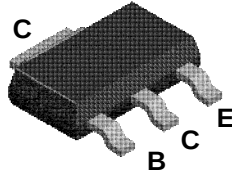


Index of /ds/FZ/

Name	Last modified	Size	Description
 _ Parent Directory			
 _ FZT560.pdf	03-Dec-99 15:45	44K	
 _ FZT560A.pdf	03-Dec-99 15:45	44K	
 _ FZT649.pdf	22-Dec-99 00:08	28K	
 _ FZT660.pdf	03-Dec-99 15:45	44K	
 _ FZT660A.pdf	03-Dec-99 15:45	44K	
 _ FZT749.pdf	22-Dec-99 00:08	27K	
 _ FZT790A.pdf	22-Dec-99 00:08	44K	

FZT560 / FZT560A



SOT-223

NPN Low Saturation Transistor

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

Absolute Maximum Ratings*

$T_A = 25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	FZT560/FZT560A	Units
V_{CEO}	Collector-Emitter Voltage	60	V
V_{CBO}	Collector-Base Voltage	80	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	$^\circ\text{C}$

*These ratings are limiting values above which the serviceability of any semiconductor device may be impaired.

NOTES:

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

Thermal Characteristics

$T_A = 25^\circ\text{C}$ unless otherwise noted

Symbol	Characteristic	Max	Units
		FZT560/FZT560A	
P_D	Total Device Dissipation	2	W
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	62.5	$^\circ\text{C/W}$

NPN Low Saturation Transistor

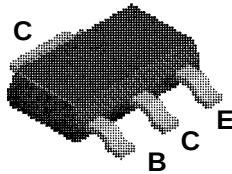
(continued)

Electrical Characteristics $T_A = 25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	Test Conditions	Min	Max	Units
OFF CHARACTERISTICS					
BV_{CEO}	Collector-Emitter Breakdown Voltage	$I_C = 10\text{ mA}$	60		V
BV_{CBO}	Collector-Base Breakdown Voltage	$I_C = 100\text{ }\mu\text{A}$	80		V
BV_{EBO}	Emitter-Base Breakdown Voltage	$I_E = 100\text{ }\mu\text{A}$	5		V
I_{CBO}	Collector Cutoff Current	$V_{CB} = 30\text{ V}$ $V_{CB} = 30\text{ V}, T_A = 100^\circ\text{C}$		100 10	nA μA
I_{EBO}	Emitter Cutoff Current	$V_{EB} = 4\text{ V}$		100	nA
ON CHARACTERISTICS*					
h_{FE}	DC Current Gain	$I_C = 100\text{ mA}, V_{CE} = 2\text{ V}$ $I_C = 500\text{ mA}, V_{CE} = 2\text{ V}$ FZT560 FZT560A $I_C = 1\text{ A}, V_{CE} = 2\text{ V}$ $I_C = 3\text{ A}, V_{CE} = 2\text{ V}$	70 100 250 80 25	300 550	-
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C = 1\text{ A}, I_B = 100\text{ mA}$ $I_C = 3\text{ A}, I_B = 300\text{ mA}$ FZT560 FZT560A		300 450 400	mV
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	$I_C = 1\text{ A}, I_B = 100\text{ mA}$		1.25	V
$V_{BE(on)}$	Base-Emitter On Voltage	$I_C = 1\text{ A}, V_{CE} = 2\text{ V}$		1	V
SMALL SIGNAL CHARACTERISTICS					
C_{obo}	Output Capacitance	$V_{CB} = 10\text{ V}, I_E = 0, f = 1\text{ MHz}$		30	pF
f_T	Transition Frequency	$I_C = 100\text{ mA}, V_{CE} = 5\text{ V}, f = 100\text{ MHz}$	75		-

*Pulse Test: Pulse Width $\leq 300\text{ }\mu\text{s}$, Duty Cycle $\leq 2.0\%$

FZT649



SOT-223

NPN Low Saturation Transistor

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

Absolute Maximum Ratings*

$T_A = 25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	FZT649	Units
V_{CEO}	Collector-Emitter Voltage	25	V
V_{CBO}	Collector-Base Voltage	35	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	$^\circ\text{C}$

*These ratings are limiting values above which the serviceability of any semiconductor device may be impaired.

NOTES:

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

Thermal Characteristics

$T_A = 25^\circ\text{C}$ unless otherwise noted

Symbol	Characteristic	Max	Units
		FZT649	
P_D	Total Device Dissipation	2	W
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	62.5	$^\circ\text{C/W}$

NPN Low Saturation Transistor

(continued)

Electrical Characteristics $T_A = 25^\circ\text{C}$ unless otherwise noted

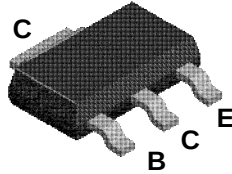
Symbol	Parameter	Test Conditions	Min	Max	Units
OFF CHARACTERISTICS					
BV_{CEO}	Collector-Emitter Breakdown Voltage	$I_C = 10\text{ mA}$	25		V
BV_{CBO}	Collector-Base Breakdown Voltage	$I_C = 100\text{ }\mu\text{A}$	35		V
BV_{EBO}	Emitter-Base Breakdown Voltage	$I_E = 100\text{ }\mu\text{A}$	5		V
I_{CBO}	Collector Cutoff Current	$V_{CB} = 30\text{ V}$ $V_{CB} = 30\text{ V}, T_A = 100^\circ\text{C}$		100 10	nA μA
I_{EBO}	Emitter Cutoff Current	$V_{EB} = 4\text{ V}$		100	nA
ON CHARACTERISTICS*					
h_{FE}	DC Current Gain	$I_C = 50\text{ mA}, V_{CE} = 2\text{ V}$ $I_C = 1\text{ A}, V_{CE} = 2\text{ V}$ $I_C = 2\text{ A}, V_{CE} = 2\text{ V}$ $I_C = 6\text{ A}, V_{CE} = 2\text{ V}$	70 100 75 15	300	-
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C = 1\text{ A}, I_B = 100\text{ mA}$ $I_C = 3\text{ A}, I_B = 300\text{ mA}$		300 600	mV
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	$I_C = 1\text{ A}, I_B = 100\text{ mA}$		1.25	V
$V_{BE(on)}$	Base-Emitter On Voltage	$I_C = 1\text{ A}, V_{CE} = 2\text{ V}$		1	V
SMALL SIGNAL CHARACTERISTICS					
C_{obo}	Output Capacitance	$V_{CB} = 10\text{ V}, I_E = 0, f = 1\text{ MHz}$		50	pF
f_T	Transition Frequency	$I_C = 100\text{ mA}, V_{CE} = 5\text{ V}, f = 100\text{ MHz}$	150		-

*Pulse Test: Pulse Width $\leq 300\text{ }\mu\text{s}$, Duty Cycle $\leq 2.0\%$

July 1998

FZT660/FZT660A

FZT660 / FZT660A



SOT-223

PNP Low Saturation Transistor

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

Absolute Maximum Ratings*

T_A = 25°C unless otherwise noted

Symbol	Parameter	FZT660/FZT660A	Units
V _{CEO}	Collector-Emitter Voltage	60	V
V _{CBO}	Collector-Base Voltage	80	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

*These ratings are limiting values above which the serviceability of any semiconductor device may be impaired.

NOTES:

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

Thermal Characteristics

T_A = 25°C unless otherwise noted

Symbol	Characteristic	Max	Units
		FZT660/FZT660A	
P _D	Total Device Dissipation	2	W
R _{θJA}	Thermal Resistance, Junction to Ambient	62.5	°C/W

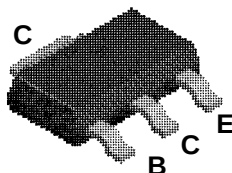
PNP Low Saturation Transistor

(continued)

Electrical Characteristics $T_A = 25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	Test Conditions	Min	Max	Units
OFF CHARACTERISTICS					
BV_{CEO}	Collector-Emitter Breakdown Voltage	$I_C = 10\text{ mA}$	60		V
BV_{CBO}	Collector-Base Breakdown Voltage	$I_C = 100\text{ }\mu\text{A}$	80		V
BV_{EBO}	Emitter-Base Breakdown Voltage	$I_E = 100\text{ }\mu\text{A}$	5		V
I_{CBO}	Collector Cutoff Current	$V_{CB} = 30\text{ V}$ $V_{CB} = 30\text{ V}, T_A = 100^\circ\text{C}$		100 10	nA μA
I_{EBO}	Emitter Cutoff Current	$V_{EB} = 4\text{ V}$		100	nA
ON CHARACTERISTICS*					
h_{FE}	DC Current Gain	$I_C = 100\text{ mA}, V_{CE} = 2\text{ V}$ $I_C = 500\text{ mA}, V_{CE} = 2\text{ V}$ FZT660 FZT660A $I_C = 1\text{ A}, V_{CE} = 2\text{ V}$ $I_C = 3\text{ A}, V_{CE} = 2\text{ V}$	70 100 250 80 25	300 550	-
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C = 1\text{ A}, I_B = 100\text{ mA}$ $I_C = 3\text{ A}, I_B = 300\text{ mA}$ FZT660 FZT660A		300 550 500	mV
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	$I_C = 1\text{ A}, I_B = 100\text{ mA}$		1.25	V
$V_{BE(on)}$	Base-Emitter On Voltage	$I_C = 1\text{ A}, V_{CE} = 2\text{ V}$		1	V
SMALL SIGNAL CHARACTERISTICS					
C_{obo}	Output Capacitance	$V_{CB} = 10\text{ V}, I_E = 0, f = 1\text{ MHz}$		45	pF
f_T	Transition Frequency	$I_C = 100\text{ mA}, V_{CE} = 5\text{ V}, f = 100\text{ MHz}$	75		-

*Pulse Test: Pulse Width $\leq 300\text{ }\mu\text{s}$, Duty Cycle $\leq 2.0\%$

FZT749

SOT-223
PNP Low Saturation Transistor

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

Absolute Maximum Ratings*
 $T_A = 25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	FZT749	Units
V_{CEO}	Collector-Emitter Voltage	25	V
V_{CBO}	Collector-Base Voltage	35	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	$^\circ\text{C}$

*These ratings are limiting values above which the serviceability of any semiconductor device may be impaired.

NOTES:

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

Thermal Characteristics
 $T_A = 25^\circ\text{C}$ unless otherwise noted

Symbol	Characteristic	Max	Units
		FZT749	
P_D	Total Device Dissipation	2	W
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	62.5	$^\circ\text{C/W}$

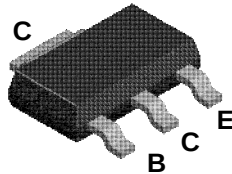
PNP Low Saturation Transistor

(continued)

Electrical Characteristics $T_A = 25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	Test Conditions	Min	Max	Units
OFF CHARACTERISTICS					
BV_{CEO}	Collector-Emitter Breakdown Voltage	$I_C = 10\text{ mA}$	25		V
BV_{CBO}	Collector-Base Breakdown Voltage	$I_C = 100\text{ }\mu\text{A}$	35		V
BV_{EBO}	Emitter-Base Breakdown Voltage	$I_E = 100\text{ }\mu\text{A}$	5		V
I_{CBO}	Collector Cutoff Current	$V_{CB} = 30\text{ V}$ $V_{CB} = 30\text{ V}, T_A = 100^\circ\text{C}$		100 10	nA μA
I_{EBO}	Emitter Cutoff Current	$V_{EB} = 4\text{ V}$		100	nA
ON CHARACTERISTICS*					
h_{FE}	DC Current Gain	$I_C = 50\text{ mA}, V_{CE} = 2\text{ V}$ $I_C = 1\text{ A}, V_{CE} = 2\text{ V}$ $I_C = 2\text{ A}, V_{CE} = 2\text{ V}$ $I_C = 6\text{ A}, V_{CE} = 2\text{ V}$	70 100 75 15	300	-
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C = 1\text{ A}, I_B = 100\text{ mA}$ $I_C = 3\text{ A}, I_B = 300\text{ mA}$		300 600	mV
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	$I_C = 1\text{ A}, I_B = 100\text{ mA}$		1.25	V
$V_{BE(on)}$	Base-Emitter On Voltage	$I_C = 1\text{ A}, V_{CE} = 2\text{ V}$		1	V
SMALL SIGNAL CHARACTERISTICS					
C_{obo}	Output Capacitance	$V_{CB} = 10\text{ V}, I_E = 0, f = 1\text{ MHz}$		100	pF
f_T	Transition Frequency	$I_C = 100\text{ mA}, V_{CE} = 5\text{ V}, f = 100\text{ MHz}$	100		-

*Pulse Test: Pulse Width $\leq 300\text{ }\mu\text{s}$, Duty Cycle $\leq 2.0\%$

FZT790A

SOT-223
PNP Low Saturation Transistor

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

Absolute Maximum Ratings*
 $T_A = 25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	FZT790A	Units
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	$^\circ\text{C}$

*These ratings are limiting values above which the serviceability of any semiconductor device may be impaired.

NOTES:

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

Thermal Characteristics
 $T_A = 25^\circ\text{C}$ unless otherwise noted

Symbol	Characteristic	Max	Units
		FZT790A	
P_D	Total Device Dissipation	2	W
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	62.5	$^\circ\text{C/W}$

PNP Low Saturation Transistor

(continued)

Electrical Characteristics $T_A = 25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	Test Conditions	Min	Max	Units
OFF CHARACTERISTICS					
BV_{CEO}	Collector-Emitter Breakdown Voltage	$I_C = 10\text{ mA}$	40		V
BV_{CBO}	Collector-Base Breakdown Voltage	$I_C = 100\text{ }\mu\text{A}$	50		V
BV_{EBO}	Emitter-Base Breakdown Voltage	$I_E = 100\text{ }\mu\text{A}$	5		V
I_{CBO}	Collector Cutoff Current	$V_{CB} = 30\text{ V}$ $V_{CB} = 30\text{ V}, T_A = 100^\circ\text{C}$		100 10	nA μA
I_{EBO}	Emitter Cutoff Current	$V_{EB} = 4\text{ V}$		100	nA
ON CHARACTERISTICS*					
h_{FE}	DC Current Gain	$I_C = 10\text{ mA}, V_{CE} = 2\text{ V}$ $I_C = 500\text{ mA}, V_{CE} = 2\text{ V}$ $I_C = 1\text{ A}, V_{CE} = 2\text{ V}$ $I_C = 2\text{ A}, V_{CE} = 2\text{ V}$	300 250 200 150	800	-
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C = 500\text{ mA}, I_B = 5\text{ mA}$ $I_C = 1\text{ A}, I_B = 10\text{ mA}$ $I_C = 2\text{ A}, I_B = 50\text{ mA}$		250 450 750	mV
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	$I_C = 1\text{ A}, I_B = 10\text{ mA}$		1	V
SMALL SIGNAL CHARACTERISTICS					
f_T	Transition Frequency	$I_C = 50\text{ mA}, V_{CE} = 5\text{ V}, f = 50\text{ MHz}$	100		-

*Pulse Test: Pulse Width $\leq 300\text{ }\mu\text{s}$, Duty Cycle $\leq 2.0\%$