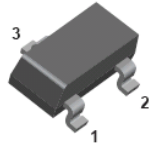


MMBTA44/45

NPN EPITAXIAL SILICON TRANSISTOR



- 1. BASE
- 2. EMITTER
- 3. COLLECTOR

FEATURES

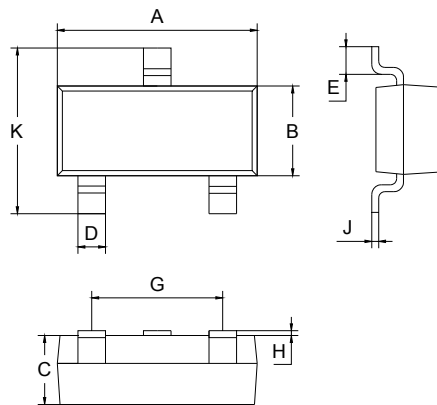
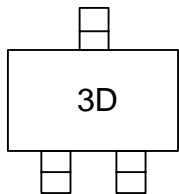
*Collector-Emitter voltage: $V_{CE0}=400V$ (UTC **MMBTA44**)
 $V_{CE0}=350V$ (UTC **MMBTA45**)

*Collector current up to 300mA

*Complement to UTC **MMBTA94/93**

*Power Dissipation: $P_D(\max)=350mW$

MARKING (MMBTA44)



SOT-23		
Dim	M	Max
A	2.70	3.10
B	1.10	1.50
C	1.0 Typical	
D	0.4 Typical	
E	0.35	0.48
G	1.80	2.00
H	0.02	0.1
J	0.1 Typical	
K	2.20	2.60
All Dimensions in mm		

ABSOLUTE MAXIMUM RATINGS

PARAMETER		SYMBOL	RATINGS	UNIT
Collector-Base Voltage	MMBTA44	V_{CB0}	50	V
	MMBTA45		400	
Collector-Emitter Voltage	MMBTA44	V_{CE0}	40	V
	MMBTA45		350	
Emitter-Base Voltage		V_{EB0}	6	V
Collector Current		I_C	300	mA
Power Dissipation	$T_a=25^\circ C$	P_D	350	mW
	$T_c=25^\circ C$		1.5	
Junction Temperature		T_J	+150	$^\circ C$
Storage Temperature		T_{STG}	-40 ~ +150	$^\circ C$



MMBTA44/45

MPN EPITAXIAL SILICON TRANSISTOR



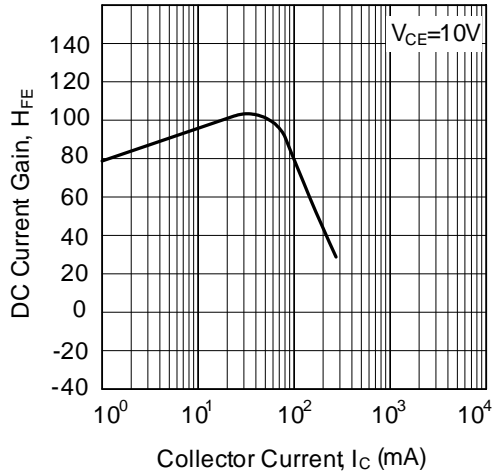
■ ELECTRICAL CHARACTERISTICS (T_j =25°C, unless otherwise specified)

PARAMETER		SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Collector-Base Breakdown Voltage	MMBTA44	BV _{CBO}	I _C =100μA, I _B =0	500			V
	MMBTA45			400			
Collector-Emitter Breakdown Voltage	MMBTA44	BV _{CEO}	I _C =1mA, I _B =0	400			V
	MMBTA45			350			
Emitter-Base Breakdown Voltage		BV _{EBO}	I _E =100μA, I _C =0	6			V
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
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, I _C =0			0.1	μA
DC Current Gain(Note)		h _{FE}	V _{CE} =10V, I _C =1mA V _{CE} =10V, I _C =10mA V _{CE} =10V, I _C =50mA V _{CE} =10V, I _C =100mA	40 50 45 40		240	
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	pF

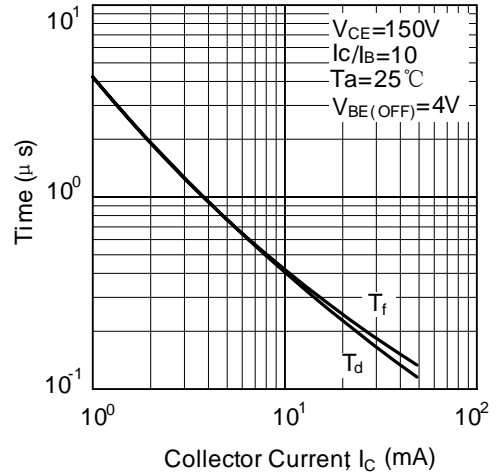
Note: Pulse test: P_W<300μs, Duty Cycle<2%

■ TYPICAL CHARACTERISTICS

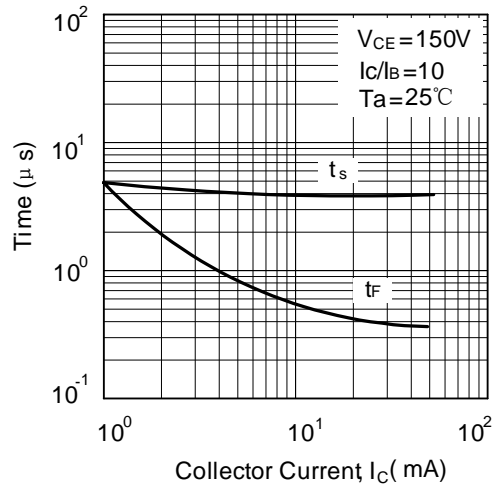
DC current gain



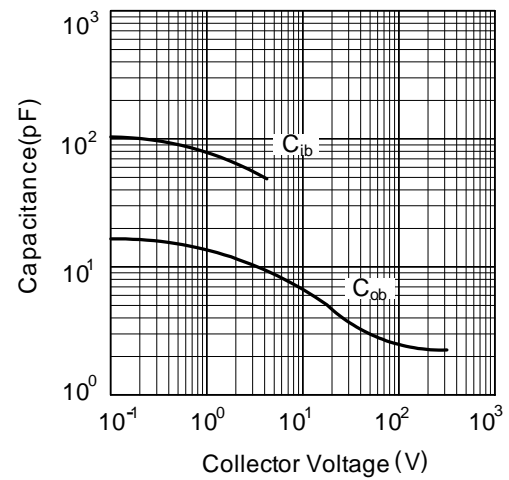
Turn-on switching times



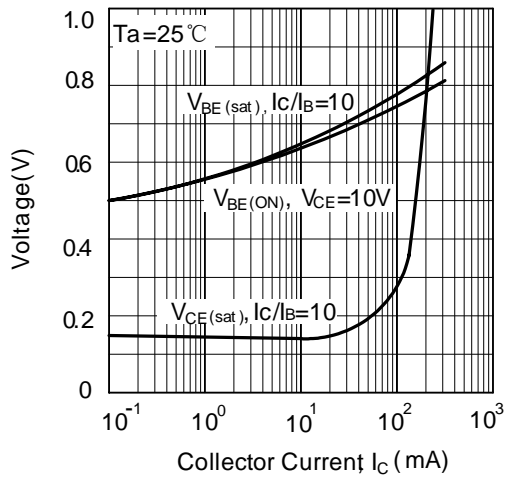
Turn - off switching times



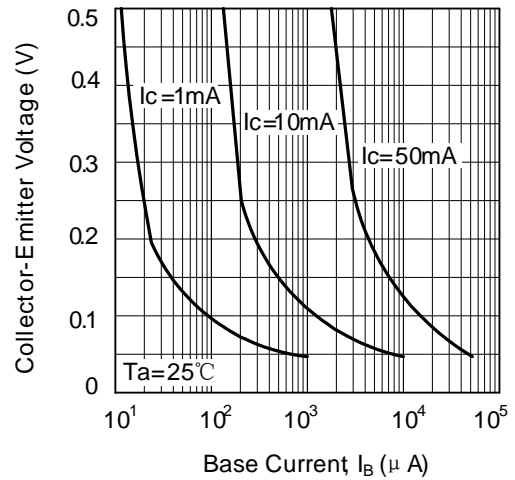
Capacitance



ON voltage

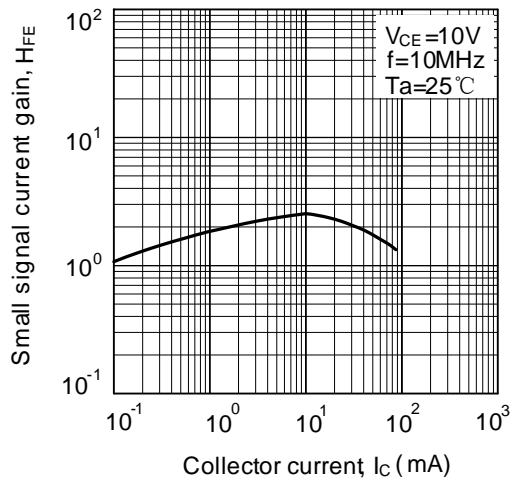


Collector saturation region



■ **TYPICAL CHARACTERISTICS(cont.)**

High frequency current gain



Safe operating area

