DATA SHEET

MMBTA44

NPN GENERAL PURPOSE TRANSISTORS

VOLTAGE 400 V CURRENT 300 mA

FEATURES

- NPN SILICON EPITAXIAL PLANAR TRANSISTOR FOR SWITCHING AND AMPLIFIER APPLICATIONS
- COLLECTOR-EMITTER VOLTAGE V_{CE} = 400V
- COLLECTOR CURRENT I_C = 300 mA
- LEAD FREE AND HALOGEN-FREE

MECHANICAL DATA

- CASE: SOT-23
- TERMINALS: SOLDERABLE PER MIL-STD-202G, METHOD 208
- APPROX. WEIGHT: 0.008 GRAMS



CASE: SOT-23

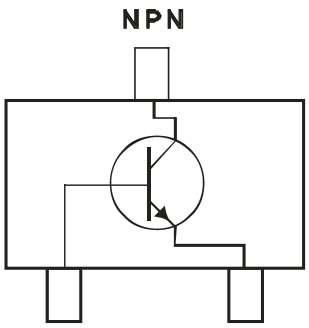
MAXIMUM RATINGS

RATINGS AT 25°C AMBIENT TEMPERATURE UNLESS OTHERWISE SPECIFIED.

PARAMETER	SYMBOL	VALUE	UNITS
COLLECTOR-EMITTER VOLTAGE	V_{CEO}	400	V
COLLECTOR-BASE VOLTAGE	V_{CBO}	500	V
EMITTER-BASE VOLTAGE	V_{EBO}	6	V
COLLECTOR CURRENT-CONTINUOUS	I_C	300	mA
POWER DISSIPATION	P_D	350	mW
JUNCTION AND STORAGE TEMPERATURE RANGE	T_J,T_{STG}	-40 TO +150	°C

NOTE:

1. INDICATES DATA IN ADDITION TO JEDEC REQUIREMENTS.



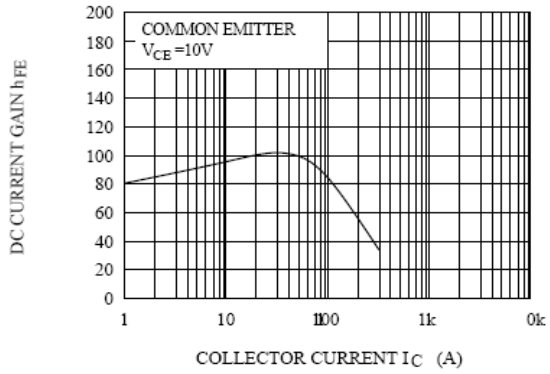
ELECTRICAL CHARACTERISTICS

ELECTRICAL CHARACTERISTICS (AT T_A = 25˚C UNLESS OTHERWISE NOTED)

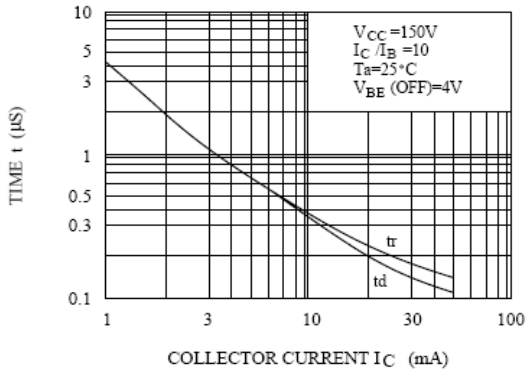
PARAMETER	TEST CONDITION	SYMBOL	MIN.	MAX.	UNITS
OFF CHARACTERISTICS					
COLLECTOR-EMITTER BREAKDOWN VOLTAGE	I_C = 1mA , I_B =0	$V_{(BR)CEO}$	400	-	V
COLLECTOR-BASE BREAKDOWN VOLTAGE	I_C = 100μA , I_E =0	$V_{(BR)CBO}$	500	-	V
EMITTER-BASE BREAKDOWN VOLTAGE	I_E = 10μA , I_C =0	$V_{(BR)EBO}$	6	-	V
COLLECTOR CUT-OFF CURRENT	V_{CB} = 400V , I_E =0	I_{CBO}	-	0.1	μA
COLLECTOR CUT-OFF CURRENT	V_{CB} = 400V , I_B =0	I_{CEB}	-	0.5	μA
EMITTER CUT-OFF CURRENT	V_{EB} = 4V , I_C =0	I_{EBO}	-	0.1	μA
ON CHARACTERISTICS					
DC CURRENT GAIN	I_C = 1mA , V_{CE} = 10V	h_{FE}	40	-	-
	I_C = 10mA , V_{CE} = 10V		100	200	
	I_C = 50mA , V_{CE} = 10V		45	-	
	I_C = 100mA , V_{CE} = 10V		40	-	
COLLECTOR-EMITTER SATURATION VOLTAGE	I_C = 1mA , I_B = 0.1mA	$V_{CE(SAT)}$	-	0.4	V
	I_C = 10mA , I_B = 1mA		-	0.5	
	I_C = 50mA , I_B = 5mA		-	0.75	
BASE-EMITTER SATURATION VOLTAGE	I_C =10mA , I_B = 1mA	$V_{BE(SAT)}$	-	0.75	V
SMALL-SIGNAL CHARACTERISTICS					
CURRENT-GAIN-BANDWIDTH PRODUCT	I_C = 10mA , V_{CE} = 20V, f =30MHz	f_T	50	-	MHz
OUTPUT CAPACITANCE	V_{CB}=20V,I_E=0,f=1MHz	Cob	-	7	pF

TYPICAL CHARACTERISTICS @ Ta=25℃ unless otherwise specified

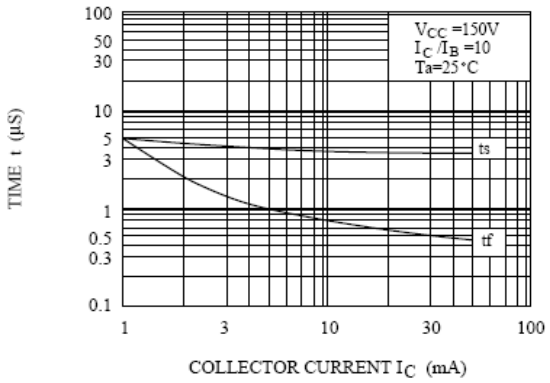
h_{FE} - I_C



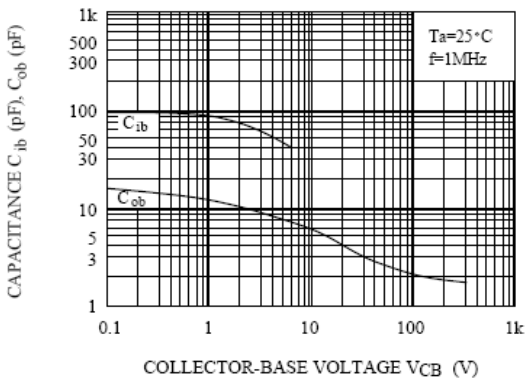
TURN-ON SWITCHING CHARACTERISTICS



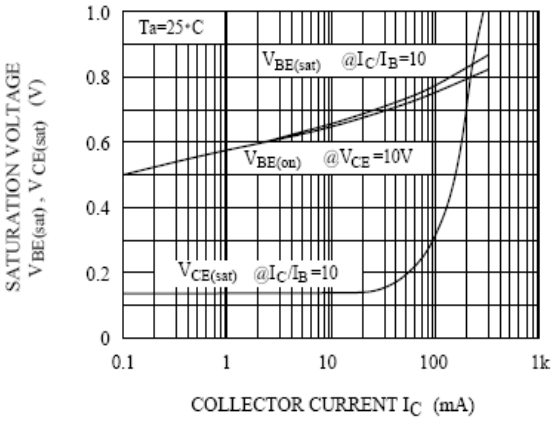
TURN-OFF SWITCHING CHARACTERISTICS



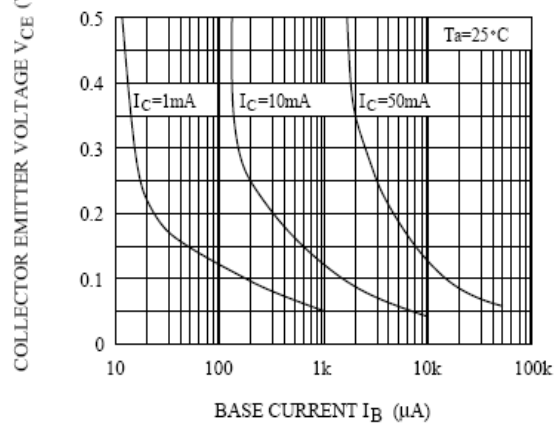
C_{ib} , C_{ob} - V_{CB}



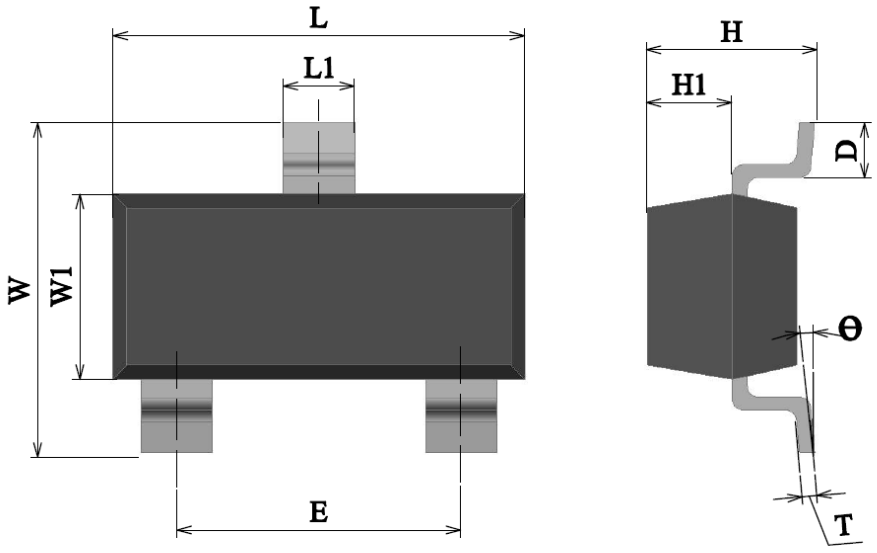
$V_{BE(sat)}$, $V_{CE(sat)}$ - I_C



COLLECTOR SATURATION REGION



SOT-23 DIMENSION



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
L	2.80	3.10	0.110	0.122
L1	0.30	0.50	0.012	0.020
W	2.25	2.54	0.089	0.100
W1	1.20	1.40	0.047	0.055
E	1.80	2.00	0.071	0.079
H	0.90	1.15	0.035	0.045
H1	0.40	0.80	0.016	0.031
D	0.30	0.50	0.012	0.020
T	0.08	0.15	0.003	0.006
θ	0°	8°	0 °	8°