

UTCMPSA44/45 NPN EPITAXIAL SILICON TRANSISTOR

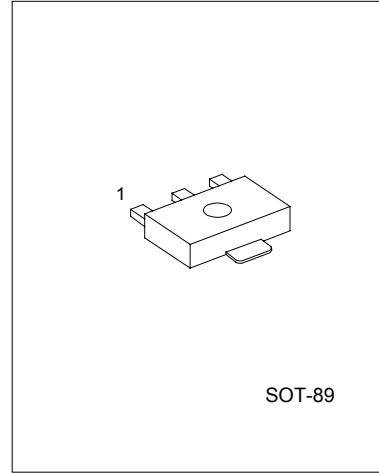
HIGH VOLTAGE TRANSISTOR

FEATURES

- *Collector-Emitter voltage:
V_{CEO}=400V(MPSA44)
V_{CEO}=350V(MPSA45)
- *Collector current up to 300mA
- *Complement to MPSA94/93
- *Collector Dissipation:
P_c(max)=625mW

APPLICATION

- *Telephone switching
- *High voltage switch



1:EMITTER 2: COLLECTOR 3: BASE

ABSOLUTE MAXIMUM RATINGS (Operating temperature range applies unless otherwise specified)

PARAMETER	SYMBOL	RATING	UNIT
Collector-base voltage MPSA44 MPSA45	V _{CB0}	500 400	V
Collector-emitter voltage MPSA44 MPSA45	V _{CEO}	400 350	V
Emitter-base voltage	V _{EBO}	6	V
Collector dissipation(T _a =25°C)	P _c	625	mW
Collector dissipation(T _c =25°C)	P _c	1.5	W
Collector current	I _c	300	mA
Junction Temperature	T _j	150	°C
Storage Temperature	T _{STG}	-55 ~ +150	°C

ELECTRICAL CHARACTERISTICS (T_j=25°C,unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Collector-base breakdown voltage MPSA44 MPSA45	BV _{CB0}	I _c =100μA, I _B =0	500 400			V
Collector-emitter breakdown voltage MPSA44 MPSA45	BV _{CEO}	I _c =1mA, I _B =0	400 350			V
Emitter-base breakdown voltage	BV _{EBO}	I _E =100μA, I _c =0	6			V
Collector cut-off current MPSA44 MPSA45	I _{CB0}	V _{CB} =400V, I _E =0 V _{CB} =320V, I _E =0			0.1 0.1	μA
Collector cut-off current MPSA44 MPSA45	I _{CEs}	V _{CE} =400V, I _B =0 V _{CE} =320V, I _B =0			0.5 0.5	μA

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PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Emitter cut-off current	I_{EBO}	$V_{EB}=4V, I_c=0$			0.1	μA
DC current gain(note)	h_{FE}	$V_{CE}=10V, I_c=1mA$	40		240	
		$V_{CE}=10V, I_c=10mA$	50			
		$V_{CE}=10V, I_c=50mA$	45			
		$V_{CE}=10V, I_c=100mA$	40			
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_c=1mA, I_b=0.1mA$ $I_c=10mA, I_b=1mA$ $I_c=50mA, I_b=5mA$			0.4 0.5 0.75	V
Base-emitter saturation voltage	$V_{BE(sat)}$	$I_c=10mA, I_b=1mA$			0.75	V
Current gain bandwidth product	f_T	$V_{CE}=20V, I_c=10mA,$ $f=100MHz$	50			MHz
Output capacitance	C_{ob}	$V_{CB}=20V, I_E=0$ $f=1MHz$			7	μF

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

TYPICAL CHARACTERISTIC CURVES

Fig.1 DC current gain

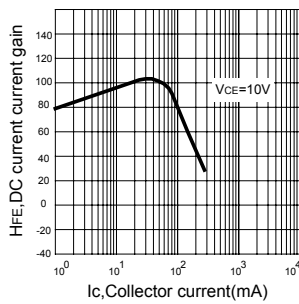


Fig.2 Turn-on switching times

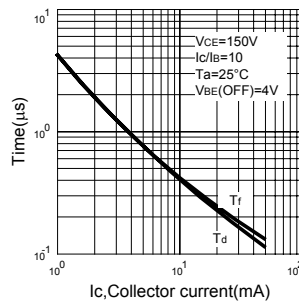


Fig.3 Turn-off switching times

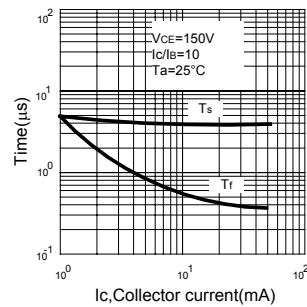


Fig.4 Capacitance

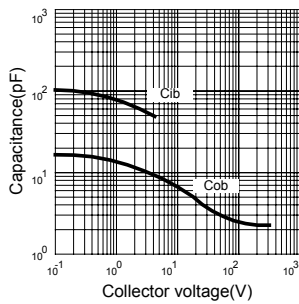


Fig.5 ON Voltage

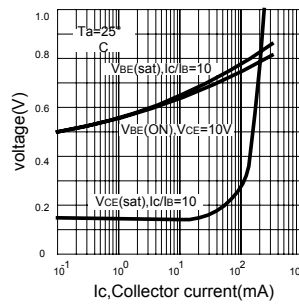
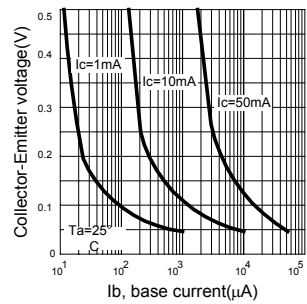


Fig.6 Collector saturation region



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Fig.7 High Frequency current gain

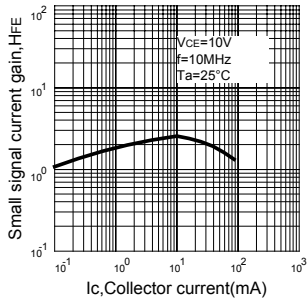
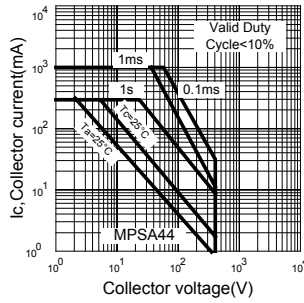


Fig.8 Safe operating area



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