

NPN SILICON PLANAR AVALANCHE TRANSISTOR

ZTX413

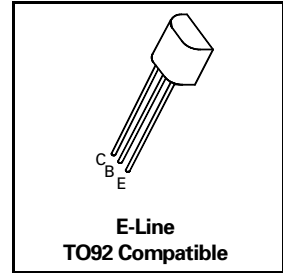
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FEATURES

- * Avalanche mode operation
- * 50A Peak avalanche current
- * Low inductance packaging

APPLICATIONS

- * Laser LED drivers
- * Fast edge generation
- * High speed pulse generators



ABSOLUTE MAXIMUM RATINGS.

PARAMETER	SYMBOL	VALUE	UNIT
Collector-Base Voltage	V_{CBO}	150	V
Collector-Emitter Voltage	V_{CEO}	50	V
Emitter-Base Voltage	V_{EBO}	6	V
Continuous Collector Current	I_C	200	mA
Peak Collector Current (25ns Pulse Width)	I_{CM}	50	A
Power Dissipation	P_{tot}	500	mW
Operating and Storage Temperature Range	$T_j; T_{stg}$	-55 to +200	°C

ELECTRICAL CHARACTERISTICS (at $T_{amb} = 25^\circ\text{C}$ unless otherwise stated).

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	CONDITIONS.
Collector-Emitter Breakdown Voltage	$V_{(BR)CES}$	150			V	$I_C = 100\mu\text{A}$
Collector-Emitter Breakdown Voltage	$V_{CEO(sus)}$	50			V	$I_C = 10\text{mA}$
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	6			V	$I_E = 100\mu\text{A}$
Collector Cut-Off Current	I_{CBO}			0.1	μA	$V_{CB} = 120\text{V}$
Emitter Cut-Off Current	I_{EBO}			0.1	μA	$V_{EB} = 4\text{V}$
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$			0.15	V	$I_C = 10\text{mA}, I_B = 1\text{mA}$
Base-Emitter Saturation Voltage	$V_{BE(sat)}$			0.8	V	$I_C = 10\text{mA}, I_B = 1\text{mA}$
Current in Second Breakdown (Pulsed)	I_{USB}	22 31			A A	$V_C = 110\text{V}, C_{CE} = 4.7\text{nF}^*$ $V_C = 130\text{V}, C_{CE} = 4.7\text{nF}^*$
Static Forward Current Transfer Ratio	h_{FE}	50				$I_C = 10\text{mA}, V_{CE} = 10\text{V}$

*Measured within a circuit possessing an approximate loop inductance of 12nH. The $I_{(USB)}$ monitor circuitry reflects 0.15 Ohm into the Collector-Emitter Discharge Loop

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ELECTRICAL CHARACTERISTICS

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	CONDITIONS.
Emitter Inductance	L_e		6		nH	With 3mm leads
Transition Frequency	f_T		150		MHz	$I_C=10\text{mA}$, $V_{CE}=5\text{V}$ $f=20\text{MHz}$
Collector-Base Capacitance	C_{cb}		2		pF	$V_{CB}=10\text{V}$, $I_E=0$ $f=1\text{MHz}$

TYPICAL CHARACTERISTICS

