

## NPN General Purpose Transistor

## MMBTA13/MMBTA14

### FEATURES

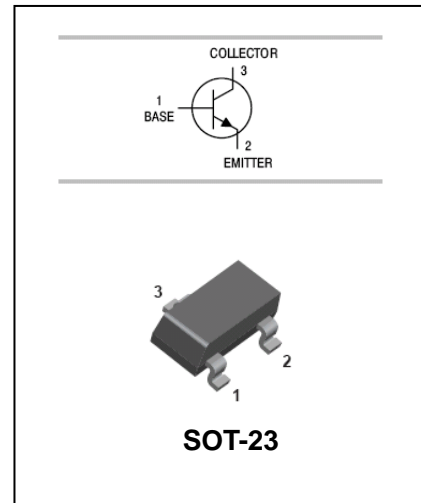
- Epitaxial planar die construction.
- Complementary PNP type available (MMBTA63/MMBTA64).
- High current gain.



Lead-free

### APPLICATIONS

- Ideal for medium power amplification and switching



### ORDERING INFORMATION

Type No.	Marking	Package Code
MMBTA13	K2D	SOT-23
MMBTA14	K3D	SOT-23

### MAXIMUM RATING @ Ta=25°C unless otherwise specified

Symbol	Parameter	Value	UNIT
V <sub>CBO</sub>	collector-base voltage	MMBTA13	30
		MMBTA14	30
V <sub>CEO</sub>	collector-emitter voltage	MMBTA13	30
		MMBTA14	30
V <sub>EBO</sub>	emitter-base voltage	10	V
I <sub>C</sub>	collector current (DC)	0.3	A
P <sub>C</sub>	Collector dissipation	0.35	W
R <sub>θJA</sub>	Thermal Resistance, Junction to Ambient	357	°C/W
T <sub>j</sub> , T <sub>stg</sub>	junction and storage temperature	-55-150	°C

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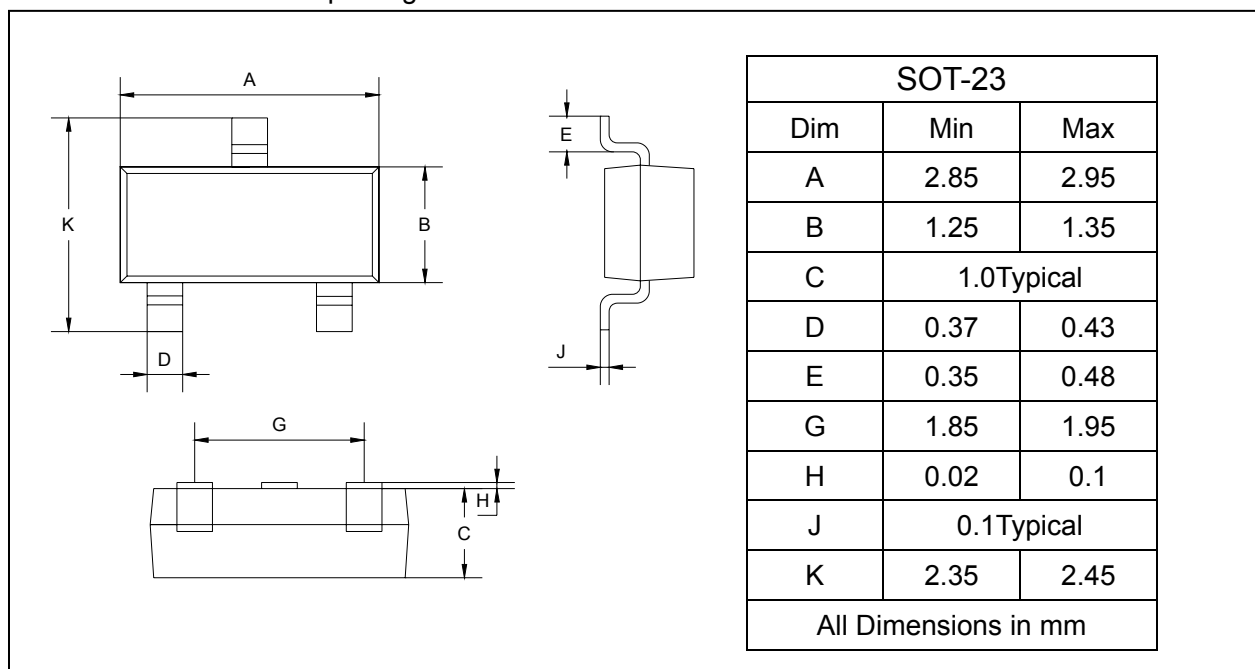
### ELECTRICAL CHARACTERISTICS @ Ta=25°C unless otherwise specified

Symbol	Parameter	Test conditions	MIN.	MAX.	UNIT
$V_{(BR)CBO}$	Collector-base breakdown voltage MMBTA13 MMBTA14	$I_C=100\mu A, I_E=0$	30 30	-	V
$V_{(BR)CEO}$	Collector-emitter breakdown voltage MMBTA13 MMBTA14	$I_C=0.1mA, I_B=0$	30 30	-	V
$V_{(BR)EBO}$	Emitter-base breakdown voltage	$I_E=100\mu A, I_C=0$	10	-	V
$I_{CBO}$	collector cut-off current	$I_E = 0; V_{CB} = 30V$	-	0.1	$\mu A$
$I_{CEO}$	collector cut-off current	$I_E = 0; V_{CE} = 10V$	-	0.1	$\mu A$
$h_{FE}$	DC current gain	MMBTA13 $V_{CE} = 5V; I_C = 10mA$	5000	-	
		MMBTA14 $V_{CE} = 5V; I_C = 10mA$	10000		
		MMBTA13 $V_{CE} = 5V; I_C = 100mA$	10000		
		MMBTA14 $V_{CE} = 5V; I_C = 100mA$	20000		
$V_{CE(sat)}$	collector-emitter saturation voltage	$I_C = 100mA; I_B = 0.1mA$	-	1.5	V
$f_T$	transition frequency	$I_C = 10mA; V_{CE} = 5.0V;$ $f = 100MHz$	125	-	MHz

### PACKAGE OUTLINE

Plastic surface mounted package

SOT-23



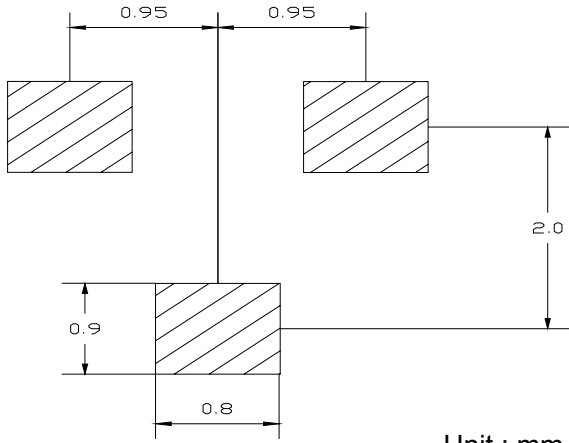
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### SOLDERING FOOTPRINT



Unit : mm

### PACKAGE INFORMATION

Device	Package	Shipping
MMBTA13/MMBTA14	SOT-23	3000/Tape&Reel