

# Transistor PNP

## 40V 0.35W SOT-323

MMTB5140UW

MERITEK

### FEATURES

- Operation and Storage Temperature: -55~+150°C
- Capable of 350mW of Power Dissipation
- Ideal for Boosting functions in DC-DC converters, motor driver functions



### MAXIMUM RATINGS

Parameter	Symbol	Value	Unit
Collector-Base Voltage	$V_{CB0}$	-40	V
Collector-Emitter Voltage	$V_{CEO}$	-40	V
Emitter-Base Voltage	$V_{EBO}$	-5	V
Collector Current (DC)	$I_C$	-1	A
Peak Pulse Current	$I_{CM}$	-2	A
Power Dissipation	$P_{tot}$	350	mW
Junction Temperature	$T_J$	150	°C
Storage Temperature Range	$T_{STG}$	-55 ~ +150	°C

Note: Maximum Ratings(TA=25°C unless otherwise noted)

### ELECTRICAL CHARACTERISTICS

Parameter	Conditions	Symbol	Min	Max	Unit
DC Current Gain	$I_C = -1 \text{ mA}, V_{CE} = -5 \text{ V}$	$h_{FE}$	300	--	-
	$I_C = -100 \text{ mA}, V_{CE} = -5 \text{ V}$		300	800	
	$I_C = -500 \text{ mA}, V_{CE} = -5 \text{ V}$		250	--	
	$I_C = -1 \text{ A}, V_{CE} = -5 \text{ V}$		160	--	
Collector Cut-off Current	$V_{CB} = -40 \text{ V}$	$I_{CB0}$	--	-100	nA
Collector Emitter Cutoff Current	$V_{CE} = -30 \text{ V}$	$I_{CES}$	--	-100	
Emitter Base Cutoff Current	$V_{EB} = -5 \text{ V}$	$I_{EBO}$	--	-100	
Collector Emitter Saturation Voltage	$I_C = -100 \text{ mA}, I_B = -1 \text{ mA}$	$V_{CE(sat)}$	--	-0.20	V
	$I_C = -500 \text{ mA}, I_B = -50 \text{ mA}$		--	-0.25	
	$I_C = -1 \text{ A}, I_B = -100 \text{ mA}$		--	-0.50	
Base-Emitter Saturation Voltage	$I_C = -1 \text{ A}, I_B = -50 \text{ mA}$	$V_{BE(SAT)}$	--	1.1	
Base-Emitter On Voltage	$V_{CE} = -5 \text{ V}, I_C = -1 \text{ A}$	$V_{BE(on)}$	--	1	
Current Gain Bandwidth Product	$V_{CE} = -10 \text{ V}, I_C = -50 \text{ mA}, f = 100 \text{ MHz}$	$f_T$	150	--	MHz
Collector Capacitance	$V_{CB} = -10 \text{ V}, f = 1 \text{ MHz}$	$C_C$	--	12	pF

Note:  $T_A = 25^\circ\text{C}$ , unless otherwise noted.

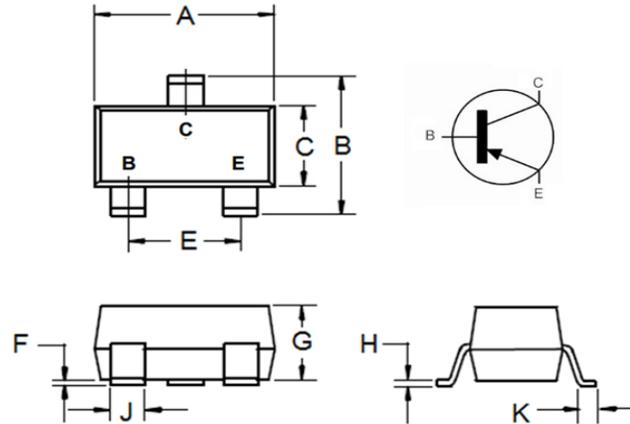
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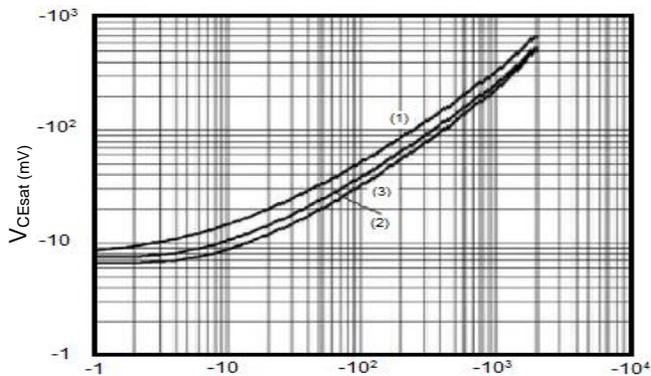
## DIMENSIONS SOT-323

Item	Min (mm)	Max (mm)
A	1.80	2.20
B	2.00	2.45
C	1.15	1.35
E	1.20	1.40
F	0.10	
G	0.80	1.10
H	0.08	0.25
J	0.20	0.40
K	0.10 Min	



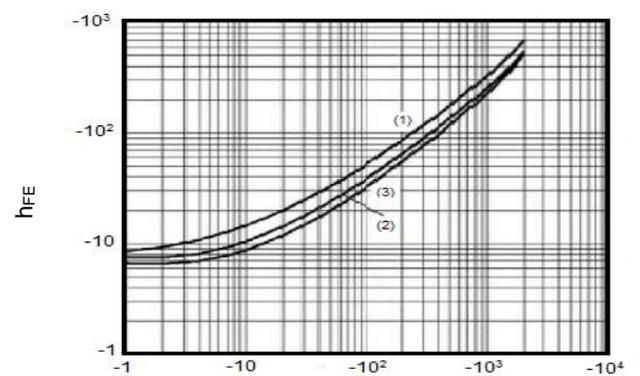
## CHARACTERISTIC CURVES

Collector-Emitter Saturation Voltage



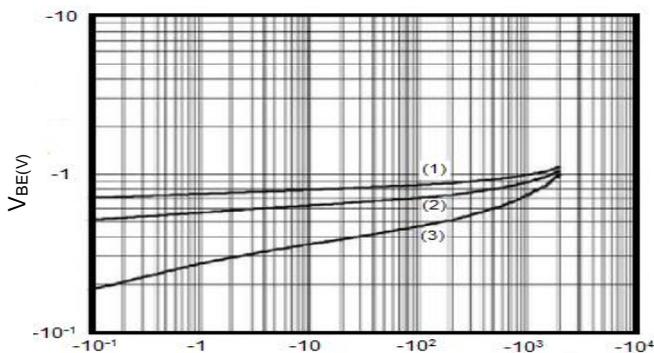
$I_C$ , Collector Current (mA)  
 $I_C/I_B = 10V$ ,  $T_{amb} = 150^\circ C$ ,  $T_{amb} = 25^\circ C$ ,  $T_{amb} = -55^\circ C$

DC Current Gain



$I_C$ , Collector Current (mA)  
 $I_C/I_B = -5V$ , (1)  $T_{amb} = 150^\circ C$ , (2)  $T_{amb} = 25^\circ C$ , (3)  $T_{amb} = -55^\circ C$

Base-Emitter Voltage



$I_C$ , Collector Current (mA)  
 $I_C/I_B = -5V$ , (1)  $T_{amb} = -55^\circ C$ , (2)  $T_{amb} = 25^\circ C$ , (3)  $T_{amb} = 150^\circ C$

\*Specifications subject to change without notice.