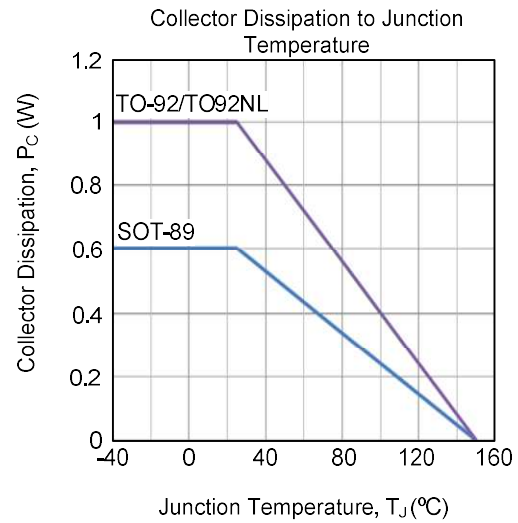
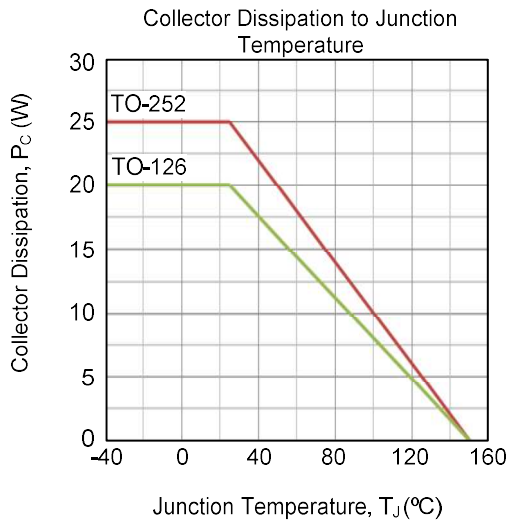
PARAMETER		SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Collector-Base Breakdown Voltage	MPSA44	BV_{CBO}	$I_C=100\mu\text{A}, I_E=0$	500			V
	MPSA45			400			
Collector-Emitter Breakdown Voltage	MPSA44	BV_{CEO}	$I_C=1\text{mA}, I_B=0$	400			V
	MPSA45			350			
Emitter-Base Breakdown Voltage		BV_{EBO}	$I_E=100\mu\text{A},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



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