

SOT223 NPN SILICON PLANAR SWITCHING TRANSISTOR

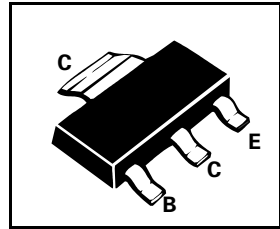
FZT2222A

ISSUE 3 - OCTOBER 1995

FEATURES

- * 40 Volt V_{CE0}
- * Fast switching

COMPLEMENTARY TYPE - FZT2907A
 PARTMARKING DETAIL - FZT2222A



ABSOLUTE MAXIMUM RATINGS.

PARAMETER	SYMBOL	VALUE	UNIT
Collector-Base Voltage	V_{CBO}	75	V
Collector-Emitter Voltage	V_{CEO}	40	V
Emitter-Base Voltage	V_{EBO}	5	V
Continuous Collector Current	I_C	600	mA
Power Dissipation at $T_{amb}=25^\circ\text{C}$	P_{tot}	2	W
Operating and Storage Temperature Range	$T_j; T_{stg}$	-55 to +150	$^\circ\text{C}$

ELECTRICAL CHARACTERISTICS (at $T_{amb} = 25^\circ\text{C}$ unless otherwise stated).

PARAMETER	SYMBOL	VALUE		UNIT	CONDITIONS.
		MIN.	MAX.		
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	75		V	$I_C=10\mu\text{A}, I_E=0$
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	40		V	$I_C=10\text{mA}, I_B=0^*$
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	6		V	$I_E=10\mu\text{A}, I_C=0$
Collector Cut-Off Current	I_{CBO}		10 10	nA μA	$V_{CB}=50\text{V}, I_E=0$ $V_{CB}=50\text{V}, I_E=0, T_{amb}=150^\circ\text{C}$
Emitter Cut-Off Current	I_{EBO}		10	nA	$V_{EB}=3\text{V}, I_C=0$
Collector-Emitter Cut-Off Current	I_{CEX}		10	nA	$V_{CE}=60\text{V}, V_{EB(off)}=3\text{V}$
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$		0.3 1.0	V V	$I_C=150\text{mA}, I_B=15\text{mA}^*$ $I_C=500\text{mA}, I_B=50\text{mA}^*$
Base-Emitter Saturation Voltage	$V_{BE(sat)}$	0.6	1.2 2.0	V V	$I_C=150\text{mA}, I_B=15\text{mA}^*$ $I_C=500\text{mA}, I_B=50\text{mA}^*$
Static Forward Current Transfer Ratio	h_{FE}	35 50 75 35 100 50 40	300		$I_C=0.1\text{mA}, V_{CE}=10\text{V}^*$ $I_C=1\text{mA}, V_{CE}=10\text{V}^*$ $I_C=10\text{mA}, V_{CE}=10\text{V}^*$ $I_C=10\text{mA}, V_{CE}=10\text{V}, T_{amb}=55^\circ\text{C}^*$ $I_C=150\text{mA}, V_{CE}=10\text{V}^*$ $I_C=150\text{mA}, V_{CE}=1\text{V}^*$ $I_C=500\text{mA}, V_{CE}=10\text{V}^*$

*Measured under pulsed conditions. Pulse width=300 μs . Duty cycle $\leq 2\%$
 Spice parameter data is available upon request for this device

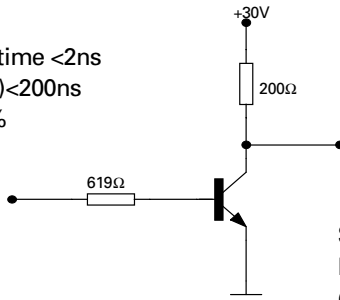
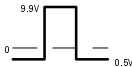
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ELECTRICAL CHARACTERISTICS (at $T_{amb} = 25^{\circ}\text{C}$ unless otherwise stated).

PARAMETER	SYMBOL	VALUE		UNIT	CONDITIONS.
		MIN.	MAX.		
Transition Frequency	f_T	300		MHz	$I_C=20\text{mA}$, $V_{CE}=20\text{V}$ $f=100\text{MHz}$
Output Capacitance	C_{obo}		8	pF	$V_{CE}=10\text{V}$, $I_E=0$, $f=140\text{KHz}$
Input Capacitance	C_{ibo}		25	pF	$V_{EB}=0.5\text{V}$, $I_C=0$ $f=140\text{KHz}$
Delay Time	t_d		10	ns	$V_{CE}=30\text{V}$, $V_{BE(off)}=0.5\text{V}$ $I_C=150\text{mA}$, $I_{B1}=15\text{mA}$ (See Delay Test Circuit)
Rise Time	t_r		25	ns	
Storage Time	t_s		225	ns	$V_{CE}=30\text{V}$, $I_C=150\text{mA}$ $I_{B1}=I_{B2}=15\text{mA}$ (See Storage Test Circuit)
Fall Time	t_f		60	ns	

DELAY AND RISE – TEST CIRCUIT

Generator rise time <2ns
Pulse width (t_1)<200ns
Duty cycle = 2%



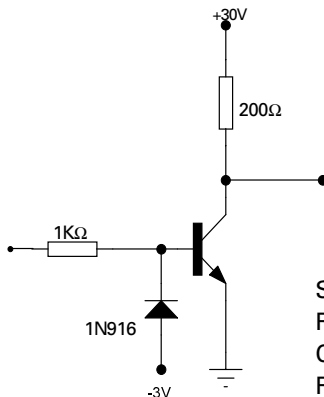
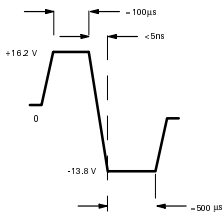
Scope:

$R_{in} > 100 \text{ k}\Omega$

$C_{in} < 12 \text{ pF}$

Rise Time < 5 ns

STORAGE TIME AND FALL TIME – TEST CIRCUIT



Scope:

$R_{in} > 100 \text{ k}\Omega$

$C_{in} < 12 \text{ pF}$

Rise Time < 5 ns

Duty cycle = 2%