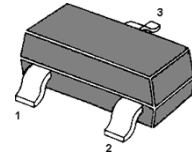


## MMBTSC930 NPN Silicon Epitaxial Planar Transistor

for FM RF amp, mixer, osc, converter and IF amplifier.

On special request, these transistors can be manufactured in different pin configurations.



1.Base 2.Emitter 3.Collector  
SOT-23 Plastic Package

### Absolute Maximum Ratings ( $T_a = 25\text{ }^\circ\text{C}$ )

	Symbol	Value	Unit
Collector Base Voltage	$V_{CBO}$	30	V
Collector Emitter Voltage	$V_{CEO}$	20	V
Emitter Base Voltage	$V_{EBO}$	5	V
Collector Current	$I_C$	30	mA
Power Dissipation	$P_{tot}$	200	mW
Junction Temperature	$T_j$	125	$^\circ\text{C}$
Storage Temperature Range	$T_s$	-55 to +125	$^\circ\text{C}$

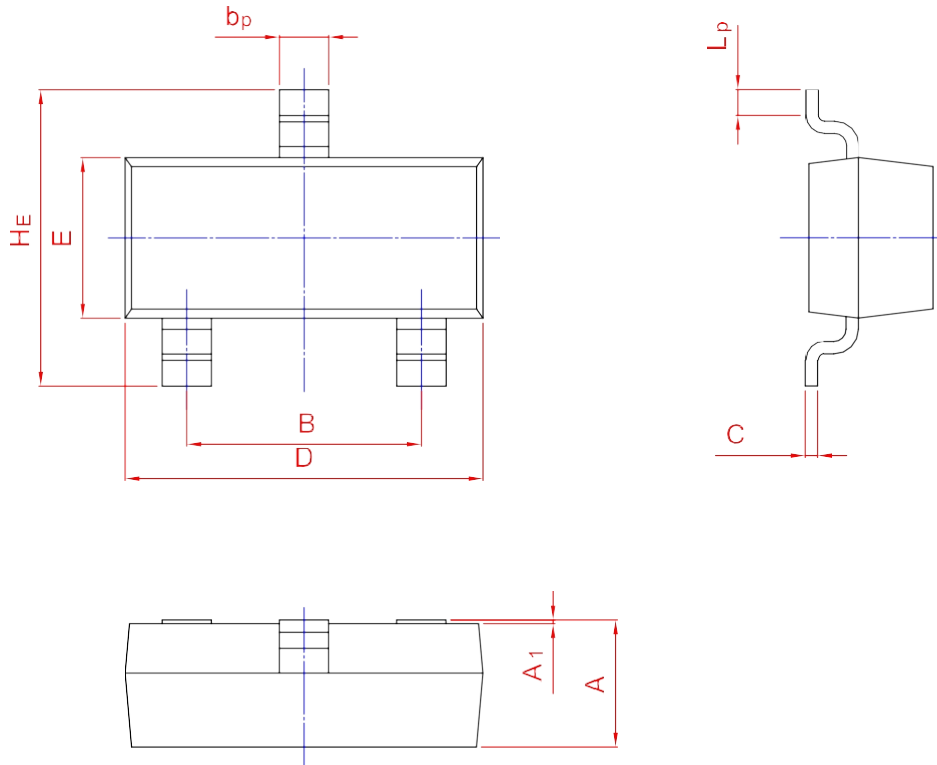
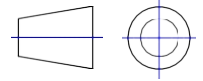
### Characteristics at $T_{amb}=25\text{ }^\circ\text{C}$

	Symbol	Min.	Typ.	Max.	Unit
DC Current Gain at $V_{CE}=6\text{V}$ , $I_C=1\text{mA}$  Current Gain Group C	$h_{FE}$	40	-	80	-
	D	60	-	120	-
	E	100	-	200	-
	F	160	-	320	-
	Collector Cutoff Current at $V_{CB}=10\text{V}$	$I_{CBO}$	-	-	1
Emitter Cutoff Current at $V_{EB}=4\text{V}$	$I_{EBO}$	-	-	1	$\mu\text{A}$
Gain Bandwidth Product at $V_{CE}=6\text{V}$ , $I_C=1\text{mA}$	$f_T$	170	300	-	MHz
Reverse Transfer Capacitance at $V_{CB}=6\text{V}$ , $f=1\text{MHz}$	$C_{re}$	1	1.3	1.8	pF
Base to Collector Time Constant at $V_{CB}=6\text{V}$ , $I_C=1\text{mA}$ , $f=31.9\text{MHz}$	$R_{bb}\cdot C_c$	-	20	36	ps
Noise Figure at $V_{CB}=6\text{V}$ , $I_C=1\text{mA}$ , $f=100\text{MHz}$	NF	-	4	-	dB
Turn-on Time at $V_{IN}=+12\text{V}$ , $V_{BE}=-3\text{V}$ , appointed circuit	$t_{on}$	-	30	-	ns
Turn-off Time at $V_{IN}=-12\text{V}$ , $V_{BE}=+3\text{V}$ , appointed circuit	$t_{off}$	-	30	-	ns

PACKAGE OUTLINE

Plastic surface mounted package; 3 leads

SOT-23



UNIT	A	B	b <sub>p</sub>	C	D	E	H <sub>E</sub>	A <sub>1</sub>	L <sub>p</sub>
mm	1.40	2.04	0.50	0.19	3.10	1.65	3.00	0.100	0.50
	0.95	1.78	0.35	0.08	2.70	1.20	2.20	0.013	0.20