

## SOT-23 Plastic-Encapsulate Transistors

TRANSISTOR (NPN)

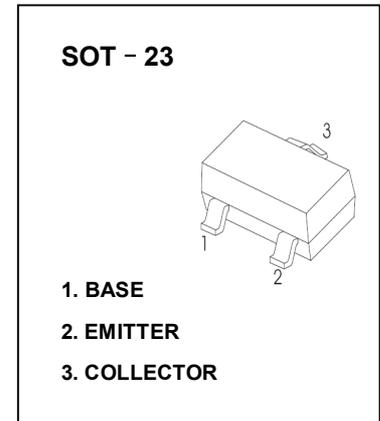
### FEATURES

- High Voltage Application
- Telephone Application
- Complementary to MMBTA93

MARKING:ABX

### MAXIMUM RATINGS ( $T_a=25^{\circ}\text{C}$ unless otherwise noted)

Symbol	Parameter	Value	Unit
$V_{CBO}$	Collector-Base Voltage	200	V
$V_{CEO}$	Collector-Emitter Voltage	200	V
$V_{EBO}$	Emitter-Base Voltage	5	V
$I_C$	Collector Current	500	mA
$P_C$	Collector Power Dissipation	350	mW
$R_{\theta JA}$	Thermal Resistance From Junction To Ambient	357	$^{\circ}\text{C}/\text{W}$
$T_j$	Junction Temperature	150	$^{\circ}\text{C}$
$T_{stg}$	Storage Temperature	-55~+150	$^{\circ}\text{C}$



### ELECTRICAL CHARACTERISTICS ( $T_a=25^{\circ}\text{C}$ unless otherwise specified)

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C=0.1\text{mA}, I_E=0$	200			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C=1\text{mA}, I_B=0$	200			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E=0.1\text{mA}, I_C=0$	5			V
DC current gain	$h_{FE(1)}^*$	$V_{CE}=10\text{V}, I_C=10\text{mA}$	40			
	$h_{FE(2)}^*$	$V_{CE}=10\text{V}, I_C=1\text{mA}$	40			
	$h_{FE(3)}^*$	$V_{CE}=10\text{V}, I_C=30\text{mA}$	40			
Collector-emitter saturation voltage	$V_{CE(sat)}^*$	$I_C=20\text{mA}, I_B=2\text{mA}$			0.5	V
Base-emitter saturation voltage	$V_{BE(sat)}^*$	$I_C=20\text{mA}, I_B=2\text{mA}$			0.9	V
Transition frequency	$f_T$	$V_{CE}=20\text{V}, I_E=10\text{mA}, f=100\text{MHz}$	50			MHz
Collector output capacitance	$C_{ob}$	$V_{CB}=20\text{V}, I_E=0, f=1\text{MHz}$			4	pF

\*Pulse test: pulse width  $\leq 300\mu\text{s}$ , duty cycle  $\leq 2.0\%$ .