

## NPN Silicon Epitaxial Planar Transistor

## M28S

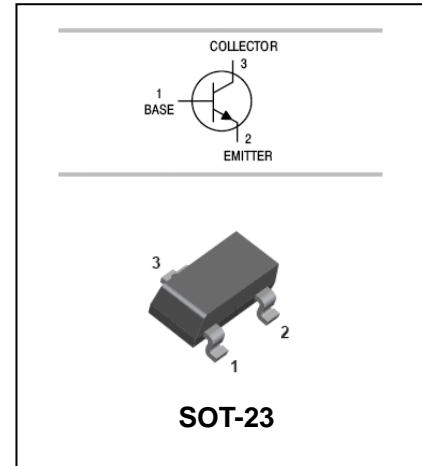
### FEATURES

- Excellent  $H_{FE}$  Linearity.
- High DC current gain.
- High Power Dissipation.



### APPLICATIONS

- Audio output driver amplifier.
- General purpose switch.



### ORDERING INFORMATION

Type No.	Marking	Package Code
M28S	28S	SOT-23

### MAXIMUM RATING @ $T_a=25^\circ\text{C}$ unless otherwise specified

Symbol	Parameter	Value	Units
$V_{CBO}$	Collector-Base Voltage	40	V
$V_{CEO}$	Collector-Emitter Voltage	20	V
$V_{EBO}$	Emitter-Base Voltage	6	V
$I_C$	Collector Current -Continuous	1	A
$I_B$	Base current	0.4	A
$P_C$	Collector Power Dissipation	200	mW
$T_j, T_{stg}$	Junction and Storage Temperature	-55 to +150	$^\circ\text{C}$



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

Parameter	Symbol	Test conditions	MIN	TYP	MAX	UNIT
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C=100\mu A, I_E=0$	40			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C=1mA, I_B=0$	20			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E=100\mu A, I_C=0$	6			V
Collector cut-off current	$I_{CBO}$	$V_{CB}=35V, I_E=0$			0.1	$\mu A$
Emitter cut-off current	$I_{EBO}$	$V_{EB}=5V, I_C=0$			0.1	$\mu A$
DC current gain	$h_{FE}$	$V_{CE}=1V, I_C=1mA$	290		1000	
		$V_{CE}=1V, I_C=0.1A$	300			
		$V_{CE}=1V, I_C=0.3A$	300			
		$V_{CE}=1V, I_C=0.5A$	300			
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C=600mA, I_B=20mA$			0.55	V
Transition frequency	$f_T$	$V_{CE}=10V, I_C=50mA,$ $f=1MHz$	100			MHz
Collector output capacitance	$C_{ob}$	$V_{CB}=10V, I_E=0, f=1MHz$		9		pF

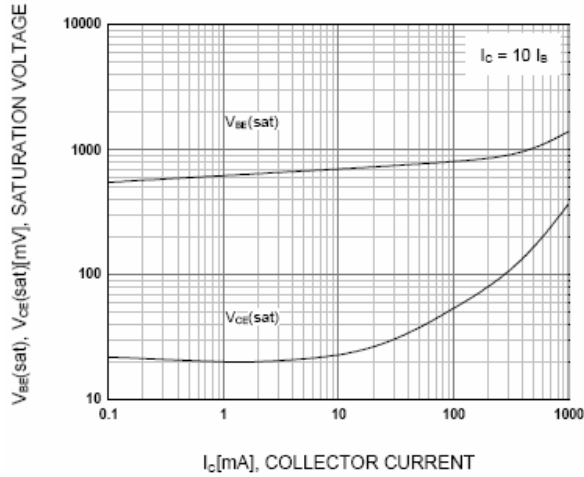
**CLASSIFICATION OF  $h_{FE2}$**

Rank	B	C	D
Range	300-550	500-700	650-1000

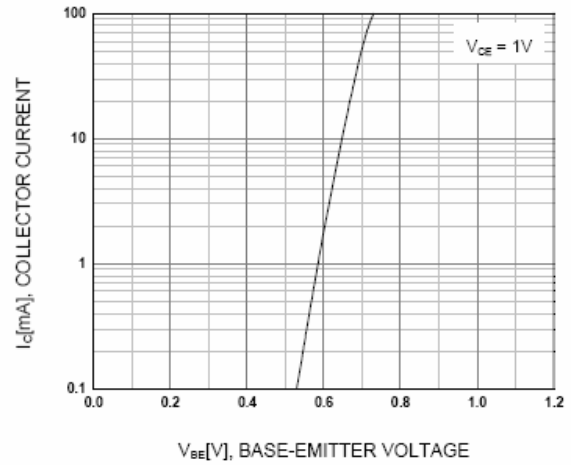
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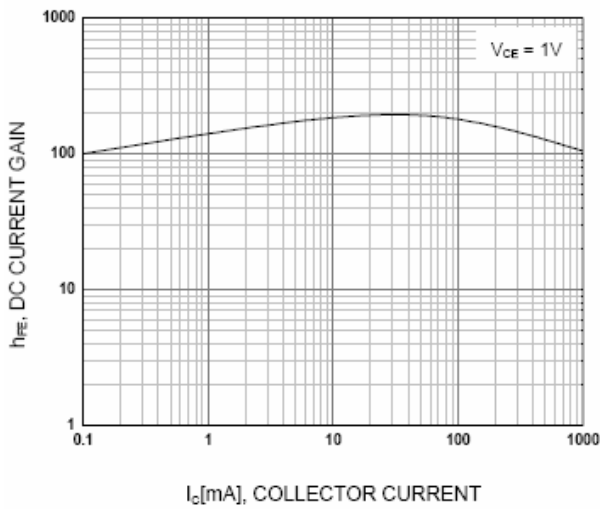
TYPICAL CHARACTERISTICS @ Ta=25°C unless otherwise specified



**Figure 1. Base-Emitter Saturation Voltage  
Collector-Emitter Saturation Voltage**



**Figure 2. Base-Emitter On Voltage**



**Figure 3. DC current Gain**

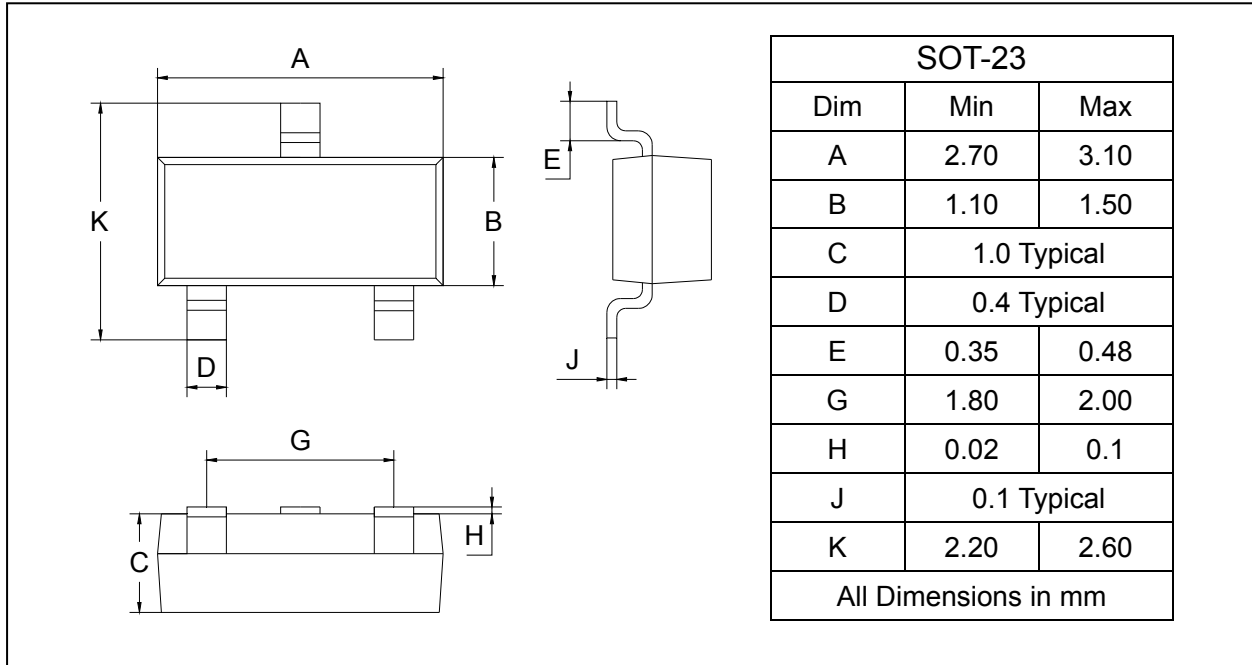
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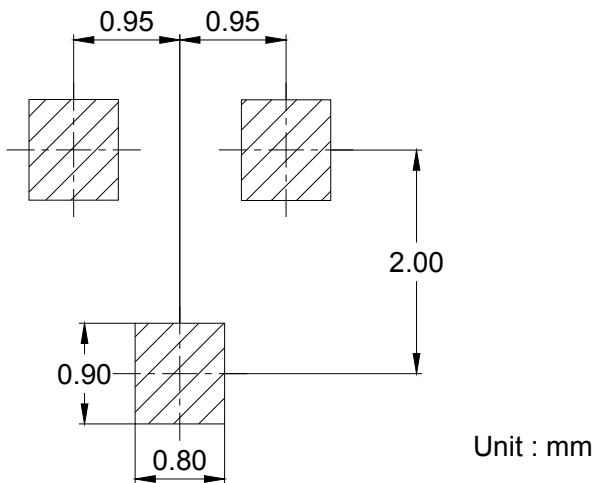
**PACKAGE OUTLINE**

Plastic surface mounted package

SOT-23



**SOLDERING FOOTPRINT**



**PACKAGE INFORMATION**

Device	Package	Shipping
M28S	SOT-23	3000/Tape&Reel