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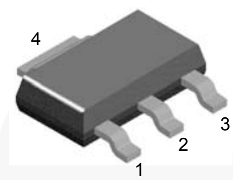
February 2015

FZT790A
PNP Low Saturation Transistor

Description

These devices are designed with high current gain and low saturation voltage with collector currents up to 3 A continuous.



SOT-223

1. Base 2.4. Collector 3. Emitter

Ordering Information

Part Number	Marking	Package	Packing Method
FZT790A	790A	SOT-223 4L	Tape and Reel

Absolute Maximum Ratings[(1),(2)]

Stresses exceeding the absolute maximum ratings may damage the device. The device may not function or be operable above the recommended operating conditions and stressing the parts to these levels is not recommended. In addition, extended exposure to stresses above the recommended operating conditions may affect device reliability. The absolute maximum ratings are stress ratings only. Values are at T_A = 25°C unless otherwise noted.

Symbol	Parameter	Value	Unit
V_{CEO}	Collector-Emitter Voltage	-40	V
V_{CBO}	Collector-Base Voltage	-50	V
V_{EBO}	Emitter-Base Voltage	-5	V
I_C	Collector Current - Continuous	-3	A
T_J, T_{STG}	Operating and Storage Junction Temperature Range	-55 to +150	°C

Notes:
1. These ratings are based on a maximum junction temperature of 150°C.
2. These are steady-state limits. Fairchild Semiconductor should be consulted on applications involving pulsed or low-duty-cycle operations.

Thermal Characteristics[3]

Values are at T_A = 25°C unless otherwise noted.

Symbol	Parameter	Max.	Unit
P_D	Total Power Dissipation	2	W
	Derate Above 25°C	16	mW/°C
$R_{\theta JA}$	Thermal Resistance, Junction-to-Ambient	62.5	°C/W

Note:

3. PCB size: FR-4, 76 mm x 114 mm x 1.57 mm (3.0 inch x 4.5 inch x 0.062 inch) with minimum land pattern size.

Electrical Characteristics

Values are at T_A = 25°C unless otherwise noted.

Symbol	Parameter	Conditions	Min.	Max.	Unit
BV_{CEO}	Collector-Emitter Breakdown Voltage	I_C = -10 mA, I_B = 0	-40		V
BV_{CBO}	Collector-Base Breakdown Voltage	I_C = -100 μA, I_E = 0	-50		V
BV_{EBO}	Emitter-Base Breakdown Voltage	I_E = -100 μA, I_C = 0	-5.0		V
I_{CBO}	Collector Cut-Off Current	V_{CB} = -30 V, I_E = 0		-100	nA
		V_{CB} = -30 V, I_E = 0, T_A = 100°C		-10	μA
I_{EBO}	Emitter Cut-Off Current	V_{EB} = -4 V, I_C = 0		-100	nA
h_{FE}	DC Current Gain[4]	V_{CE} = -2.0 V, I_C = -10 mA	300	800	
		V_{CE} = -2.0 V, I_C = -500 mA	250		
		V_{CE} = -2.0 V, I_C = -1.0 A	200		
		V_{CE} = -2.0 V, I_C = -2.0 A	150		
$V_{CE}(sat)$	Collector-Emitter Saturation Voltage[4]	I_C = -500 mA, I_B = -5.0 mA		-0.25	V
		I_C = -1.0 A, I_B = -10 mA		-0.45	
		I_C = -2.0 A, I_B = -20 mA		-0.75	
$V_{BE}(sat)$	Base-Emitter Saturation Voltage[4]	I_C = -1.0 A, I_B = -10 mA		-1.0	V
$V_{BE}(on)$	Base-Emitter On Voltage[4]	I_C = -1.0 A, V_{CE} = -2.0 V		-1.0	V
f_T	Transition Frequency	I_C = -50 mA, V_{CE} = -5.0 V, f = 50 MHz	100		MHz

Note:

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

Typical Performance Characteristics

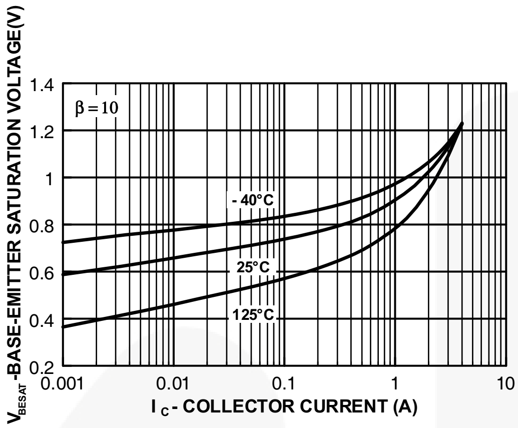


Figure 1. Base-Emitter Saturation Voltage vs. Collector Current

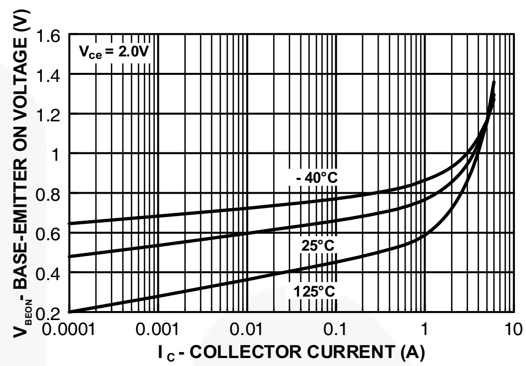


Figure 2. Base-Emitter On Voltage vs. Collector Current

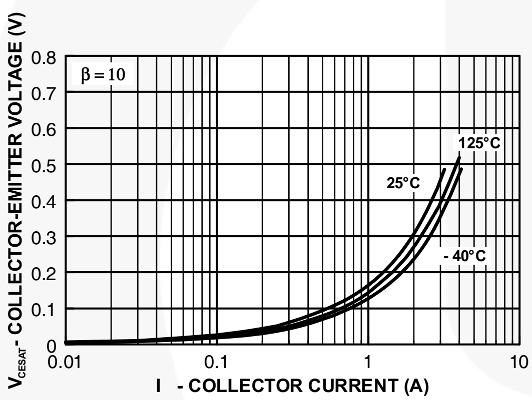


Figure 3. Collector-Emitter Saturation Voltage vs. Collector Current

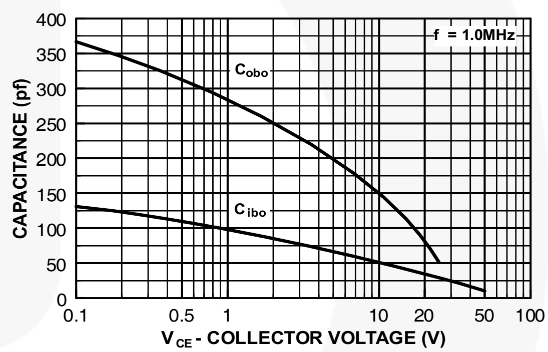


Figure 4. Input/Output Capacitance vs. Reverse Bias Voltage

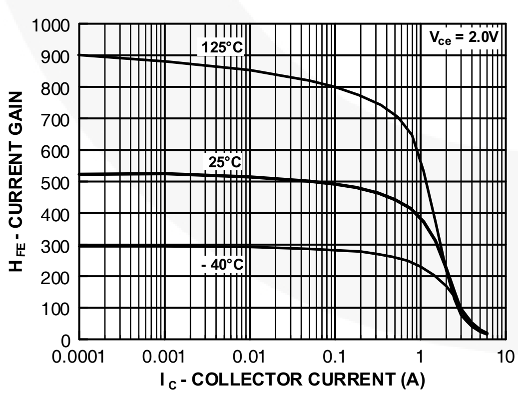


Figure 5. Current Gain vs. Collector Current

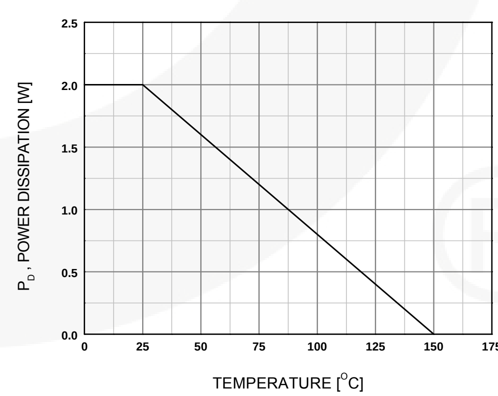


Figure 6. Power Dissipation vs. Ambient Temperature

Physical Dimensions

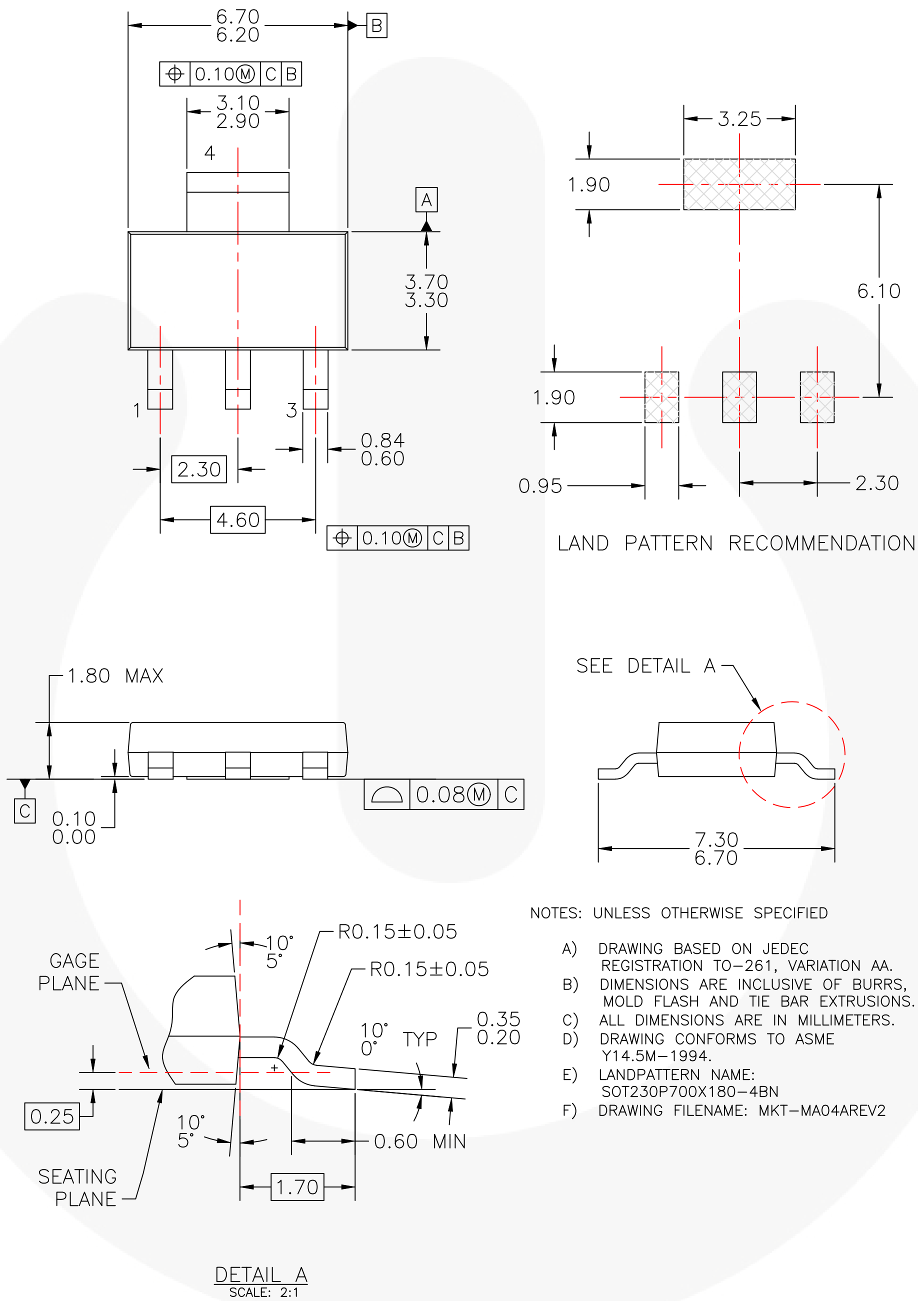


Figure 7. MOLDED PACKAGE, SOT-223, 4-LEAD

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