

NPN SILICON PLANAR
AVALANCHE TRANSISTOR

PROVISIONAL DATASHEET ISSUE 2 – MARCH 94

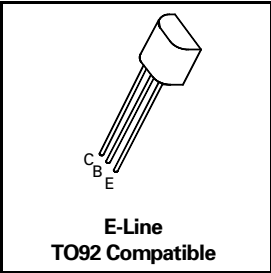
ZTX413

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 $T_{amb} = 25^{\circ}C$ unless otherwise stated).

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

*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

