

60 V NPN MEDIUM POWER TRANSISTOR

CZT651
SOT-223
Plastic Package



COMPLEMENTRY TYPE – CZT751

Maximum Ratings @ $T_A = 25^\circ\text{C}$ unless otherwise specified

PARAMETER	SYMBOL	VALUE	UNIT
Collector-Base Voltage	V_{CBO}	80	V
Collector-Emitter Voltage	V_{CEO}	60	V
Emitter-Base Voltage	V_{EBO}	5	V
Continuous Collector Current	I_C	3	A
Peak Pulse Current	I_{CM}	6	A

Thermal Characteristics

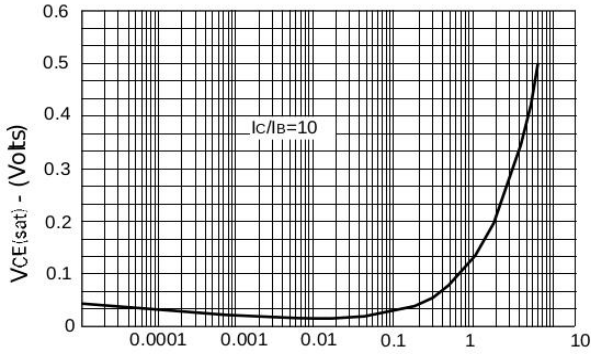
PARAMETER	SYMBOL	VALUE	UNIT
Power Dissipation at $T_A = 25^\circ\text{C}$	P_D	2	W
Operating and Storage Temperature Range	T_J, T_{STG}	-55 to 150	$^\circ\text{C}$

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

PARAMETER	SYMBOL	TEST CONDITION	MIN	TYP	MAX	UNIT
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C = 100\mu\text{A}$	80			V
Collector-Emitter Breakdown Voltage *	$V_{(BR)CEO}$	$I_C = 10\text{mA}$	60			V
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E = 100\mu\text{A}$	5			V
Collector Cut-off Current	I_{CBO}	$V_{CB} = 60\text{V}$			0.1	μA
		$V_{CB} = 60\text{V}, T_{amb} = 100^\circ\text{C}$			10	μA
Emitter Cut-off Current	I_{EBO}	$V_{EB} = 4\text{V}$			0.1	μA
Collector-Emitter Saturation Voltage *	$V_{CE(SAT)}$	$I_C = 1\text{A}, I_B = 100\text{mA}$		0.12	0.3	V
		$I_C = 3\text{A}, I_B = 300\text{mA}$		0.43	0.6	V
Base-Emitter Saturation Voltage *	$V_{CE(SAT)}$	$I_C = 1\text{A}, I_B = 100\text{mA}$		0.9	1.25	V
Base-Emitter Turn-On Voltage *	$V_{BE(ON)}$	$I_C = 1\text{A}, V_{CE} = 2\text{V}$		0.8	1.0	V
DC Current Gain *	h_{FE}	$I_C = 50\text{mA}, V_{CE} = 2\text{V}$	70	200		
		$I_C = 500\text{mA}, V_{CE} = 2\text{V}$	100	200	300	
		$I_C = 1\text{A}, V_{CE} = 2\text{V}$	80	170		
		$I_C = 2\text{A}, V_{CE} = 2\text{V}$	40	80		
Current Gain-Bandwidth Product *	f_T	$V_{CE} = 5\text{V}, I_C = 100\text{mA}, f=100\text{MHz}$	140	175		MHz
Turn-On Time	t_{on}	$V_{CC} = 10\text{V}, I_C = 500\text{mA}$		45		ns
Turn-Off Time	t_{off}	$I_{B1} = I_{B2} = 50\text{mA}$		800		ns
Output Capacitance *	C_{obo}	$V_{CB} = 10\text{V}, f = 1\text{MHz}$			30	pF

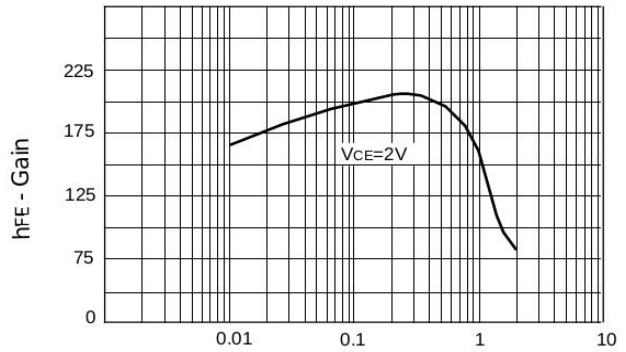
* Measured under pulsed conditions. Pulse width = 300 μs . Duty cycle $\leq 2\%$

CHARACTERISTICS CURVES



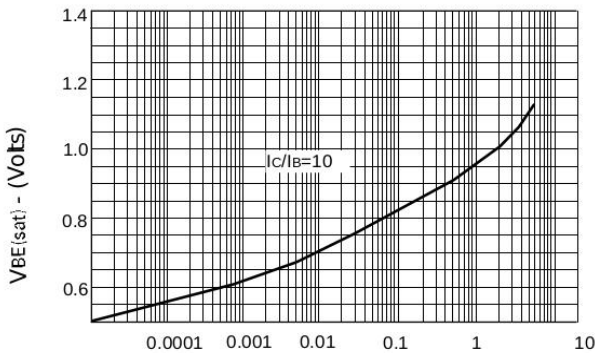
IC - Collector Current (Amps)

VCE(sat) v IC



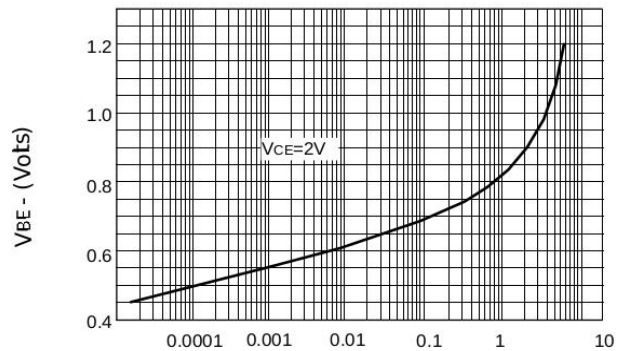
IC - Collector Current (Amps)

hFE v IC



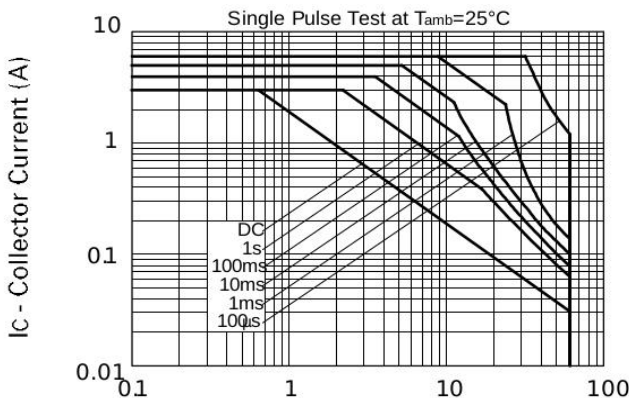
IC - Collector Current (Amps)

VBE(sat) v IC



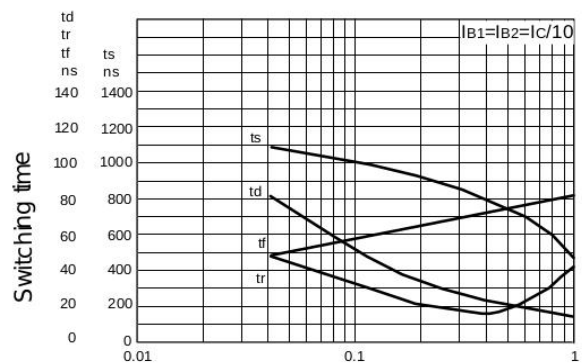
IC - Collector Current (Amps)

VBE(on) v IC



VCE - Collector Emitter Voltage (V)

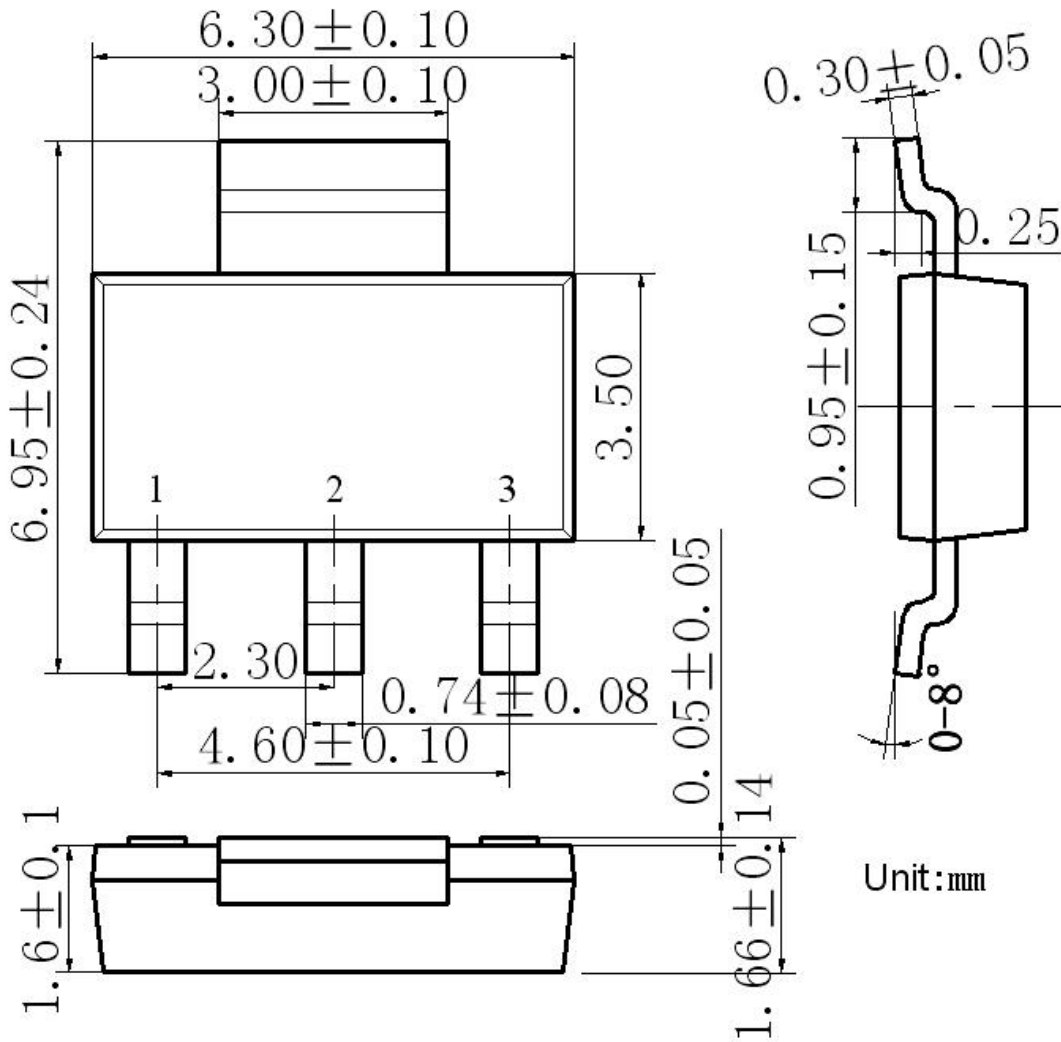
Safe Operating Area



IC - Collector Current (Amps)

Switching Speeds

PACKAGE OUTLINE AND DIMENSION millimeters(mm)



Unit:mm

- 1. BASE
- 2. COLLECTOR
- 3. EMITTER



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Customer Notes:

Component Disposal Instructions

1. CDIL Semiconductor Devices are RoHS compliant, customers are requested to please dispose as per prevailing Environmental Legislation of their Country.
2. In Europe, please dispose as per EU Directive 2002/96/EC on Waste Electrical and Electronic Equipment (WEEE).

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