

NPN Transistor

300V 0.5A 350mW SOT-23

MMBTA42

MERITEK

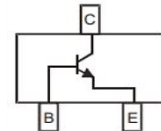
FEATURE

- NPN Silicon Planar Design
- Ideal for Medium Power Switching and Amplifier
- UL Flammability Classification; UL 94V-0



MECHANICAL DATA

- Case: SOT-23. molded plastic
- Terminals: Solderable per MIL-STD-750, Method 2026



MAXIMUM RATING

Parameter	Symbol	Value	Unit
Collector-Base Voltage	V_{CBO}	300	V
Collector-Emitter Voltage	V_{CEO}	300	V
Emitter-Base Voltage	V_{EBO}	6	V
Collector Current	I_C	500	mA
Power Dissipation	P_{tot}	350	mW
Junction Temperature and Storage Temperature	T_J, T_{stg}	-55 ~+150	°C

Note:

1. $T_A=25^\circ\text{C}$ unless otherwise noted

ELECTRICAL CHARACTERISTICS

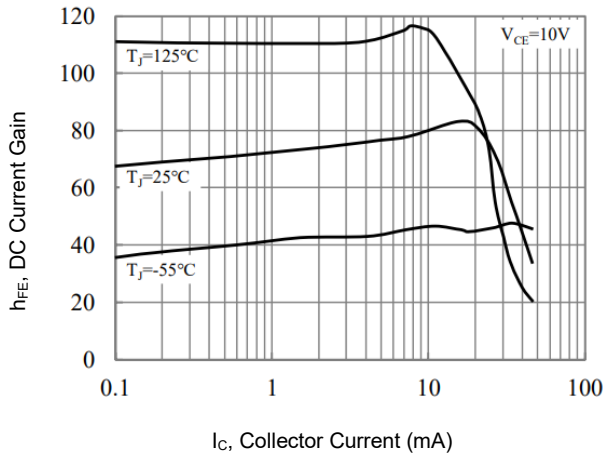
Parameter- ON Characteristic	Conditions	Symbol	Min.	Max.	Unit
DC Current Gain	$V_{CE}=10\text{V}, I_C=1\text{mA}$	h_{FE}	25	-	-
	$V_{CE}=10\text{V}, I_C=10\text{mA}$		80	200	
	$V_{CE}=10\text{V}, I_C=30\text{mA}$		40	-	
Emitter Base Cut-Off Current	$V_{EB}=6\text{V},$	I_{EBO}	-	100	nA
Collector Base Cut-Off Current	$V_{CB}=200\text{V}$	I_{CBO}	-	100	nA
Collector-Base Breakdown Voltage	$I_C=100\mu\text{A}$	$V_{(BR)CBO}$	300	-	V
Collector-Emitter Breakdown Voltage	$I_C=1.0\text{mA}, I_B=0$	$V_{(BR)CEO}$	300	-	V
Emitter-Base Breakdown Voltage	$I_E=100\mu\text{A}$	$V_{(BR)EBO}$	6	-	V
Collector-Emitter Saturation Voltage	$I_C=20\text{mA}, I_B=2\text{mA}$	$V_{CE(SAT)}$	-	0.50	V
Base Emitter Saturation Voltage	$I_C=20\text{mA}, I_B=2\text{mA}$	$V_{BE(SAT)}$	-	0.90	V
Gain Bandwidth Product	$V_{CE}=20\text{V}, I_C=10\text{mA}, f=100\text{MHz}$	f_T	50	-	MHz
Collector Capacitance	$V_{CB}=20\text{V}, f=1\text{MHz}$	C	-	3	pF

Note:

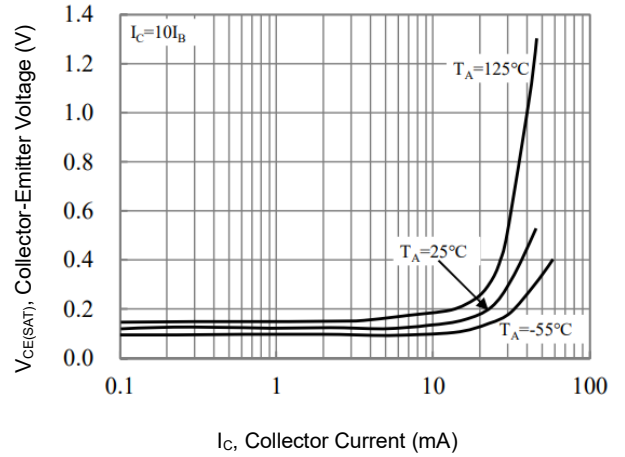
1. $T_A=25^\circ\text{C}$ unless otherwise noted

CHARACTERISTIC CURVES

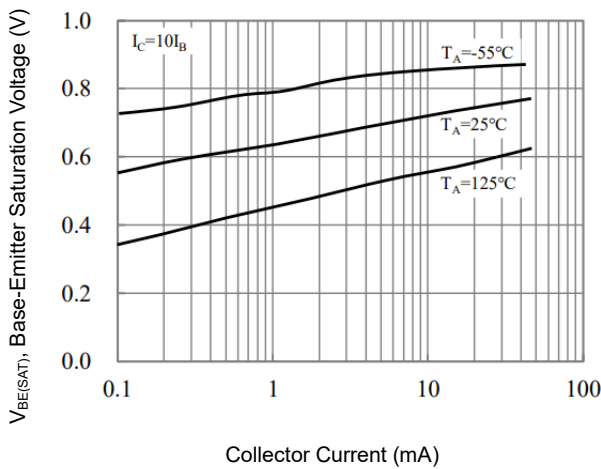
Current Gain Vs Collector Current



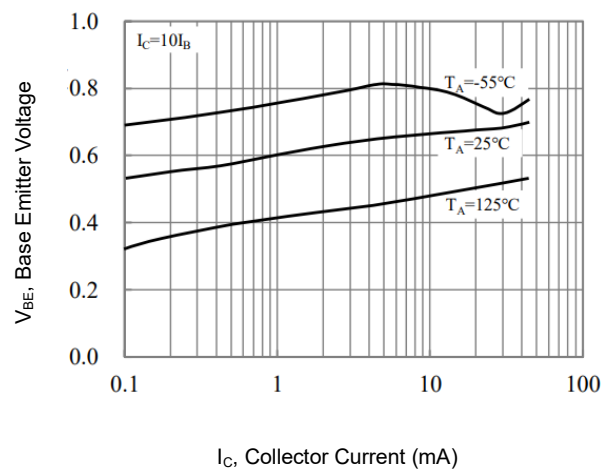
$V_{CE(SAT)}$ Voltage vs Collector Current



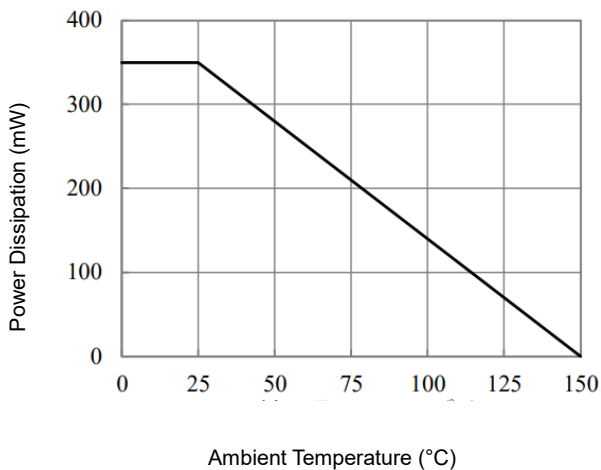
$V_{BE(SAT)}$ Voltage vs Collector Current



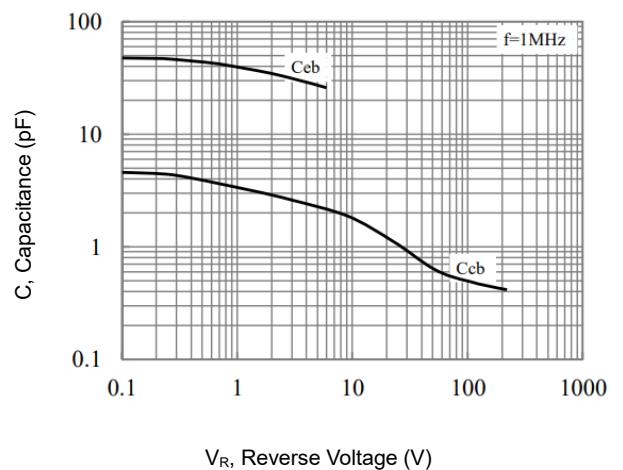
V_{BE} Voltage vs Collector Current



Power Derating Curves



Capacitance



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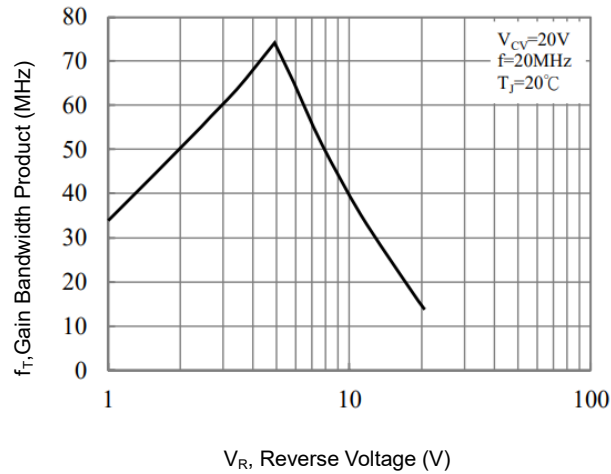
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CHARACTERISTIC CURVES

Gain Bandwidth Product



DIMENSIONS

SOT-23	Min (mm)	Max (mm)
A1	--	0.10
A2	0.79	1.30
b	0.30	0.50
C	0.08	0.20
D	2.70	3.10
e1	1.78	2.04
E	2.10	2.80
E1	1.20	1.60
L	0.15	--
X	0.80	
X1	1.35	
Y	0.90	
Y1	2.90	
Y2	2.00	

