

NPN Transistors

FZT649 (KZT649)

■ Features

- Collector Current Capability $I_c=3A$
- Collector Emitter Voltage $V_{CE0}=25V$
- Low saturation voltage
- Complementary to FZT749

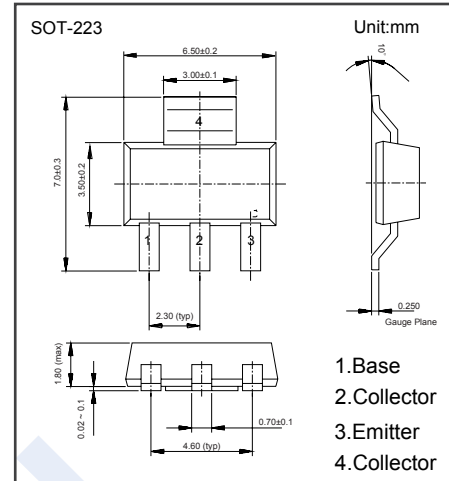
■ Absolute Maximum Ratings $T_a = 25^\circ C$

Parameter	Symbol	Rating	Unit
Collector - Base Voltage	V_{CBO}	35	V
Collector - Emitter Voltage	V_{CEO}	25	
Emitter - Base Voltage	V_{EBO}	5	
Collector Current - Continuous	I_c	3	A
Collector Current - Pulse	I_{CP}	8	
Collector Power Dissipation	P_C	2	W
Junction Temperature	T_J	150	$^\circ C$
Storage Temperature Range	T_{stg}	-55 to 150	

■ Electrical Characteristics $T_a = 25^\circ C$

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector- base breakdown voltage	V_{CBO}	$I_c = 100 \mu A, I_E = 0$	35			V
Collector- emitter breakdown voltage	V_{CEO}	$I_c = 10 mA, I_B = 0$	25			
Emitter - base breakdown voltage	V_{EBO}	$I_E = 100 \mu A, I_c = 0$	5			
Collector-base cut-off current	I_{CBO}	$V_{CB} = 30 V, I_E = 0$			0.1	uA
		$V_{CB} = 30 V, I_E = 0, T_a = 100^\circ C$			10	
Emitter cut-off current	I_{EBO}	$V_{EB} = 4 V, I_c = 0$			0.1	
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_c = 1 A, I_B = 100 mA$ (Note.1)			0.3	V
		$I_c = 3 A, I_B = 300 mA$ (Note.1)			0.6	
Base - emitter saturation voltage	$V_{BE(sat)}$	$I_c = 1 A, I_B = 100 mA$ (Note.1)			1.25	
Base - emitter turn on voltage	$V_{BE(on)}$	$V_{CE} = 2 V, I_c = 1 A$			1	
DC current gain (Note.1)	$h_{FE(1)}$	$V_{CE} = 2 V, I_c = 50 mA$	70			
	$h_{FE(2)}$	$V_{CE} = 2 V, I_c = 1 A$	100		300	
	$h_{FE(3)}$	$V_{CE} = 2 V, I_c = 2 A$	75			
	$h_{FE(4)}$	$V_{CE} = 2 V, I_c = 6 A$	15			
Switching Times	t_{on}	$I_c = 500 mA, V_{CC} = 10 V$		55		ns
	t_{off}	$I_{B1} = I_{B2} = 50 mA$		300		
Collector output capacitance	C_{ob}	$V_{CB} = 10 V, f = 1 MHz$			50	pF
Transition frequency	f_T	$V_{CE} = 5 V, I_c = 100 mA, f = 100 MHz$		150		MHz

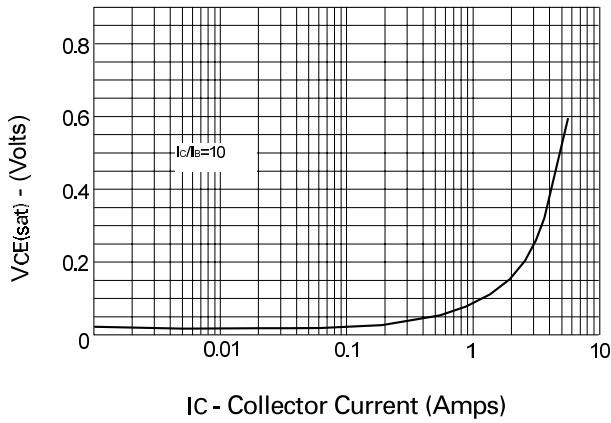
Note.1:Pulse Width=300us. Duty cycle $\leq 2\%$



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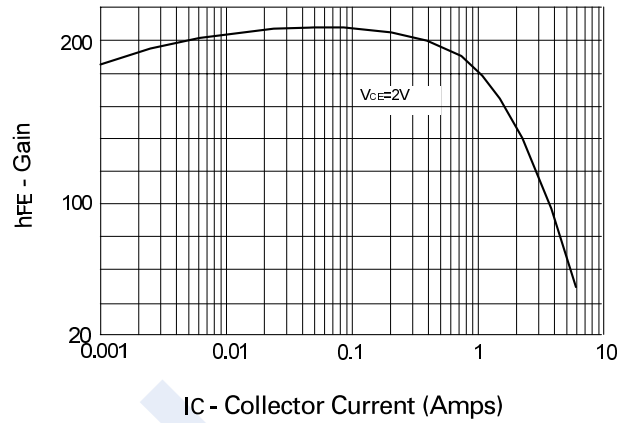
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■ Typical Characteristics



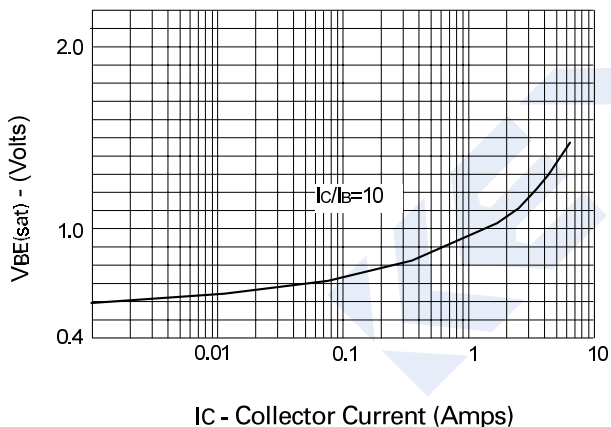
I_C - Collector Current (Amps)

$V_{CE(sat)}$ v I_C



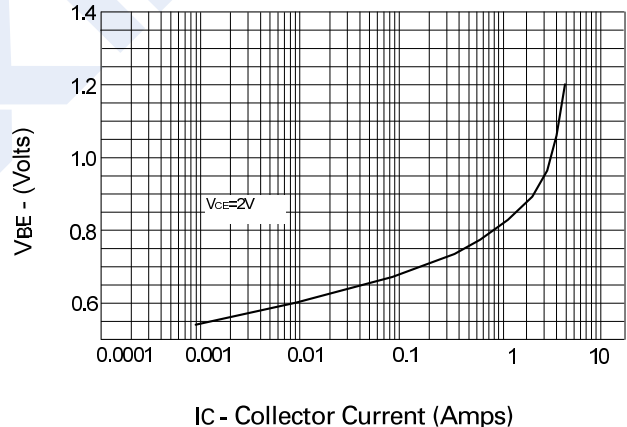
I_C - Collector Current (Amps)

h_{FE} v I_C



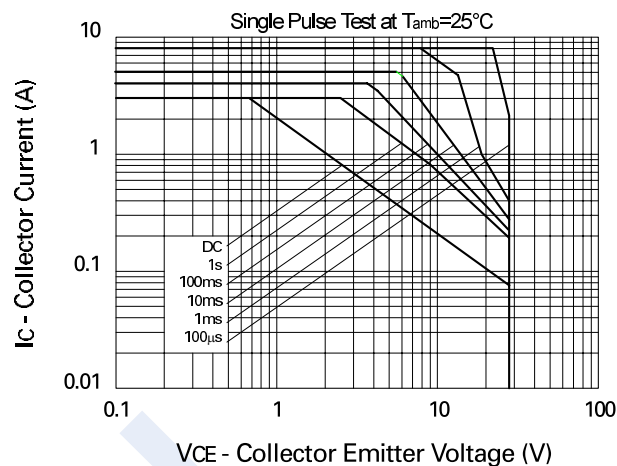
I_C - Collector Current (Amps)

$V_{BE(sat)}$ v I_C



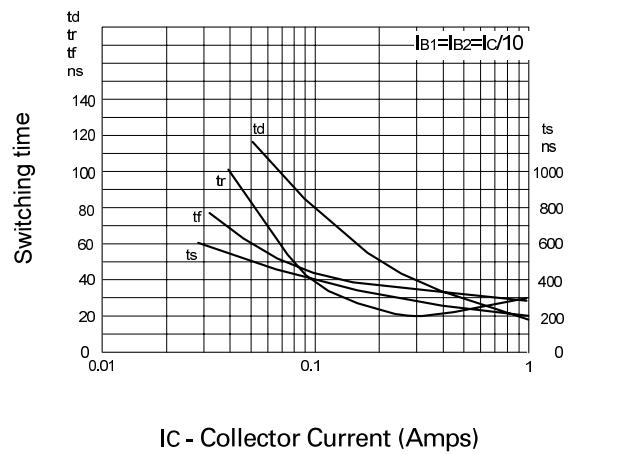
I_C - Collector Current (Amps)

$V_{BE(on)}$ v I_C



V_{CE} - Collector Emitter Voltage (V)

Safe Operating Area



I_C - Collector Current (Amps)

Switching Speeds