

# SOT323 NPN SILICON PLANAR AVALANCHE TRANSISTOR

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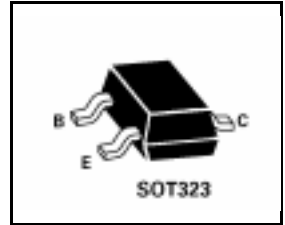
## ZUMT413

### FEATURES

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

### APPLICATIONS

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



PARTMARKING DETAIL - T13

### 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	$I_C$	100	mA
Peak Collector Current (25ns Pulse Width)	$I_{CM}$	50	A
Power Dissipation	$P_{tot}$	330	mW
Operating and Storage Temperature Range	$T_j; T_{stg}$	-55 to +150	°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	$\mu\text{A}$	$V_{CB} = 120\text{V}$
Emitter Cut-Off Current	$I_{EBO}$			0.1	$\mu\text{A}$	$V_{EB} = 4\text{V}$
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	$V_C = 110\text{V}, C_{CE} = 4.7\text{nF}^*$ $V_C = 130\text{V}, C_{CE} = 4.7\text{nF}^*$
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	$L_e$		2.5		nH	Standard SOT323 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

