



TRANSISTOR (NPN)

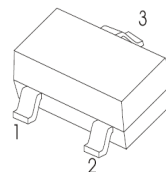
FEATURES

- Low collector to emitter saturation voltage
 $V_{CE(sat)}=0.3V$ max(@ $I_C=100mA, I_B=10mA$)
- Excellent linearity of DC forward current gain

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

Symbol	Parameter	Value	Unit
V_{CBO}	Collector- Base Voltage	50	V
V_{CEO}	Collector-Emitter Voltage	50	V
V_{EBO}	Emitter-Base Voltage	6	V
I_C	Collector Current -Continuous	0.2	A
P_C	Collector Power Dissipation	150	mW
T_J	Junction Temperature	125	$^{\circ}C$
T_{stg}	Storage Temperature	-55-125	$^{\circ}C$

SOT-23



1. BASE
2. EMITTER
3. COLLECTOR

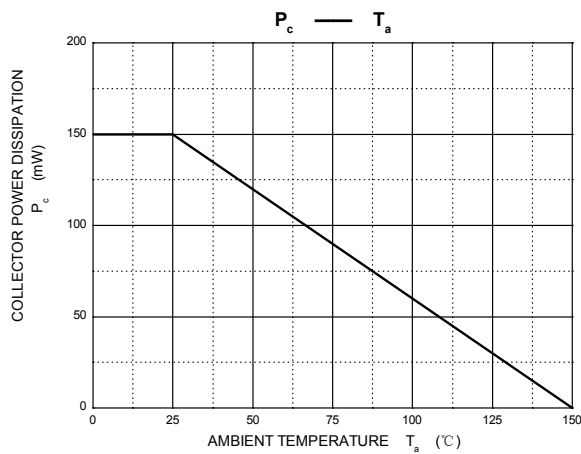
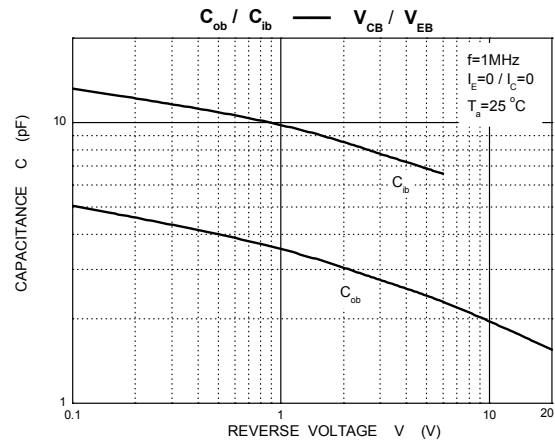
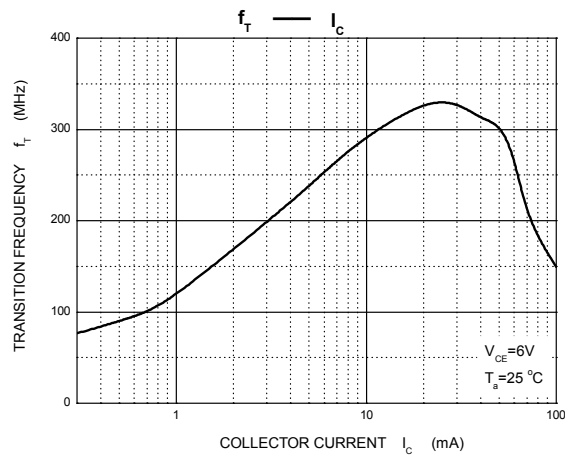
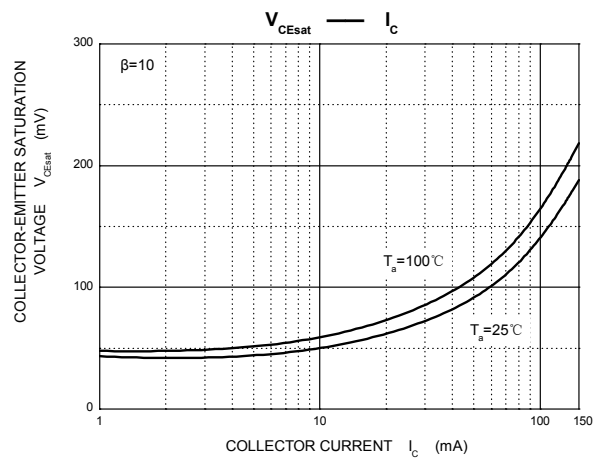
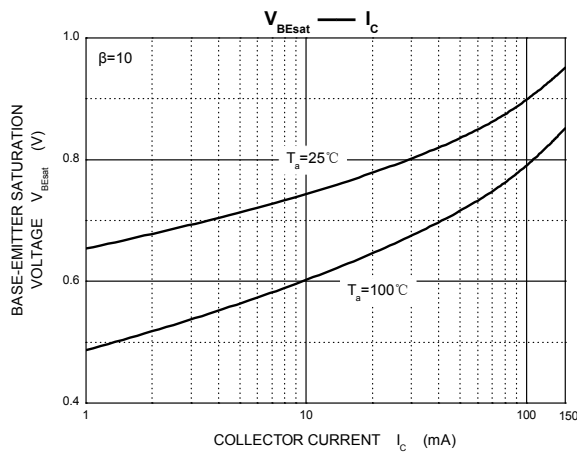
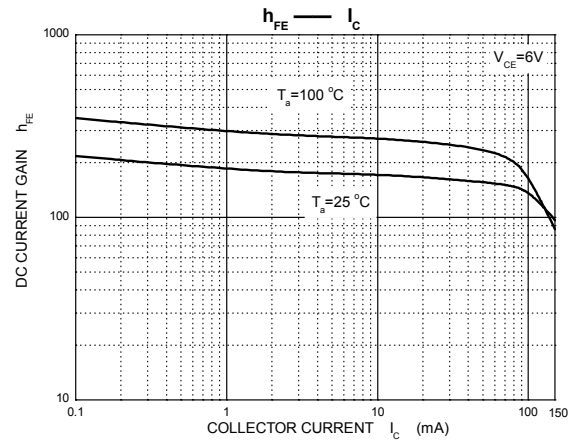
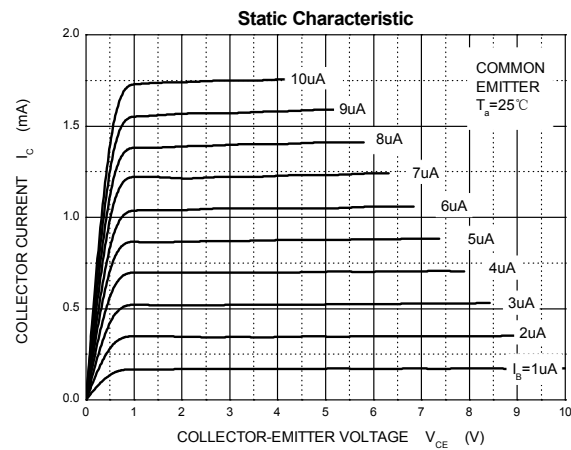
ELECTRICAL CHARACTERISTICS ($T_a=25^{\circ}C$ unless otherwise specified)

Parameter	Symbol	Test conditions	Min	Max	Unit
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C = 100 \mu A, I_E=0$	50		V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C = 100 \mu A, I_B=0$	50		V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E= 100 \mu A, I_C=0$	6		V
Collector cut-off current	I_{CBO}	$V_{CB}= 50 V, I_E=0$		0.1	μA
Emitter cut-off current	I_{EBO}	$V_{EB}= 6V, I_C=0$		0.1	μA
DC current gain	$h_{FE(1)}$	$V_{CE}= 6V, I_C= 1mA$	150	800	
	$h_{FE(2)}$	$V_{CE}= 6V, I_C= 0.1mA$	50		
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C=100mA, I_B= 10mA$		0.3	V
Base-emitter saturation voltage	$V_{BE(sat)}$	$I_C= 100mA, I_B= 10mA$		1	V
Transition frequency	f_T	$V_{CE}= 6V, I_C= 10mA$	180		MHz
Collector output capacitance	C_{ob}	$V_{CB}=6V, I_E=0, f=1MHz$		4	pF
Noise figure	NF	$V_{CE}=6V, I_E=-0.1mA, f=1KHz, R_G=2K\Omega$		15	dB

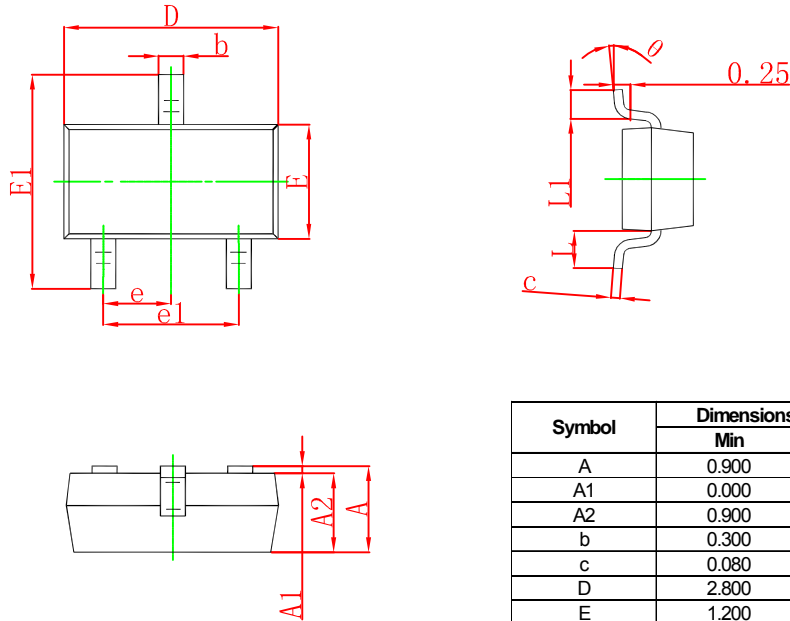
CLASSIFICATION OF $h_{FE(1)}$

Rank	E	F	G
Range	150~300	250~500	400~800
Marking	LE	LF	LG

Typical Characteristics

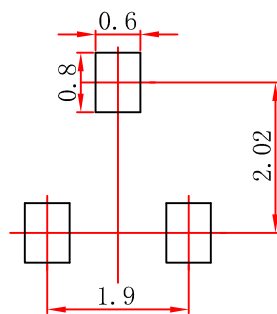


SOT-23 Package Outline Dimensions



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°

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.