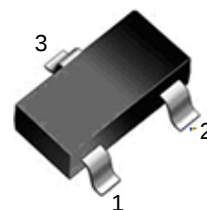


SOT-23 Plastic-Encapsulate Transistors

M28S

TRANSISTOR (NPN)



1. BASE
2. EMITTER
3. COLLECTOR

SOT - 23

• Features

- Excellent h_{FE} Linearity
- High DC Current Gain

• MAXIMUM RATINGS

 ($T_C=25^{\circ}\text{C}$)

Parameter	Symbol	Limit	Unit
Collector-Base Voltage	V_{CBO}	40	V
Collector-Emitter Voltage	V_{CEO}	20	V
Emitter-Base Voltage	V_{EBO}	6	V
Collector Current	I_C	1	A
Collector Power Dissipation	P_C	200	mW
Thermal Resistance From Junction To Ambient	$R_{\theta JA}$	625	$^{\circ}\text{C}/\text{W}$
Operation Junction and Storage Temperature Range	T_J, T_{stg}	-55~+150	$^{\circ}\text{C}$

• ELECTRICAL CHARACTERISTICS ($T_a=25^{\circ}\text{C}$)

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C=0.1\text{mA}, I_E=0$	40			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C=1\text{mA}, I_B=0$	20			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E=0.1\text{mA}, I_C=0$	6			V
Collector cut-off current	I_{CBO}	$V_{CB}=35\text{V}, I_E=0$			0.1	μA
Collector cut-off current	I_{CEO}	$V_{CE}=20\text{V}, I_B=0$			5	μA
Emitter cut-off current	I_{EBO}	$V_{EB}=5\text{V}, I_C=0$			0.1	μA
DC current gain	$h_{FE(1)}$	$V_{CE}=1\text{V}, I_C=1\text{mA}$	290			
	$h_{FE(2)}$	$V_{CE}=1\text{V}, I_C=100\text{mA}$	300		1000	
	$h_{FE(3)}$	$V_{CE}=1\text{V}, I_C=300\text{mA}$	300			
	$h_{FE(4)}$	$V_{CE}=1\text{V}, I_C=500\text{mA}$	300			
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C=600\text{mA}, I_B=20\text{mA}$			0.55	V
Transition frequency	f_T	$V_{CE}=10\text{V}, I_E=50\text{mA}, f=1\text{MHz}$	100			MHz
Collector output capacitance	C_{ob}	$V_{CB}=10\text{V}, I_E=0, f=1\text{MHz}$		9		pF

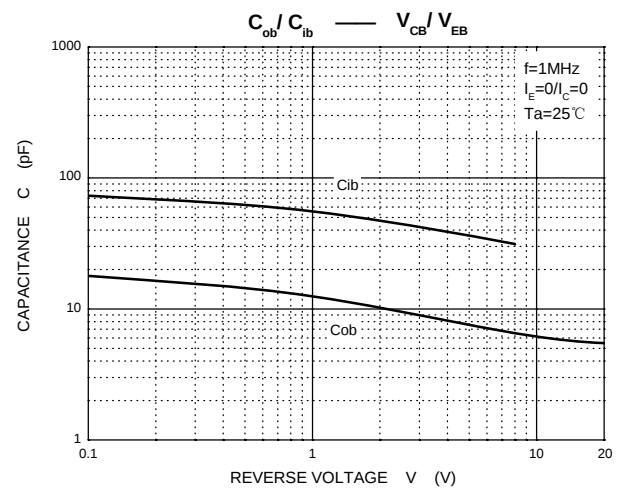
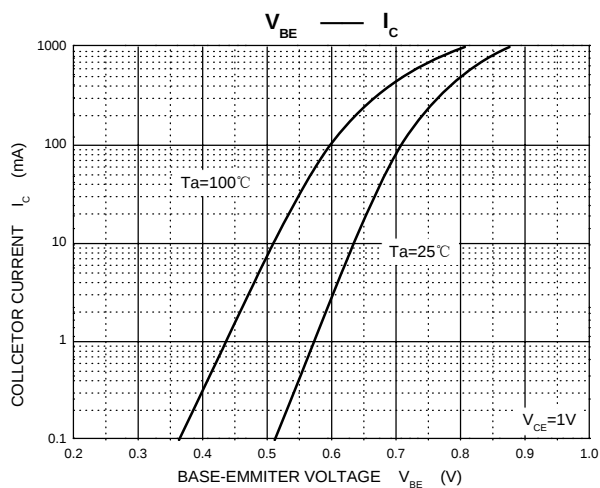
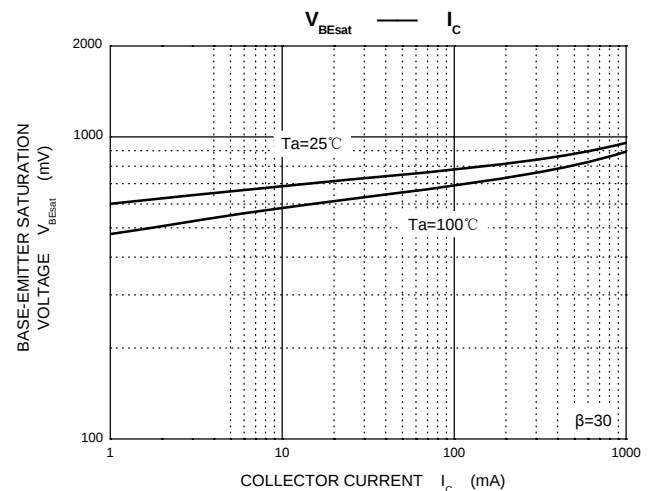
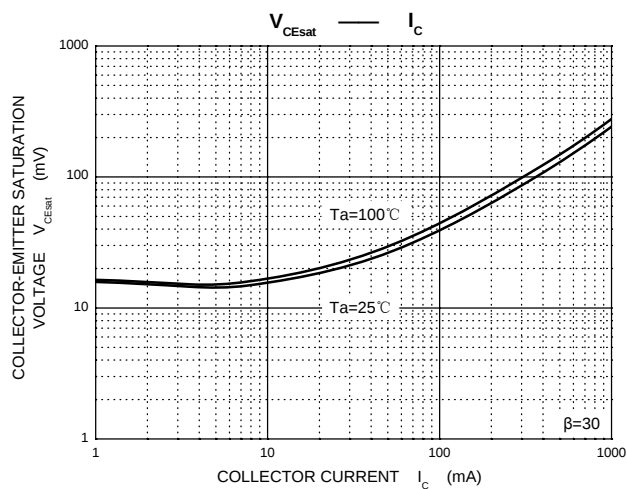
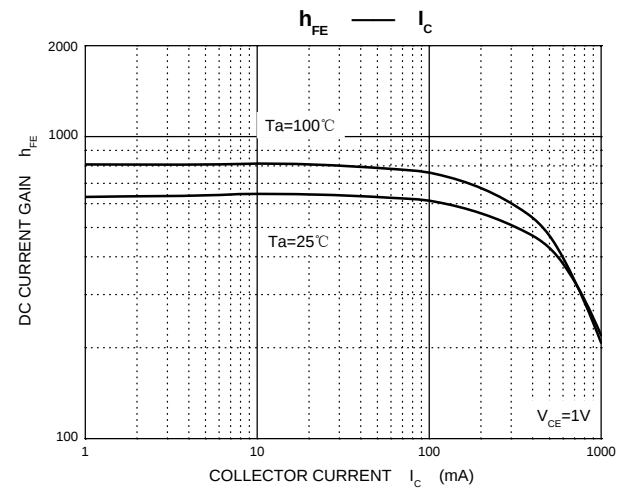
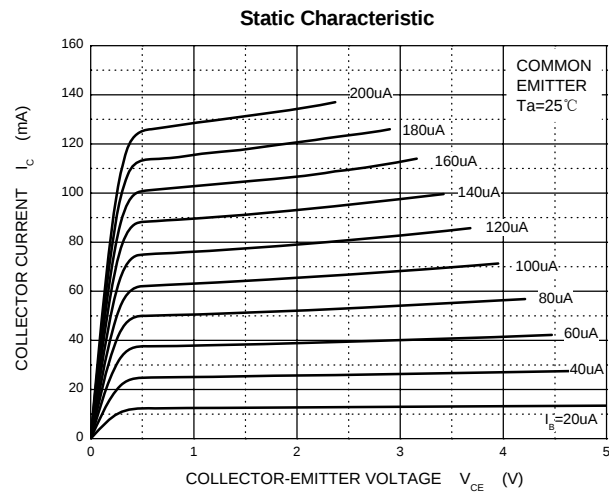
• CLASSIFICATION OF $h_{FE(1)}$

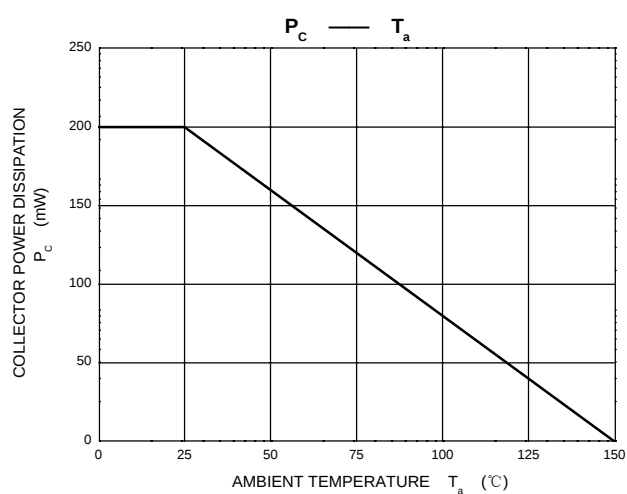
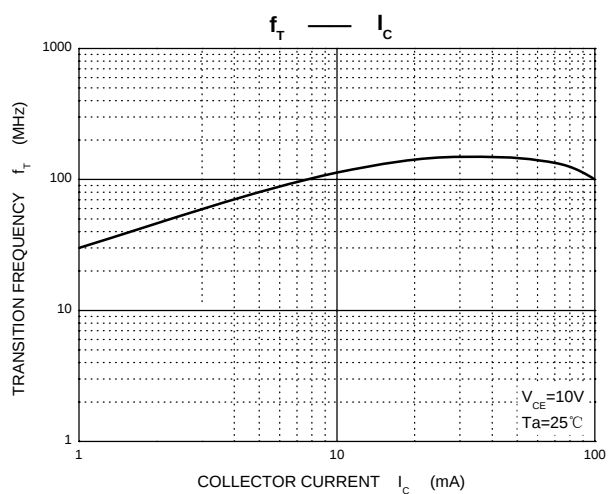
RANK	B	C	D
RANGE	300 - 550	500 - 700	650 - 1000

• Ordering Information:

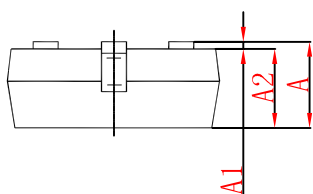
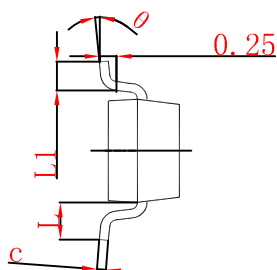
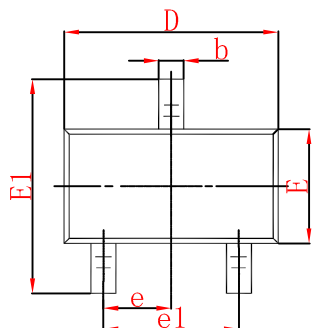
Part NO.	M28S
Marking	28S
Packing Information	REEL TAPE
Basic ordering unit (pcs)	3000

• Typical Characteristics

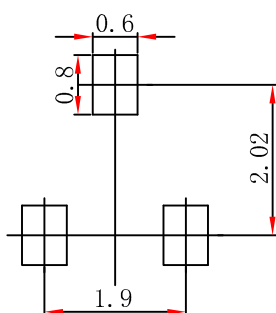




SOT-23 Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
b	0.300	0.500	0.012	0.020
c	0.080	0.150	0.003	0.006
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.950 TYP		0.037 TYP	
e1	1.800	2.000	0.071	0.079
L	0.550 REF		0.022 REF	
L1	0.300	0.500	0.012	0.020
θ	0°	8°	0°	8°



Note:

1. Controlling dimension: in millimeters.
2. General tolerance: $\pm 0.05\text{mm}$.
3. The pad layout is for reference purposes only.