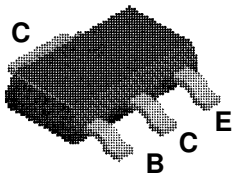
FAIRCHILD SEMICONDUCTOR™

Discrete Power & Signal Technologies

January 2026

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*

$T_{A = 25°C}$ 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	°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
		FZT649	
P_D	Total Device Dissipation	2	W
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	62.5	°C/W

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NPN Low Saturation Transistor
(continued)

Electrical Characteristics
$T_{A = 25°C}$ unless otherwise noted

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

*Pulse Test: Pulse Width ≤ 300 µs, Duty Cycle ≤ 2.0%

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