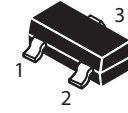
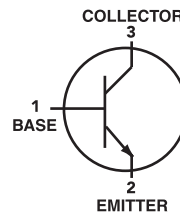


### NPN EPITAXIAL PLANAR TRANSISTOR

 Lead(Pb)-Free



SOT-23

#### ABSOLUTE MAXIMUM RATINGS( $T_a = 25^\circ\text{C}$ Unless Otherwise Noted)

Rating	Symbol	Value	Unit
Collector-Base Voltage	$V_{CB0}$	25	V
Collector-Emitter Voltage	$V_{CEO}$	20	V
Emitter-Base Voltage	$V_{EBO}$	12	V
Collector Current-Continuous	$I_C$	0.3	A
Collector Power Dissipation	$P_C$	0.2	W
Junction Temperature	$T_J$	150	$^\circ\text{C}$
Storage Temperature	$T_{stg}$	-55 - 150	$^\circ\text{C}$

## ELECTRICAL CHARACTERISTICS

Characteristics	Symbol	Min	Typ	Max	Unit
Collector-Base Breakdown Voltage $I_C=0.1\text{mA}, I_E=0$	$BV_{CBO}$	25	-	-	V
Collector-Emitter Breakdown Voltage $I_C=1\text{mA}, I_B=0$	$BV_{CEO}$	20	-	-	V
Emitter-Base Breakdown Voltage $I_C=0, I_E=0.1\text{mA}$	$BV_{EBO}$	12	-	-	V
Collector Cut-Off Current $I_E=0, V_{CB}=25\text{V}$	$I_{CBO}$	-	-	0.1	$\mu\text{A}$
Emitter-Cut-Off Current $I_C=0, V_{EB}=12\text{V}$	$I_{EBO}$	-	-	0.1	$\mu\text{A}$

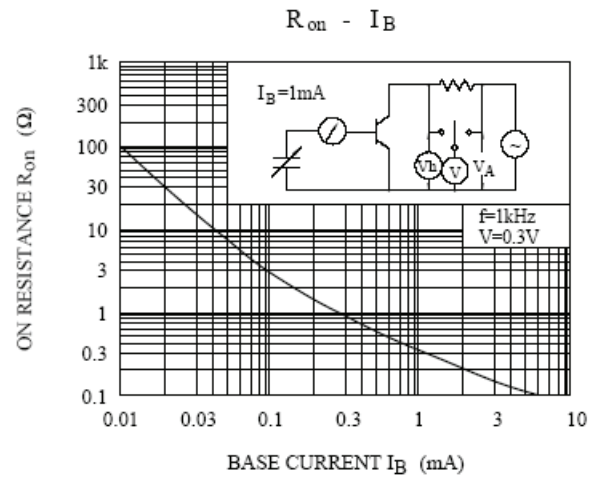
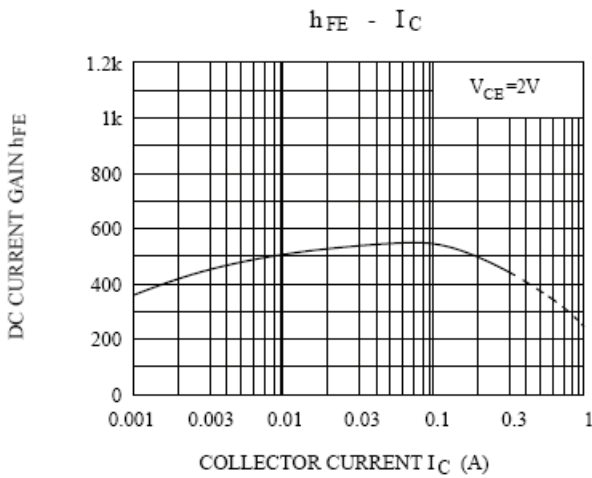
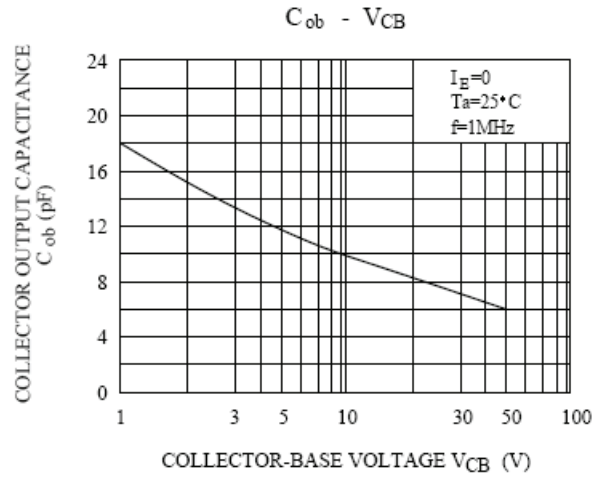
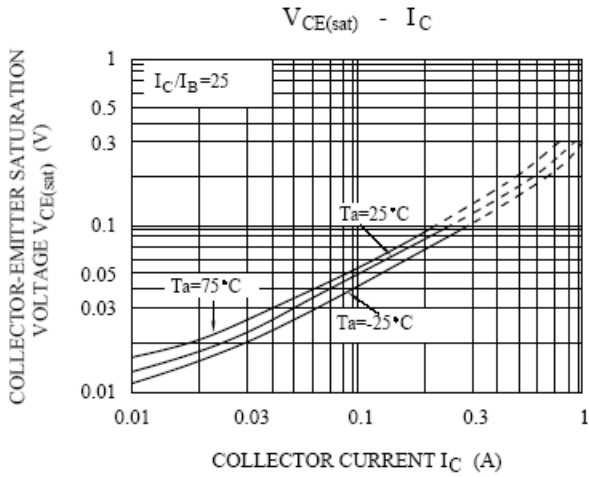
## ON CHARACTERISTICS

DC Current Gain $I_C=4\text{mA}, V_{CE}=2\text{V}$ $I_C=4\text{mA}, V_{CE}=2\text{V}$	$h_{FE(\text{FOR})}$	200	-	800	-
	$h_{FE(\text{REV})}$	20	-	-	-
Collector-Emitter Saturation Voltage $I_C=0.1\text{A}, I_B=10\text{mA}$	$V_{CE(\text{sat})}$	-	-	0.25	V
Base-Emitter Saturation Voltage $I_C=0.1\text{A}, I_B=10\text{mA}$	$V_{BE(\text{sat})}$	-	-	1	V

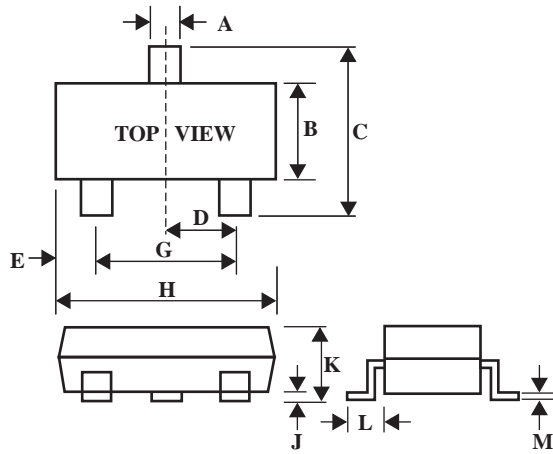
## DYNAMIC CHARACTERISTICS

Transition Frequency $I_C=1\text{mA}, V_{CE}=10\text{V}, f=100\text{MHz}$	$f_T$	-	60	-	MHz
Collector Output Capacitance $I_E=0, V_{CB}=10\text{V}, f=1\text{MHz}$	$C_{ob}$	-	10	-	pF
On Resistance $I_B=1\text{mA}, V_{in}=0.3\text{V}, f=1\text{KHz}$	$R_{(on)}$	-	0.6	-	$\Omega$

## Typical characteristics



**SOT-23 Outline Dimension**



SOT-23		
Dim	Min	Max
A	0.35	0.51
B	1.19	1.40
C	2.10	3.00
D	0.85	1.05
E	0.46	1.00
G	1.70	2.10
H	2.70	3.10
J	0.01	0.13
K	0.89	1.10
L	0.30	0.61
M	0.076	0.25