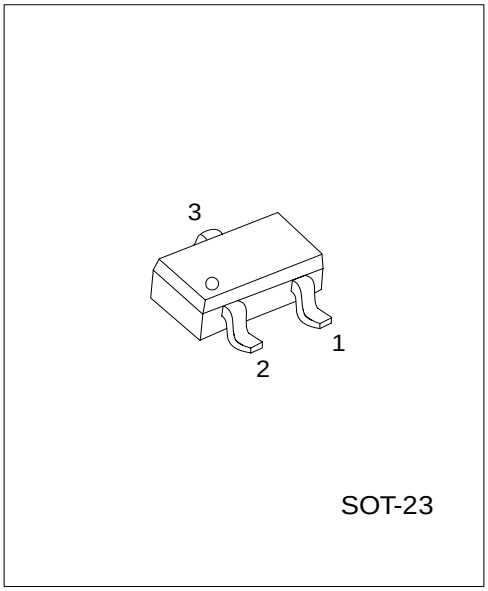
MMBTA44/45

NPN EPITAXIAL SILICON TRANSISTOR

HIGH VOLTAGE TRANSISTOR

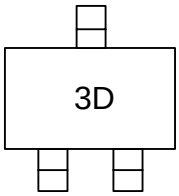


* Pb-free plating product number: MMBTA44L/MMBTA45L

■ FEATURES

*Collector-Emitter voltage: V_{CEO}=400V (UTC **MMBTA44**)
V_{CEO}=350V (UTC **MMBTA45**)
*Collector current up to 300mA
*Complement to UTC **MMBTA94/93**
*Power Dissipation: P_D(max)=350mW

■ MARKING (MMBTA44)



■ PIN CONFIGURATION

PIN NO.	PIN NAME
1	Emitter
2	Base
3	Collector

■ ORDERING INFORMATION

Order Number		Package	Packing
Normal	Lead free		
MMBTA44-AE3-R	MMBTA44L-AE3-R	SOT-23	Tape Reel
MMBTA45-AE3-R	MMBTA45L-AE3-R	SOT-23	Tape Reel

■ ABSOLUTE MAXIMUM RATINGS

PARAMETER		SYMBOL	RATINGS	UNIT
Collector-Base Voltage	MMBTA44	V_{CBO}	500	V
	MMBTA45		400	
Collector-Emitter Voltage	MMBTA44	V_{CEO}	400	V
	MMBTA45		350	
Emitter-Base Voltage		V_{EBO}	6	V
Collector Current		Ic	300	mA
Power Dissipation	Ta=25°C	P_D	350	mW
	Tc=25°C		1.5	W
Junction Temperature		T_J	+150	°C
Storage Temperature		T_{STG}	-40 ~ +150	°C

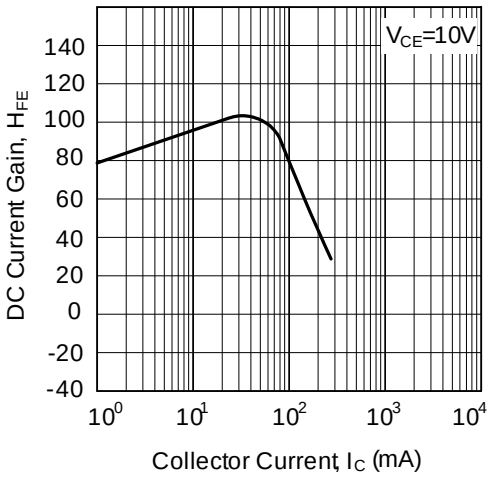
■ ELECTRICAL CHARACTERISTICS (T_j =25°C, unless otherwise specified)

PARAMETER		SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Collector-Base Breakdown Voltage	MMBTA44	BV_{CBO}	Ic=100μA, I_B=0	500			V
	MMBTA45			400			
Collector-Emitter Breakdown Voltage	MMBTA44	BV_{CEO}	Ic=1mA, I_B=0	400			V
	MMBTA45			350			
Emitter-Base Breakdown Voltage		BV_{EBO}	I_E=100μA, Ic=0	6			V
Collector-Emitter Saturation Voltage		$V_{CE(sat)}$	Ic=1mA, I_B=0.1mA Ic=10mA, I_B=1mA Ic=50mA, I_B=5mA			0.4 0.5 0.75	V
Base-Emitter Saturation Voltage		$V_{BE(sat)}$	Ic=10mA, I_B=1mA			0.75	V
Collector Cut-off Current	MMBTA44	I_{CBO}	V_{CB}=400V, I_E =0			0.1	μA
	MMBTA45		V_{CB}=320V, I_E =0			0.1	
Collector Cut-off Current	MMBTA44	I_{CES}	V_{CE} =400V, I_B=0			0.5	μA
	MMBTA45		V_{CE} =320V, I_B=0			0.5	
Emitter Cut-off Current		I_{EBO}	V_{EB}=4V, Ic=0			0.1	μA
DC Current Gain(Note)		h_{FE}	V_{CE} =10V, Ic=1mA V_{CE} =10V, Ic=10mA V_{CE} =10V, Ic=50mA V_{CE} =10V, Ic=100mA	40 50 45 40		240	
Current Gain Bandwidth Product		f_T	V_{CE} =20V, Ic=10mA f=100MHz	50			MHz
Output Capacitance		C_{ob}	V_{CB}=20V, I_E =0, f=1MHz			7	pF

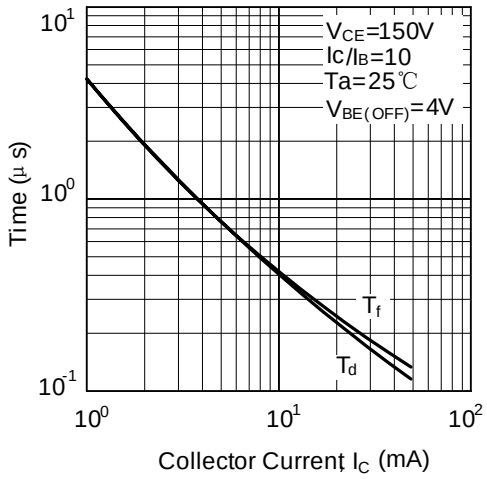
Note: Pulse test: P_W<300μs, Duty Cycle<2%

■ TYPICAL CHARACTERISTICS

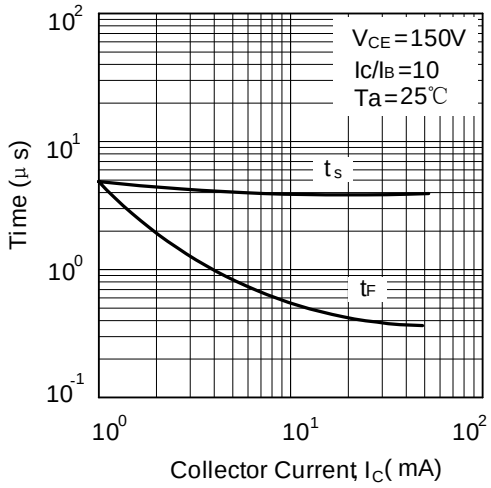
DC current gain



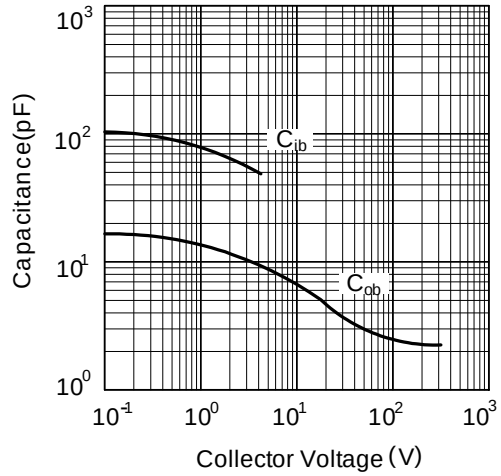
Turn-on switching times



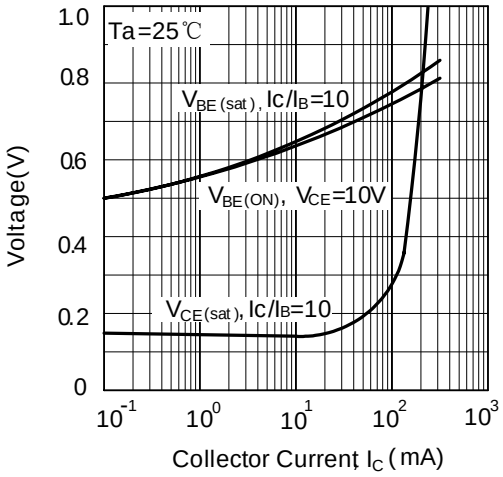
Turn - off switching times



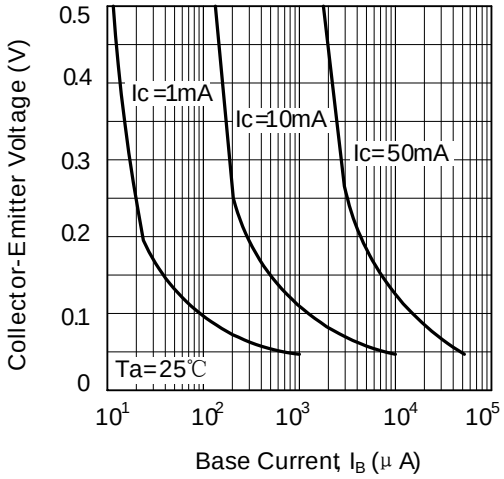
Capacitance



ON voltage

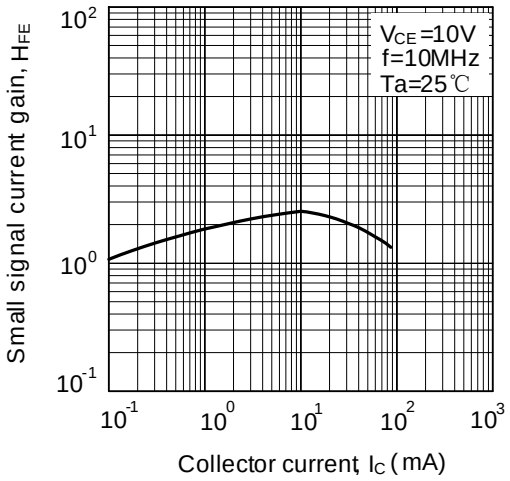


Collector saturation region



■ TYPICAL CHARACTERISTICS(cont.)

High frequency current gain



Safe operating area