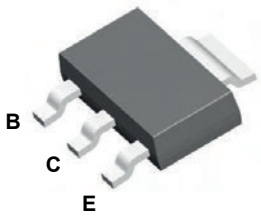
GOOD-ARK SEMICONDUCTOR

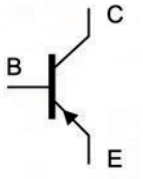
PZT3906
PNP Transistor

Features

- Low voltage and low current
- Complementary to PZT3904
- General purpose amplifier and switch application



SOT-223



Schematic Diagram

Absolute Maximum Ratings (T_A=25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Collector-Base Voltage	V_{CBO}	-40	V
Collector-Emitter Voltage	V_{CEO}	-40	V
Emitter-Base Voltage	V_{EBO}	-5	V
Collector Current	I_C	-200	mA
Collector Power Dissipation	P_C	1	W
Thermal Resistance From Junction to Ambient	$R_{\theta JA}$	125	°C/W
Operation Junction and Storage Temperature Range	T_J, T_{stg}	-55 to +150	°C

Electrical Characteristics (T_A=25°C unless otherwise noted)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector-Base Breakdown Voltage[1]	$V_{(BR)CBO}$	I_C=-0.01mA, I_E=0	-40	-	-	V
Collector-Emitter Breakdown Voltage[1]	$V_{(BR)CEO}$	I_C=-1mA, I_B=0	-40	-	-	V
Emitter-Base Breakdown Voltage[1]	$V_{(BR)EBO}$	I_E=0.01mA, I_C=0	-5	-	-	V
Collector Cut-Off Current	I_{CBO}	V_{CB}=-30V, I_E=0	-	-	-50	nA
Collector Cut-Off Current	I_{CEX}	V_{CE}=-30V, $V_{BE(off)}$=-3V	-	-	-50	nA
DC Current Gain	$h_{FE(1)}$[1]	V_{CE}=-1V, I_C=-0.1mA	60	-	-	-
	$h_{FE(2)}$	V_{CE}=-1V, I_C=-1mA	80	-	-	-
	$h_{FE(3)}$	V_{CE}=-1V, I_C=-10mA	100	-	300	-
	$h_{FE(4)}$	V_{CE}=-1V, I_C=-50mA	60	-	-	-
Collector-Emitter Saturation Voltage[1]	$V_{CE(sat)}$	I_C=-10mA, I_B=-1mA	-	-	-0.25	V
		I_C=-50mA, I_B=-5mA	-	-	-0.4	V
Base-Emitter Saturation Voltage[1]	$V_{BE(sat)}$	I_C=-10mA, I_B=-1mA	-0.65	-	-0.85	V
		I_C=-50mA, I_B=-5mA	-	-	-0.95	V
Transition Frequency	f_T	V_{CE}=-20V, I_C=-10mA, F=100MHz	250	-	-	MHz
Collector Output Capacitance	C_{ob}	V_{CB}=-5V, I_E=0, F=1MHz	-	-	4.5	pF
Emitter Input Capacitance	C_{ib}	V_{BE}=-0.5V, I_C=0, F=1MHz	-	-	10	pF
Delay Time	t_d	V_{CC}=-3V, $V_{BE(off)}$=-0.5V, I_C=-10mA, I_{B1}=-I_{B2}=-1mA	-	-	35	nS
Rise Time	t_r		-	-	35	
Storage Time	t_s	V_{CC}=-3V, I_C=-10mA, I_{B1}=-I_{B2}=-1mA	-	-	225	nS
Fall Time	t_f		-	-	75	

Note:

1. Pulse test: pulse width ≤ 300μs, duty cycle ≤ 2.0%.

Typical Electrical Characteristic Curves

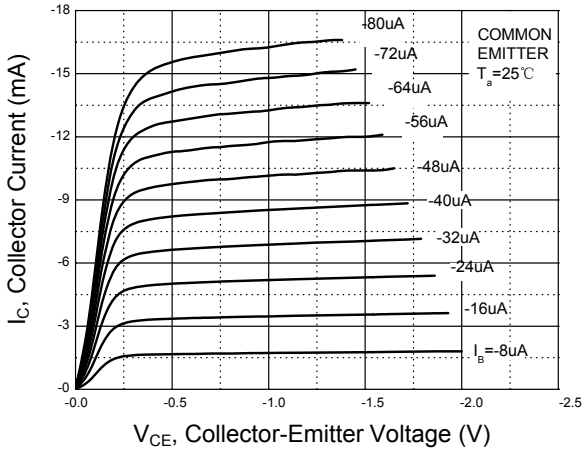


Figure 1. Static Characteristic

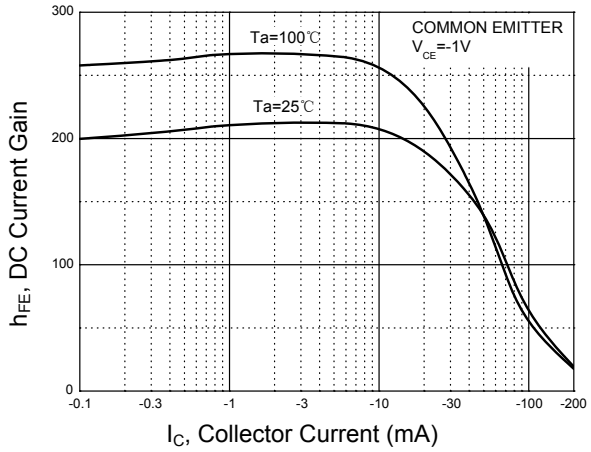


Figure 2. h_{FE} — I_C

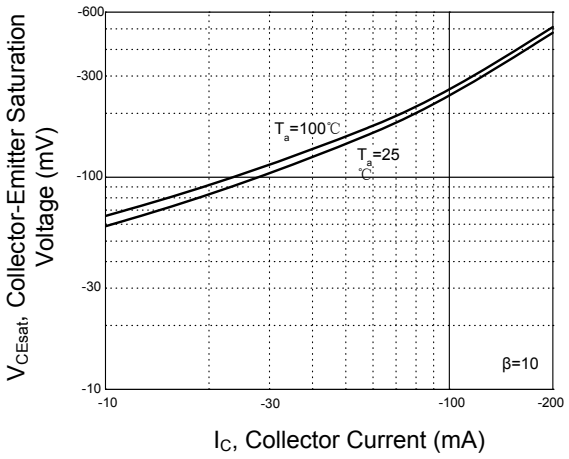


Figure 3. V_{CEsat} — I_C

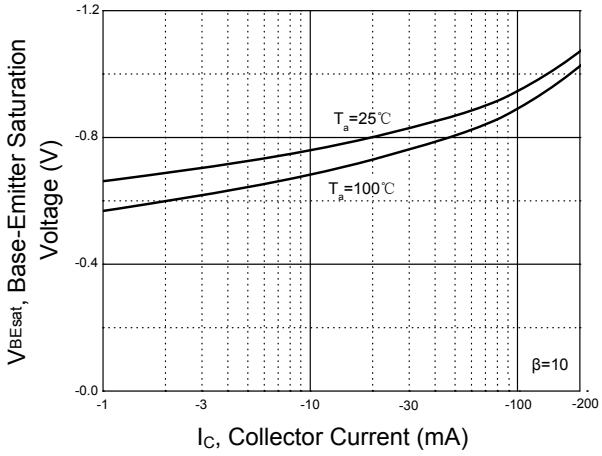


Figure 4. V_{BEsat} — I_C

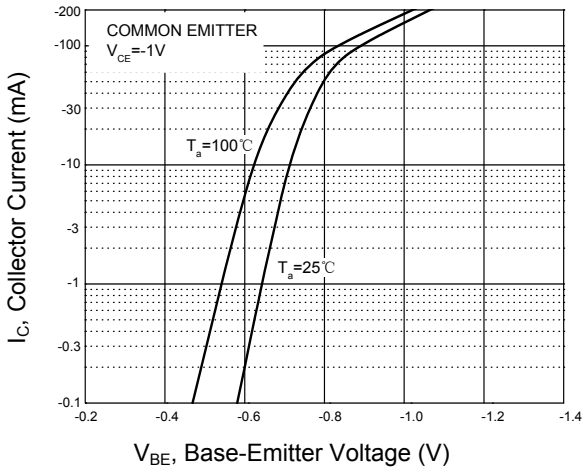


Figure 5. I_C — V_{BE}

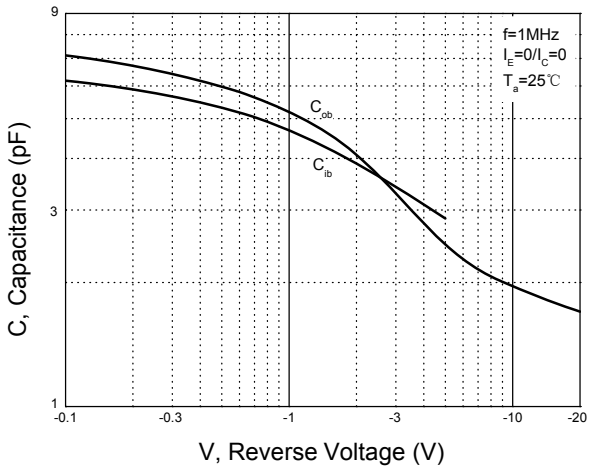


Figure 6. C_{ob}/C_{ib} — V_{CB}/V_{EB}

Typical Electrical Characteristic Curves

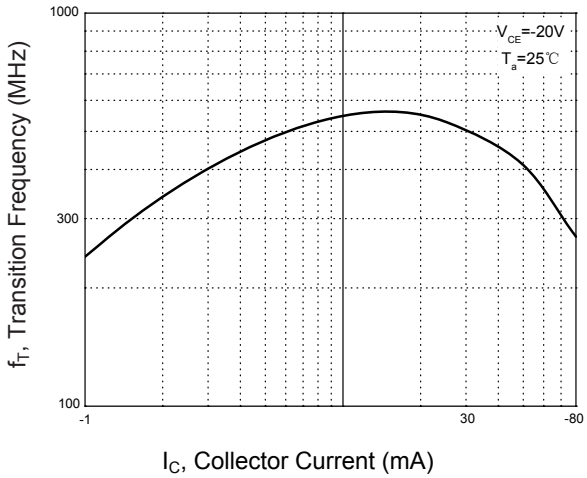


Figure 6. f_T — I_C

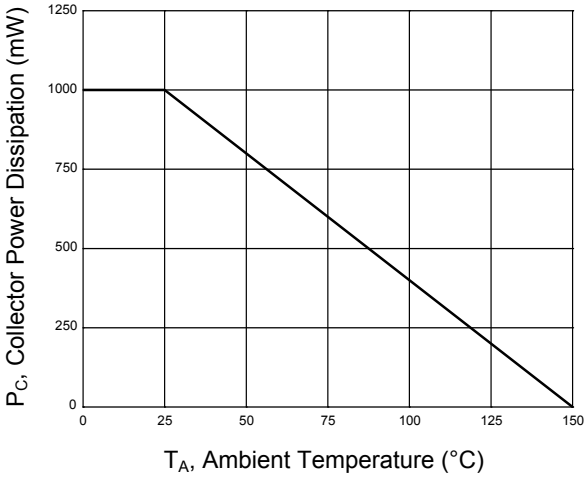
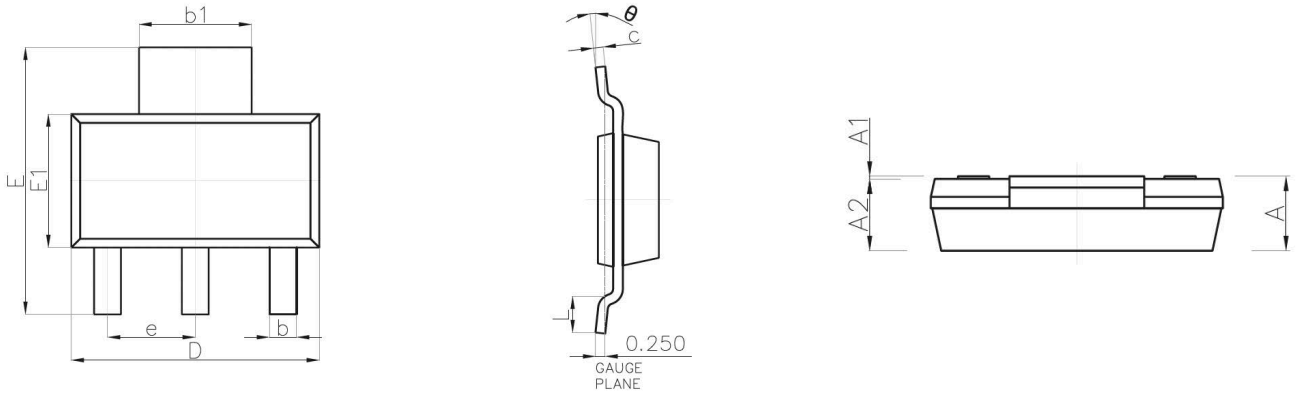


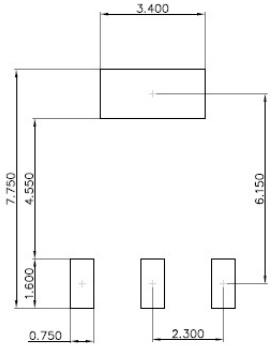
Figure 8. P_C — T_a

Package Outline Dimensions (SOT-223)



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	-	1.800	-	0.071
A1	0.020	0.100	0.001	0.004
A2	1.500	1.700	0.059	0.067
b	0.660	0.840	0.026	0.033
b1	2.900	3.100	0.114	0.122
c	0.230	0.350	0.009	0.014
D	6.300	6.700	0.248	0.264
E	6.700	7.300	0.264	0.287
E1	3.300	3.700	0.130	0.146
e	2.300 (BSC)		0.091 (BSC)	
L	0.750	-	0.030	-
θ	0°	10°	0°	10°

Recommended Pad Layout



Note:

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

Order Information

Device	Package	Marking	Quantity	HSF Status
PZT3906	SOT-223	ZT3906	2,500pcs / Reel	RoHS Compliant