



### Features

- For Switching and Amplifier Applications
- Complementary to MMBTA56
- Power Dissipation of 300mW
- High Stability and High Reliability

### Mechanical Data

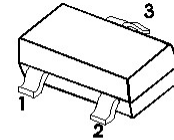
- SOT-23 Small Outline Plastic Package
- Epoxy UL: 94V-0
- Mounting Position: Any

### Marking: FS

### Maximum Ratings & Thermal Characteristics (Ratings at 25°C ambient temperature unless otherwise specified.)

Parameters	Symbol	Value	Unit
Collector-Base Voltage	$V_{CB0}$	80	V
Collector-Emitter Voltage	$V_{CEO}$	80	V
Emitter -Base Voltage	$V_{EBO}$	4	V
Collector Current-Continuous	$I_C$	500	mA
Collector Power Dissipation	$P_C$	300	mW
Junction Temperature	$T_j$	150	°C
Storage Temperature	$T_{stg}$	-55-+150	°C
Thermal resistance From junction to ambient	$R_{\theta JA}$	416	°C/W

### SOT-23

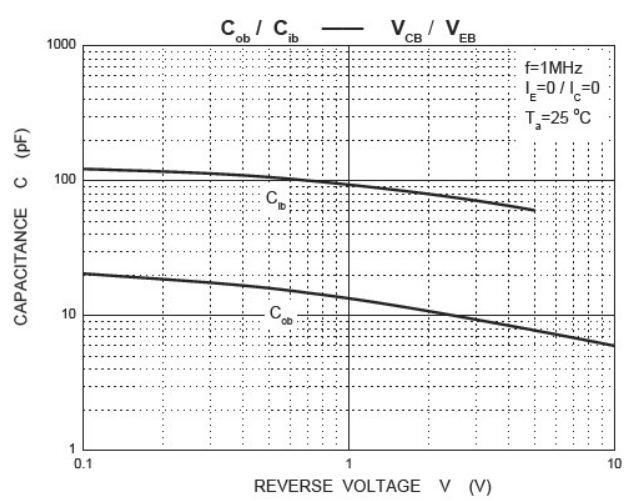
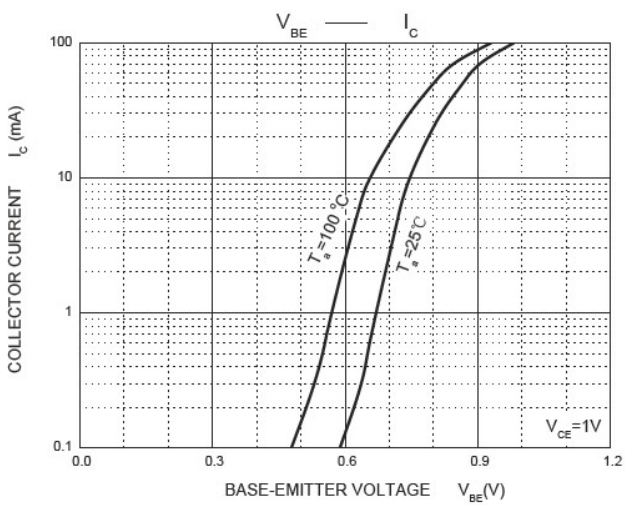
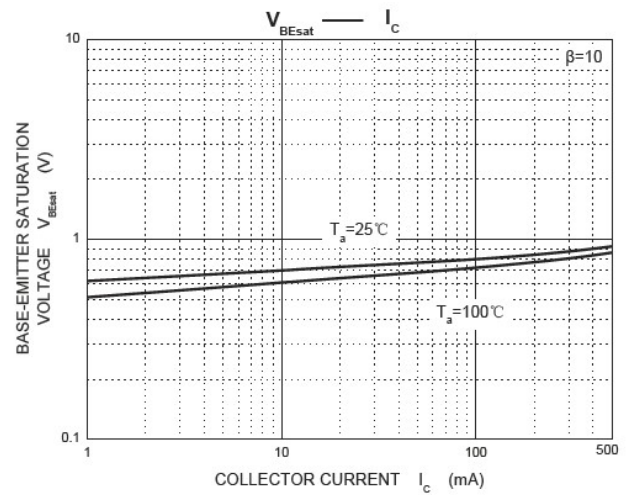
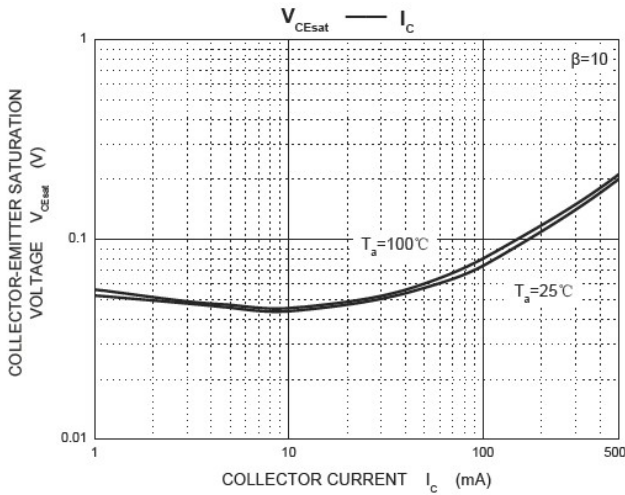
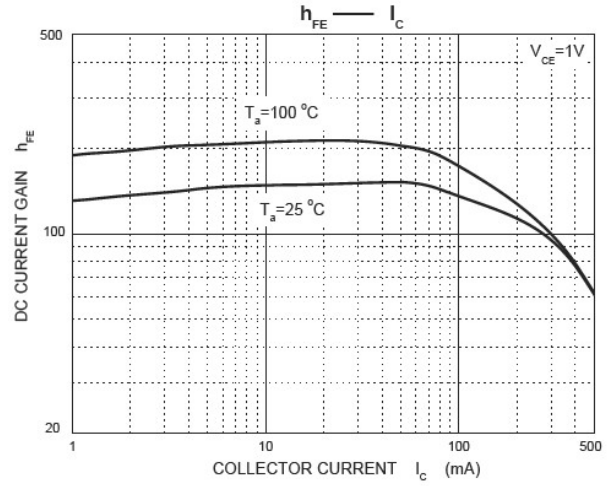
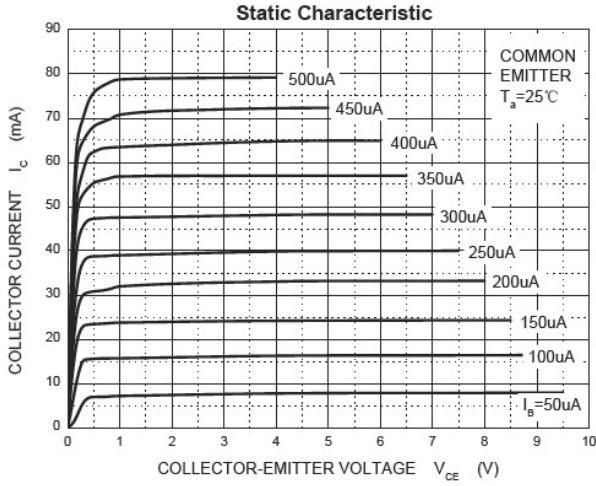


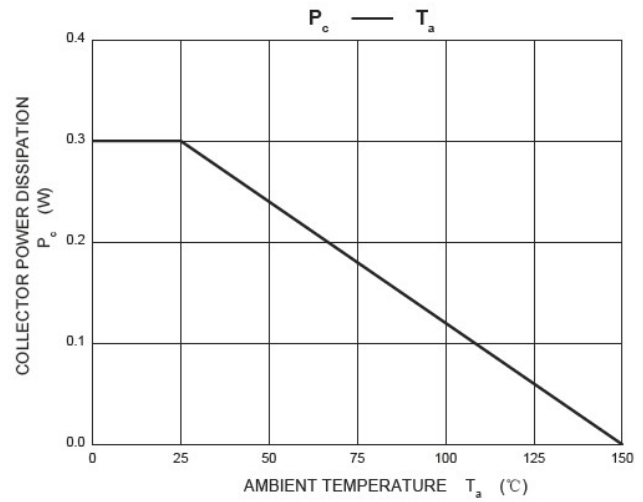
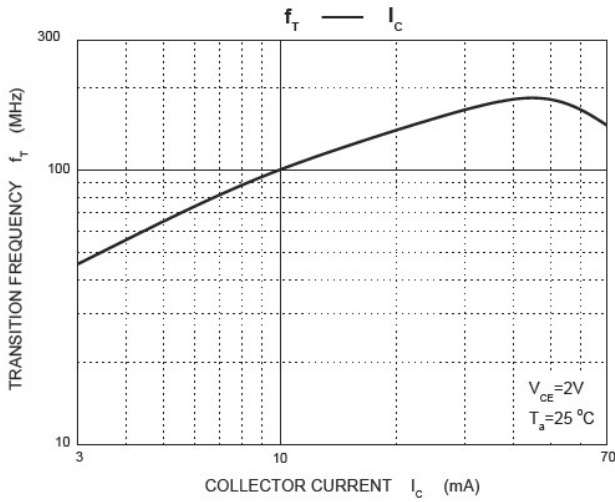
1. BASE
2. EMITTER
3. COLLECTOR

### Electrical Characteristics (Ratings at 25°C ambient temperature unless otherwise specified).

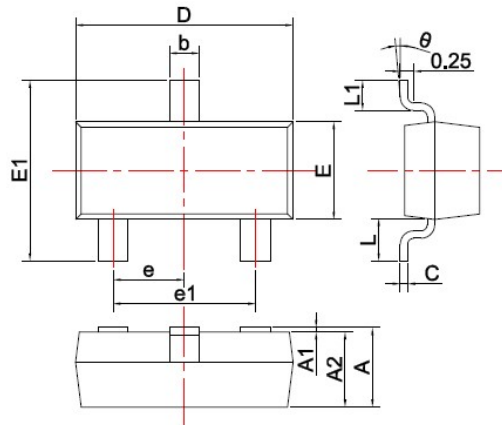
Parameter	Symbols	Test Condition	Limits		Unit
			Min	Max	
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C=100\mu A, I_E=0$	80		V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C=1mA, I_B=0$	80		V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E=100\mu A, I_C=0$	4		V
Collector cut-off current	$I_{CBO}$	$V_{CB}=80V, I_E=0$		100	nA
Collector cut-off current	$I_{CEO}$	$V_{CE}=60V, I_B=0$		1.0	uA
Emitter cut-off current	$I_{EBO}$	$V_{EB}=3V, I_C=0$		100	nA
DC current gain	$h_{FE(1)*}$	$V_{CE}=1V, I_C=10mA$	100	400	
	$h_{FE(2)*}$	$V_{CE}=1V, I_C=100mA$	100		
Collector-emitter saturation voltage	$V_{CE(sat)*}$	$I_C=100mA, I_B=10mA$		0.25	V
Base -emitter saturation voltage	$V_{BE(sat)*}$	$I_C=100mA, I_B=10mA$		1.20	V
Transition frequency	$f_T$	$V_{CE}=2V, I_C=10mA, f=100MHz$	300		MHz

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





### SOT-23 PACKAGE OUTLINE Plastic surface mounted package

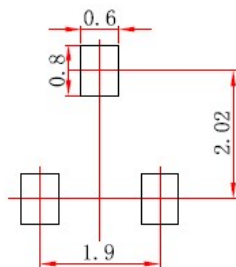


SYMBOL	DIMENSIONS	
	MIN.	MAX.
A	0.900	1.150
A1	0.000	0.100
A2	0.900	1.050
b	0.300	0.500
c	0.080	0.150
D	2.800	3.000
E	1.200	1.400
E1	2.250	2.550
e	0.950TYP	
e1	1.800	2.000
L	0.550REF	
L1	0.300	0.500
θ	0°	8°

Unit: mm

#### Precautions: PCB Design

Recommended land dimensions for SOT-23 diode. Electrode patterns for PCBs



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

### Ordering Information

Package	Reel	Reel Size	Box	Box Size(mm)	Carton	Carton Size(mm)
SOT -23	3000pcs	7inch	45,000pcs	203×203×195	180,000pcs	438×438×220