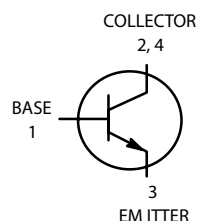
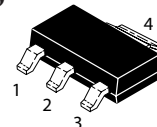


NPN Silicon Planar Epitaxial Transistor



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	V _{dc}
Collector-Base Voltage	V _{CBO}	75	V _{dc}
Emitter-Base Voltage	V _{EBO}	6.0	V _{dc}
Collector Current (DC)	I _{C(DC)}	600	A _{dc}
Total Device Dissipation T _A =25°C	P _D	1.5	W
Junction Temperature	T _j	150	°C
Storage, Temperature	T _{stg}	-65 to +150	°C

Device Marking

PZT2222A=GT2222A

ELECTRICAL CHARACTERISTICS

Characteristics	Symbol	Min	Max	Unit
Collector-Emitter Breakdown Voltage (I _C = 10 mA _{dc} , I _B =0)	V _{(BR)CEO}	40	-	V _{dc}
Collector-Base Breakdown Voltage (I _C =10 μA _{dc} , I _E =0)	V _{(BR)CBO}	75	-	V _{dc}
Emitter-Base Breakdown Voltage (I _E = 10 μA _{dc} , I _C =0)	V _{(BR)EBO}	6.0	-	V _{dc}
Base-Emitter Cutoff Current (V _{CE} = 60 V _{dc} , V _{BE} =-3.0V _{dc})	I _{BEX}	-	20	nA _{dc}
Collector-Emitter Cutoff Current (V _{CE} = 60 V _{dc} , V _{BE} =-3.0V _{dc})	I _{CEx}	-	10	nA _{dc}
Emitter-Base Cutoff Current (V _{EB} = 3.0V _{dc} , I _C =0)	I _{EBO}	-	100	nA _{dc}

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

PZT2222A



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

Characteristic	Symbol	Min	Max	Unit
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OFF CHARACTERISTICS (continued)

Collector-Base Cutoff Current (V _{CB} = 60 Vdc, I _E = 0) (V _{CB} = 60 Vdc, I _E = 0, T _A = 125°C)	I _{CBO}	-	10	nAdc
		-	10	uAdc

ON CHARACTERISTICS

DC Current Gain (I _C = 0.1 mAdc, V _{CE} = 10 Vdc) (I _C = 1.0 mAdc, V _{CE} = 10 Vdc) (I _C = 10 mAdc, V _{CE} = 10 Vdc) (I _C = 10 mAdc, V _{CE} = 10 Vdc, T _A = -55°C) (I _C = 150 mAdc, V _{CE} = 10 Vdc) (I _C = 150 mAdc, V _{CE} = 1.0 Vdc) (I _C = 500 mAdc, V _{CE} = 10 Vdc)	h _{FE}	35	-	-
		50	-	-
		70	-	-
		35	-	-
		100	300	-
		50	-	-
		40	-	-
Collector-Emitter Saturation Voltages (I _C = 150 mAdc, I _B = 15 mAdc) (I _C = 500 mAdc, I _B = 50 mAdc)	V _{CE(sat)}	-	0.3	Vdc
		-	1.0	
Base-Emitter Saturation Voltages (I _C = 150 mAdc, I _B = 15 mAdc) (I _C = 500 mAdc, I _B = 50 mAdc)	V _{BE(sat)}	0.6	1.2	Vdc
		-	2.0	
Input Impedance (V _{CE} = 10 Vdc, I _C = 1.0 mAdc, f = 1.0 kHz) (V _{CE} = 10 Vdc, I _C = 10 mAdc, f = 1.0 kHz)	h _{ie}	2.0	8.0	kΩ
		0.25	1.25	
Voltage Feedback Ratio (V _{CE} = 10 Vdc, I _C = 1.0 mAdc, f = 1.0 kHz) (V _{CE} = 10 Vdc, I _C = 10 mAdc, f = 1.0 kHz)	h _{re}	-	8.0x10 ⁴	-
		-	4.0x10 ⁴	
Small-Signal Current Gain (V _{CE} = 10 Vdc, I _C = 1.0 mAdc, f = 1.0 kHz) (V _{CE} = 10 Vdc, I _C = 10 mAdc, f = 1.0 kHz)	h _{fe}	50	300	-
		75	375	
Output Admittance (V _{CE} = 10 Vdc, I _C = 1.0 mAdc, f = 1.0 kHz) (V _{CE} = 10 Vdc, I _C = 10 mAdc, f = 1.0 kHz)	h _{oe}	5.0	35	umhos
		25	200	
Noise Figure (V _{CE} = 10 Vdc, I _C = 100 uAdc, f = 1.0 kHz)	F	-	4.0	dB

DYNAMIC CHARACTERISTICS

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

SWITCHING TIMES (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	

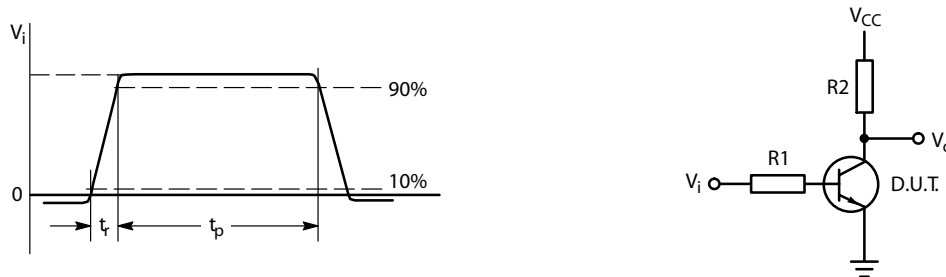


FIG.1 Input Waveform and Test Circuit for Determining Delay Time and Rise Time

$V_i = -0.5 \text{ V to } +9.9 \text{ V}$, $V_{CC} = +30 \text{ V}$, $R_1 = 619 \Omega$, $R_2 = 200 \Omega$.

PULSE GENERATOR:

PULSE DURATION	$t_p \leq 200 \text{ ns}$
RISE TIME	$t_r \leq 2 \text{ ns}$
DUTY FACTOR	$\delta = 0.02$

OSCILLOSCOPE:

INPUT IMPEDANCE	$Z_i > 100 \text{ k}\Omega$
INPUT CAPACITANCE	$C_i < 12 \text{ pF}$
RISE TIME	$t_r < 5 \text{ ns}$

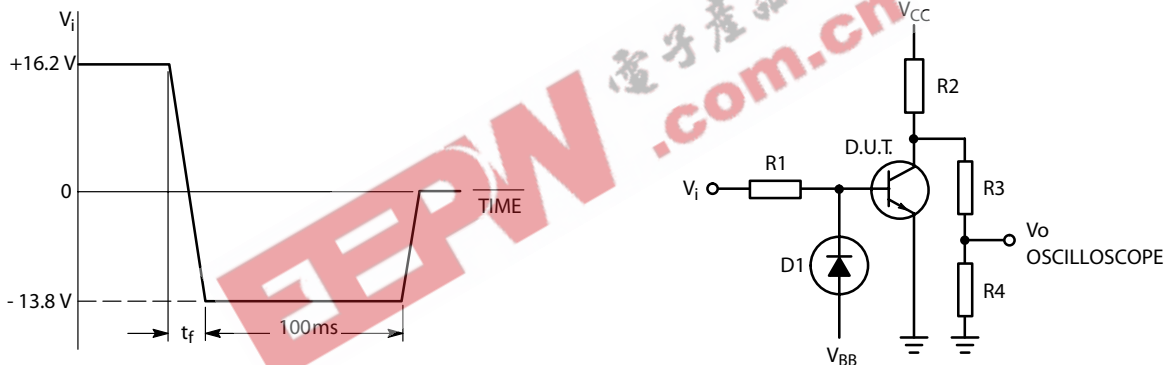


FIG.2 Input Waveform and Test Circuit for Determining Storage Time and Fall Time

SOT-223 Outline Dimensions

unit:mm

