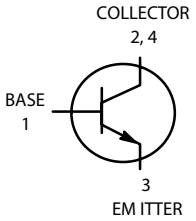
WEITRON

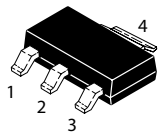
PZT2222A

NPN Silicon Planar Epitaxial Transistor

Lead(Pb)-Free



SOT-223



1. BASE
2.COLLECTOR
3.EMITTER
4.COLLECTOR

ABSOLUTE MAXIMUM RATINGS (Ta=25°C)

Rating	Symbol	Value	Unit
Collector-Emitter Voltage	V_{CEO}	40	Vdc
Collector-Base Voltage	V_{CBO}	75	Vdc
Emitter-Base Voltage	V_{EBO}	6.0	Vdc
Collector Current (DC)	$I_{C(DC)}$	600	Adc
Total Device Disspation T_A=25°C	P_D	1.5	W
Junction Temperature	T_j	150	°C
Storage, Temperature	Tstg	-65 to +150	°C

Device Marking

PZT2222A=GT2222A

ELECTRICAL CHARACTERISTICS

Characteristics	Symbol	Min	Max	Unit
Collector-Emitter Breakdown Voltage (I_C= 10 mAdc, I_B=0)	$V_{(BR)CEO}$	40	-	Vdc
Collector-Base Breakdown Voltage (I_C=10 µAdc, I_E=0)	$V_{(BR)CBO}$	75	-	Vdc
Emitter-Base Breakdown Voltage (I_E= 10 µAdc, I_C=0)	$V_{(BR)EBO}$	6.0	-	Vdc
Base-Emitter Cutoff Current (V_{CE}= 60 Vdc, V_{BE}=-3.0Vdc)	I_{BEX}	-	20	nAdc
Collector-Emitter Cutoff Current (V_{CE}= 60 Vdc, V_{BE}=-3.0Vdc)	I_{CEX}	-	10	nAdc
Emitter-Base Cutoff Current (V_{EB}= 3.0Vdc, I_C=0)	I_{EBO}	-	100	nAdc

NOTE: 1.Device mounted on an epoxy printed circuit board 1.575 inches×1.575 inches×0.059 inches; mounting pad for the collector lead min. 0.93 inches.^{2}

ELECTRICALCHARACTERISTICS— Continued (T_A = 25°C unless otherwise noted)

Characteristic	Symbol	Min	Max	Unit
OFF CHARACTERISTICS (continued)				
Collector-Base Cutoff Current	I_{CBO}			
(V_{CB} = 60 Vdc, I_E = 0)		-	10	nAdc
(V_{CB} = 60 Vdc, I_E = 0, T_A = 125°C)		-	10	uAdc
ON CHARACTERISTICS				
DC Current Gain	h_{FE}			-
(I_C = 0.1 mAdc, V_{CE} = 10 Vdc)		35	-	
(I_C = 1.0 mAdc, V_{CE} = 10 Vdc)		50	-	
(I_C = 10 mAdc, V_{CE} = 10 Vdc)		70	-	
(I_C = 10 mAdc, V_{CE} = 10 Vdc, T_A = -55°C)		35	-	
(I_C = 150 mAdc, V_{CE} = 10 Vdc)		100	300	
(I_C = 150 mAdc, V_{CE} = 1.0 Vdc)		50	-	
(I_C = 500 mAdc, V_{CE} = 10 Vdc)		40	-	
Collector-Emitter Saturation Voltages	$V_{CE(sat)}$			Vdc
(I_C = 150 mAdc, I_B = 15 mAdc)		-	0.3	
(I_C = 500 mAdc, I_B = 50 mAdc)		-	1.0	
Base-Emitter Saturation Voltages	$V_{BE(sat)}$			Vdc
(I_C = 150 mAdc, I_B = 15 mAdc)		0.6	1.2	
(I_C = 500 mAdc, I_B = 50 mAdc)		-	2.0	
Input Impedance	h_{ie}			kΩ
(V_{CE} = 10 Vdc, I_C = 1.0 mAdc, f = 1.0 kHz)		2.0	8.0	
(V_{CE} = 10 Vdc, I_C = 10 mAdc, f = 1.0 kHz)		0.25	1.25	
Voltage Feedback Ratio	h_{re}			-
(V_{CE} = 10 Vdc, I_C = 1.0 mAdc, f = 1.0 kHz)		-	$8.0x10^{-4}$	
(V_{CE} = 10 Vdc, I_C = 10 mAdc, f = 1.0 kHz)		-	$4.0x10^{-4}$	
Small-Signal Current Gain	h_{fe}			-
(V_{CE} = 10 Vdc, I_C = 1.0 mAdc, f = 1.0 kHz)		50	300	
(V_{CE} = 10 Vdc, I_C = 10 mAdc, f = 1.0 kHz)		75	375	
Output Admittance	h_{oe}			umhos
(V_{CE} = 10 Vdc, I_C = 1.0 mAdc, f = 1.0 kHz)		5.0	35	
(V_{CE} = 10 Vdc, I_C = 10 mAdc, f = 1.0 kHz)		25	200	
Noise Figure (V_{CE} = 10 Vdc, I_C = 100 uAdc, f = 1.0 kHz)	F	-	4.0	dB
DYNAMICCHARACTERISTICS				
Current-Gain— Bandwidth Product (I_C = 20 mAdc, V_{CE} = 20 Vdc, f = 100 MHz)	f_T	300	-	MHz
Output Capacitance (V_{CB} = 10 Vdc, I_E = 0, f = 1.0 MHz)	C_c	-	8.0	pF
Input Capacitance (V_{EB} = 0.5 Vdc, I_C = 0, f = 1.0 MHz)	C_e	-	25	pF

SWITCHINGTIMES (T_A = 25°C)

Delay Time	(V_{CC} = 30 Vdc, I_C = 150 mAdc, $I_{B(on)}$ = 15 mAdc, $V_{EB(off)}$ = 0.5Vdc) Figure 1	t_d	-	10	ns
Rise Time		t_r	-	25	
Storage Time	(V_{CC} = 30 Vdc, I_C = 150 mAdc, $I_{B(on)}$ = $I_{B(off)}$ = 15 mAdc) Figure 2	t_s	-	225	ns
Fall Time		t_f	-	60	

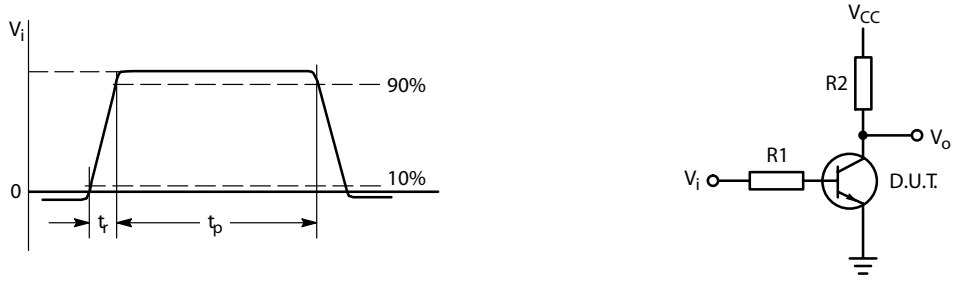


FIG.1 Input Waveform and Test Circuit for Determining Delay Time and Rise Time

V_i = - 0.5 V to +9.9 V , V_{CC} = +30 V, R1 = 619Ω, R2 = 200Ω.

PULSE GENERATOR:			
PULSE DURATION	t_p	≤	**200 ns**
RISE TIME	t_r	≤	**2 ns**
DUTY FACTOR	δ	=	**0.02**

OSCILLOSCOPE:			
INPUT IMPEDANCE	Z_i	>	**100 kΩ**
INPUT CAPACITANCE	C_i	<	**12 pF**
RISE TIME	t_r	<	**5 ns**

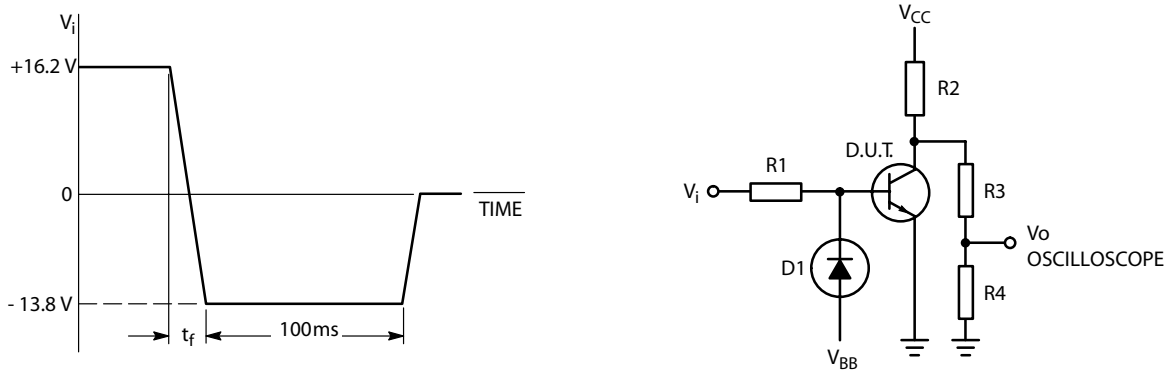
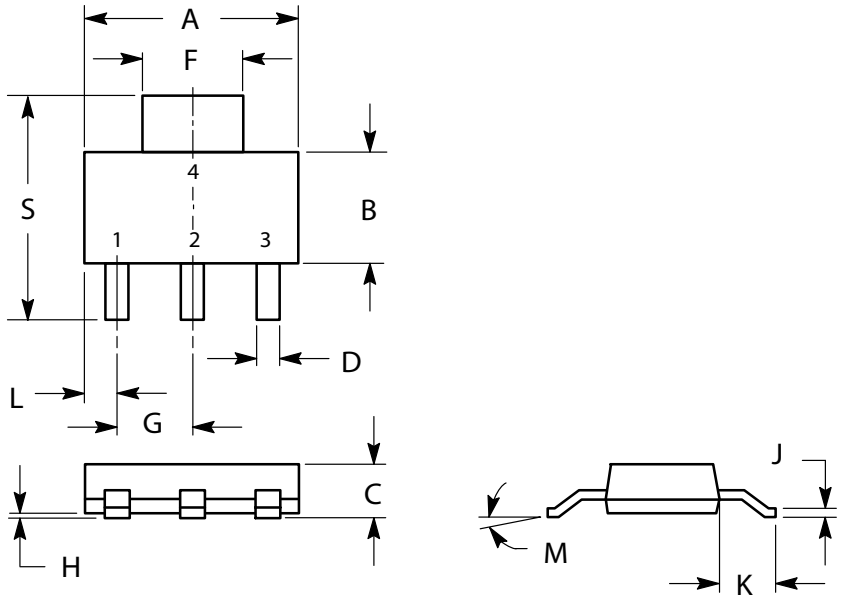


FIG.2 Input Waveform and Test Circuit for Determining Storage Time and Fall Time

SOT-223 Outline Dimensions

unit:mm



	MILLIMETERS	
DIM	MIN	MAX
A	6.30	6.70
B	3.30	3.70
C	1.50	1.75
D	0.60	0.89
F	2.90	3.20
G	2.20	2.40
H	0.020	0.100
J	0.24	0.35
K	1.50	2.00
L	0.85	1.05
M	0°	10°
S	6.70	7.30