

# MSKSEMI 美森科

SEMICONDUCTOR



ESD



TVS



TSS



MOV



GDT



PLED

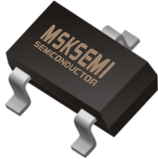

## M28S

Product specification

**FEATURES**

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

**Reference News**

PACKAGE OUTLINE	Foot position analysis	Marking
	<ol style="list-style-type: none"> <li>1. BASE</li> <li>2. EMITTER</li> <li>3. COLLECTOR</li> </ol>	
SOT-23		

**CLASSIFICATION OF  $h_{FE}(2)$**

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

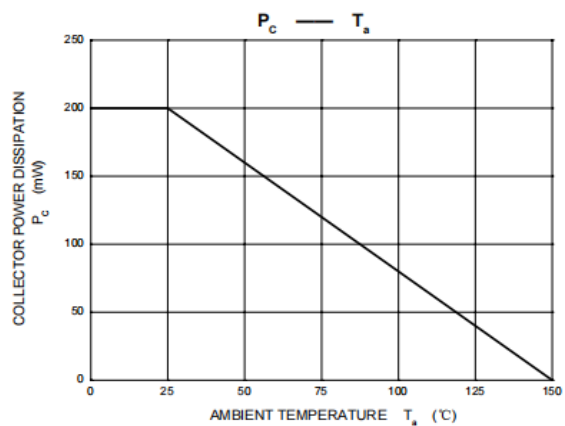
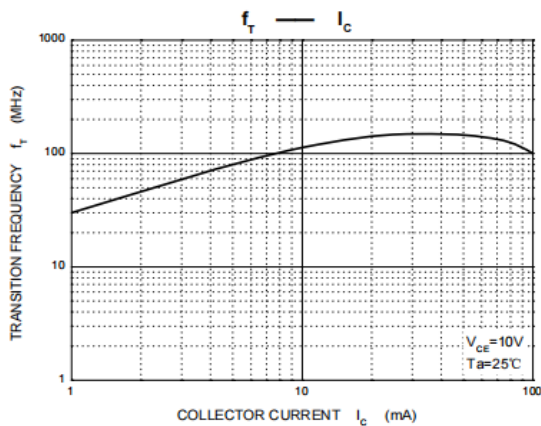
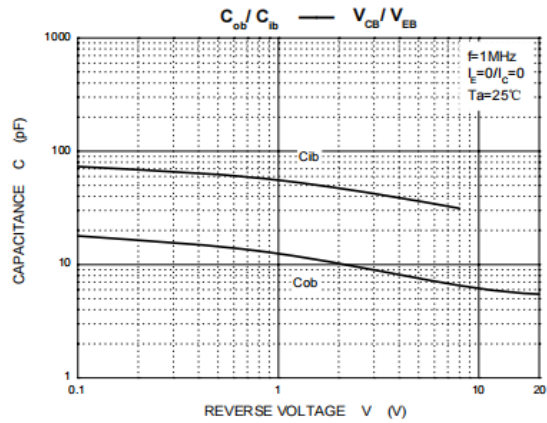
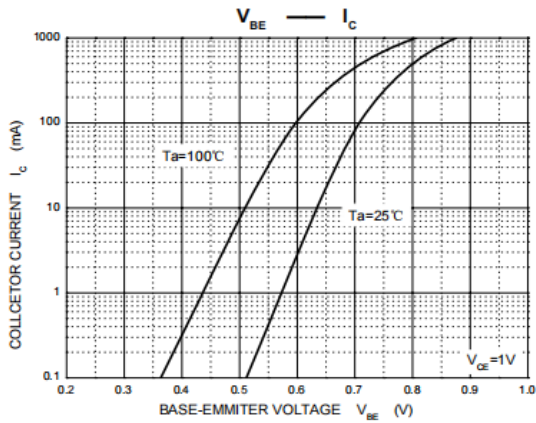
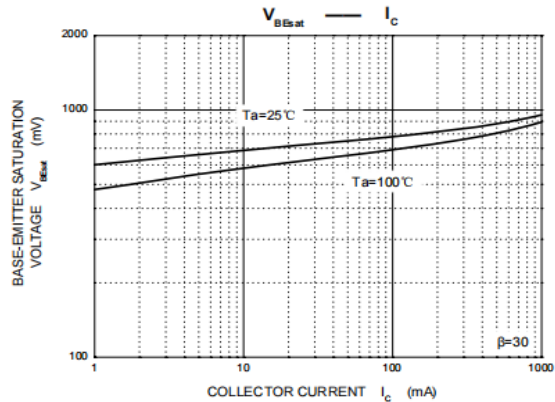
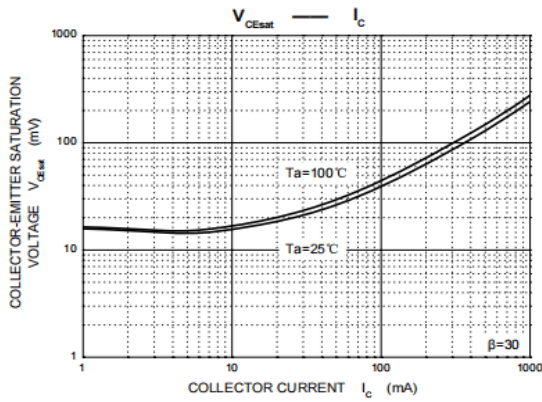
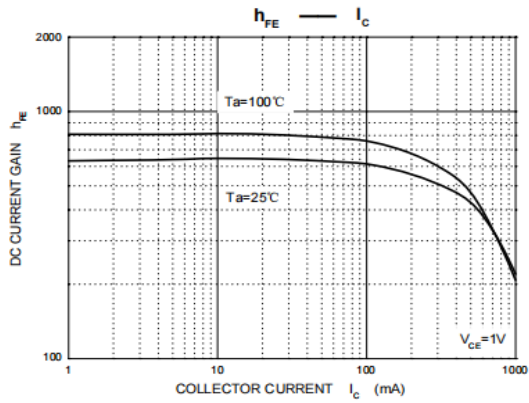
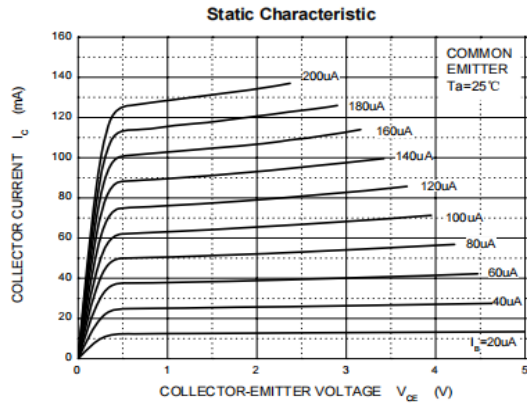
**MAXIMUM RATINGS ( $T_a=25^{\circ}\text{C}$  unless otherwise noted)**

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

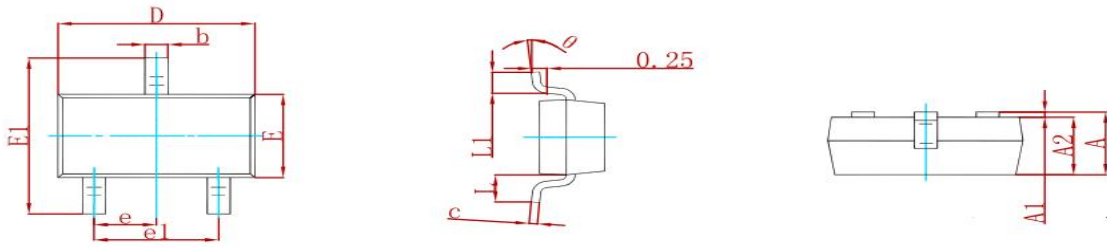
**ELECTRICAL CHARACTERISTICS ( $T_a=25^{\circ}\text{C}$  unless otherwise specified)**

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

# Typical Characteristics

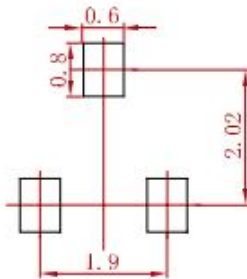


**PACKAGE MECHANICAL DATA**



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°

**Suggested Pad Layout**



Note:

1. Controlling dimension: in millimeters.
2. General tolerance: ±0.05mm.
3. The pad layout is for reference purposes only.

**REEL SPECIFICATION**

P/N	PKG	QTY
M28S	SOT-23	3000

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