

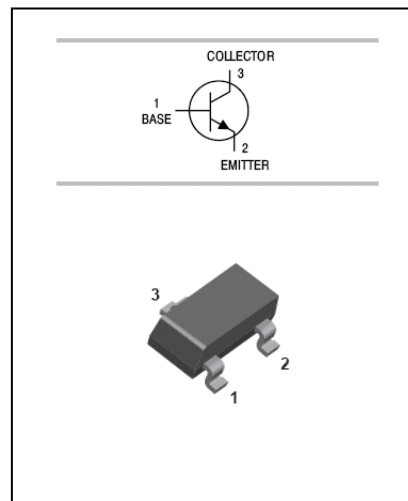
## NPN General Purpose Transistor

### Features:

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

### Applications:

- Ideal for medium power amplification and switching



## ORDERING INFORMATION

Type No.	Marking	Package Code
MMBTA13	1M/K2D	SOT-23
MMBTA14	1N/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

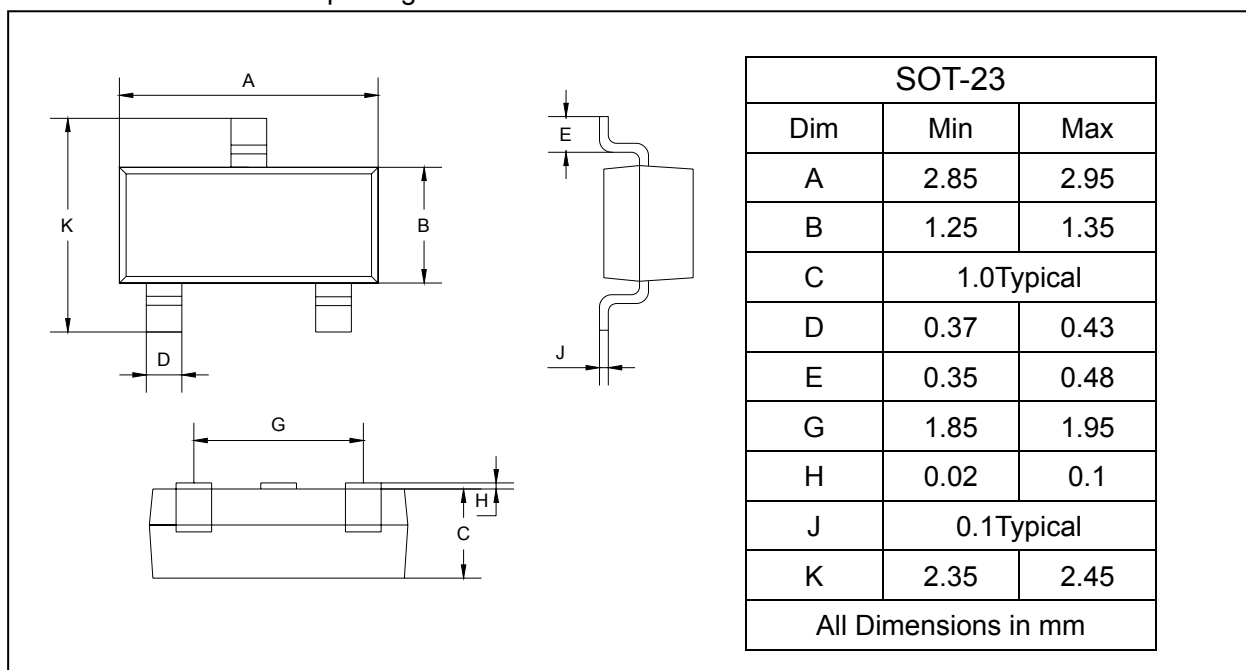
**ELECTRICAL CHARACTERISTICS @ Ta=25°C unless otherwise specified**

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 MMBTA14 MMBTA13 MMBTA14	$V_{CE} = 5V; I_C = 10mA$	5000	-	
		$V_{CE} = 5V; I_C = 10mA$	10000		
		$V_{CE} = 5V; I_C = 100mA$	10000		
		$V_{CE} = 5V; I_C = 100mA$	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**

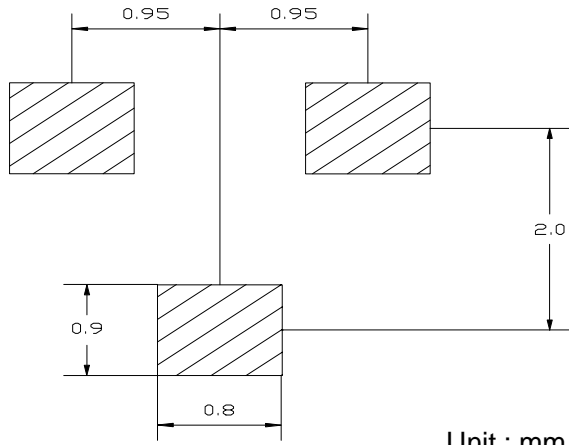
Plastic surface mounted package

SOT-23



SOT-23		
Dim	Min	Max
A	2.85	2.95
B	1.25	1.35
C	1.0Typical	
D	0.37	0.43
E	0.35	0.48
G	1.85	1.95
H	0.02	0.1
J	0.1Typical	
K	2.35	2.45
All Dimensions in mm		

### SOLDERING FOOTPRINT



Unit : mm

### PACKAGE INFORMATION

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