

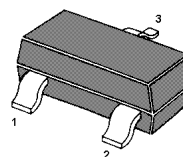
# MMBTSC930

## NPN Silicon Epitaxial Planar Transistor

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

The transistor is subdivided into four groups, C, D, E and F, according to its DC current gain.

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	$T_{Stg}$	-55 to +125	$^\circ\text{C}$

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## 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	$h_{FE}$	60	-	120	-
E	$h_{FE}$	100	-	200	-
F	$h_{FE}$	160	-	320	-
Collector Cutoff Current at $V_{CB}=10\text{V}$	$I_{CBO}$	-	-	1	$\mu\text{A}$
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