

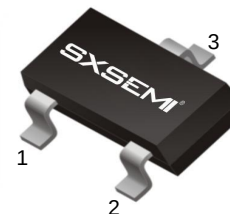
FEATURES

- Low Collector to Emitter Saturation Voltage
- Mini Type Package

MAXIMUM RATINGS (T_a=25°C unless otherwise noted)

Symbol	Parameter	Value	Unit
V _{CBO}	Collector-Base Voltage	30	V
V _{CEO}	Collector-Emitter Voltage	25	V
V _{EBO}	Emitter-Base Voltage	5	V
I _C	Collector Current	500	mA
P _C	Collector Power Dissipation	200	mW
R _{θJA}	Thermal Resistance From Junction To Ambient	625	°C/W
T _J , T _{stg}	Operation Junction and Storage Temperature Range	-55 ~ +150	°C

SOT -23



1. BASE
2. EMITTER
3. COLLECTOR

ELECTRICAL CHARACTERISTICS (T_a=25°C unless otherwise specified)

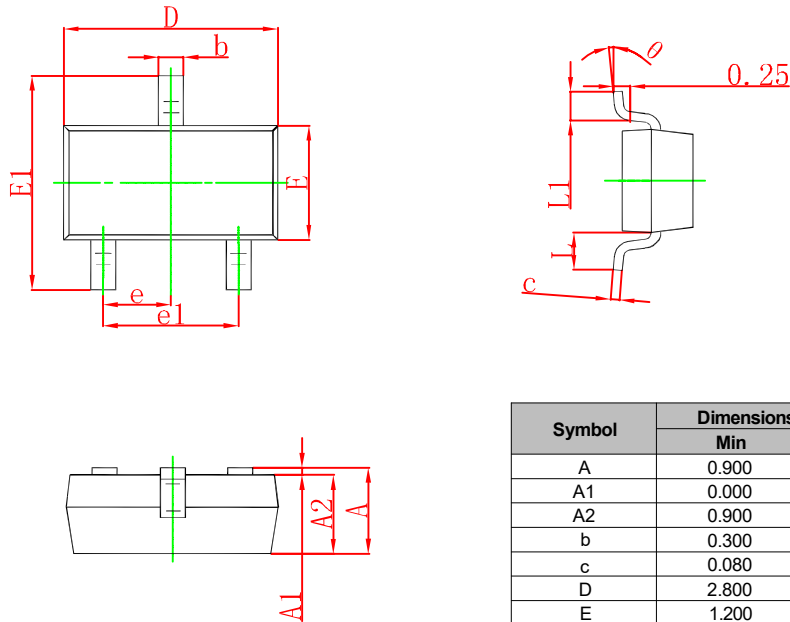
Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	V _{(BR)CBO}	I _C =10μA, I _E =0	30			V
Collector-emitter breakdown voltage	V _{(BR)CEO}	I _C =10mA, I _B =0	25			V
Emitter-base breakdown voltage	V _{(BR)EBO}	I _E =10μA, I _C =0	5			V
Collector cut-off current	I _{CBO}	V _{CB} =20V, I _E =0			0.1	μA
Emitter cut-off current	I _{EBO}	V _{EB} =5V, I _C =0			0.1	μA
DC current gain	h _{FE(1)} *	V _{CE} =10V, I _C =0.15A	85		340	
	h _{FE(2)} *	V _{CE} =10V, I _C =0.5A	40			
Collector-emitter saturation voltage	V _{CE(sat)} *	I _C =0.3A, I _B =0.03A			0.6	V
Transition frequency	f _T	V _{CE} =10V, I _C =0.05A, f=200MHz		200		MHz
Collector output capacitance	C _{ob}	V _{CB} =10V, I _E =0, f=1MHz			15	pF

*Pulse test: pulse width ≤350μs, duty cycles ≤ 2.0%.

CLASSIFICATION OF h_{FE(1)}

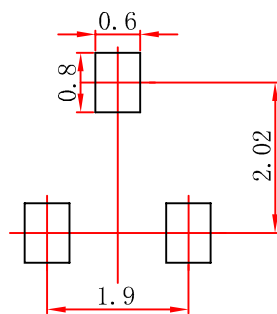
RANK	Q	R	S
RANGE	85 – 170	120 – 240	170 – 340
MARKING	WQ1	WR1	WS1

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°

SOT-23 Suggested Pad Layout



Note:

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