



# THE DATASHEET OF ZTX651STZ



# ZTX650 ZTX651

## NPN SILICON PLANAR MEDIUM POWER TRANSISTOR ISSUE 2 – JULY 94

### FEATURES

- \* 60 Volt  $V_{CE0}$
- \* 2 Amp continuous current
- \* Low saturation voltage
- \*  $P_{tot} = 1$  Watt

PARAMETER	SYMBOL	ZTX650		ZTX651		UNIT	CONDITIONS.
		MIN.	TYP.	MAX.	MIN.		
Transition Frequency	$f_T$	140	175		140	175	MHz $I_C = 100\text{mA}, V_{CE} = 5\text{V}$ $f = 100\text{MHz}$
Switching Times	$t_{on}$		45			45	ns $I_C = 500\text{mA}, V_{CC} = 10\text{V}$ $I_B = I_B = 50\text{mA}$
	$t_{off}$		800			800	ns
Output Capacitance	$C_{obo}$			30		30	pF $V_{CE} = 10\text{V}, f = 1\text{MHz}$

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

### ABSOLUTE MAXIMUM RATINGS

PARAMETER	MIN.	TYP.	MAX.
Collector-Base Voltage			60
Collector-Emitter Voltage			45
Emitter-Base Voltage			5
Peak Pulse Current			
Continuous Collector Current			
Power Dissipation	at $T_{amb} = 25^\circ\text{C}$ derate above $25^\circ\text{C}$		
Operating and Storage Temperature Range			

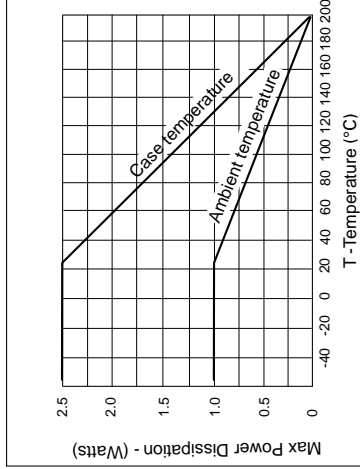
### ELECTRICAL CHARACTERISTICS

PARAMETER	SYMBOL	ZTX650		UNIT
		MIN.	TYP.	
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$		60	$^\circ\text{C/W}$
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$		45	$^\circ\text{C/W}$
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$		5	$^\circ\text{C/W}$
Collector Cut-Off Current	$I_{CBO}$			
Emitter Cut-Off Current	$I_{EBO}$			
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$		0.0	
Base-Emitter Saturation Voltage	$V_{BE(sat)}$		0.0	
Base-Emitter Turn-On Voltage	$V_{BE(on)}$		0.0	

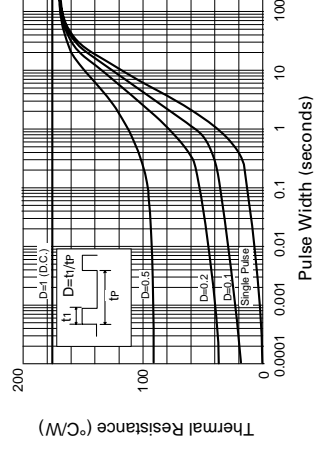
### THERMAL CHARACTERISTICS

PARAMETER	SYMBOL	MAX.	UNIT
Thermal Resistance: Junction to Ambient $_{t_1}$	$R_{th(j-amb)1}$	175	$^\circ\text{C/W}$
Junction to Ambient $_{t_2}$	$R_{th(j-amb)2}$	116	$^\circ\text{C/W}$
Junction to Case	$R_{th(j-case)}$	70	$^\circ\text{C/W}$

† Device mounted on P.C.B. with copper equal to 1 sq. inch minimum.



Derating curve



Maximum transient thermal impedance

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Operating and Storage Temperature Range			

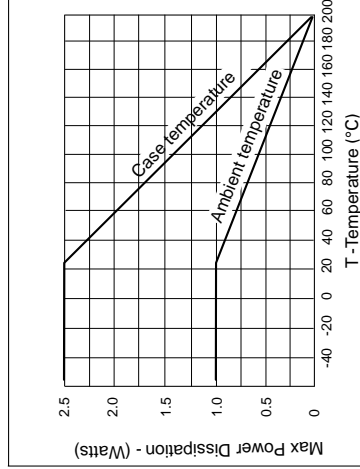
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Collector Cut-Off Current	$I_{CBO}$			
Emitter Cut-Off Current	$I_{EBO}$			
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$		0.1	
Base-Emitter Saturation Voltage	$V_{BE(sat)}$		0.1	
Base-Emitter Turn-On Voltage	$V_{BE(on)}$		0.1	

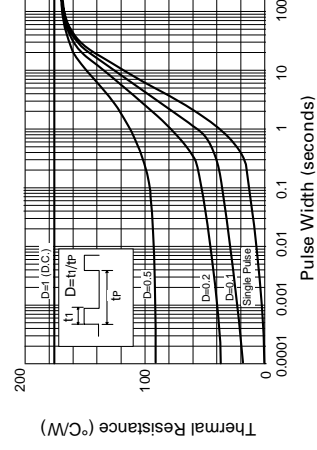
### THERMAL CHARACTERISTICS

PARAMETER	SYMBOL	MAX.	UNIT
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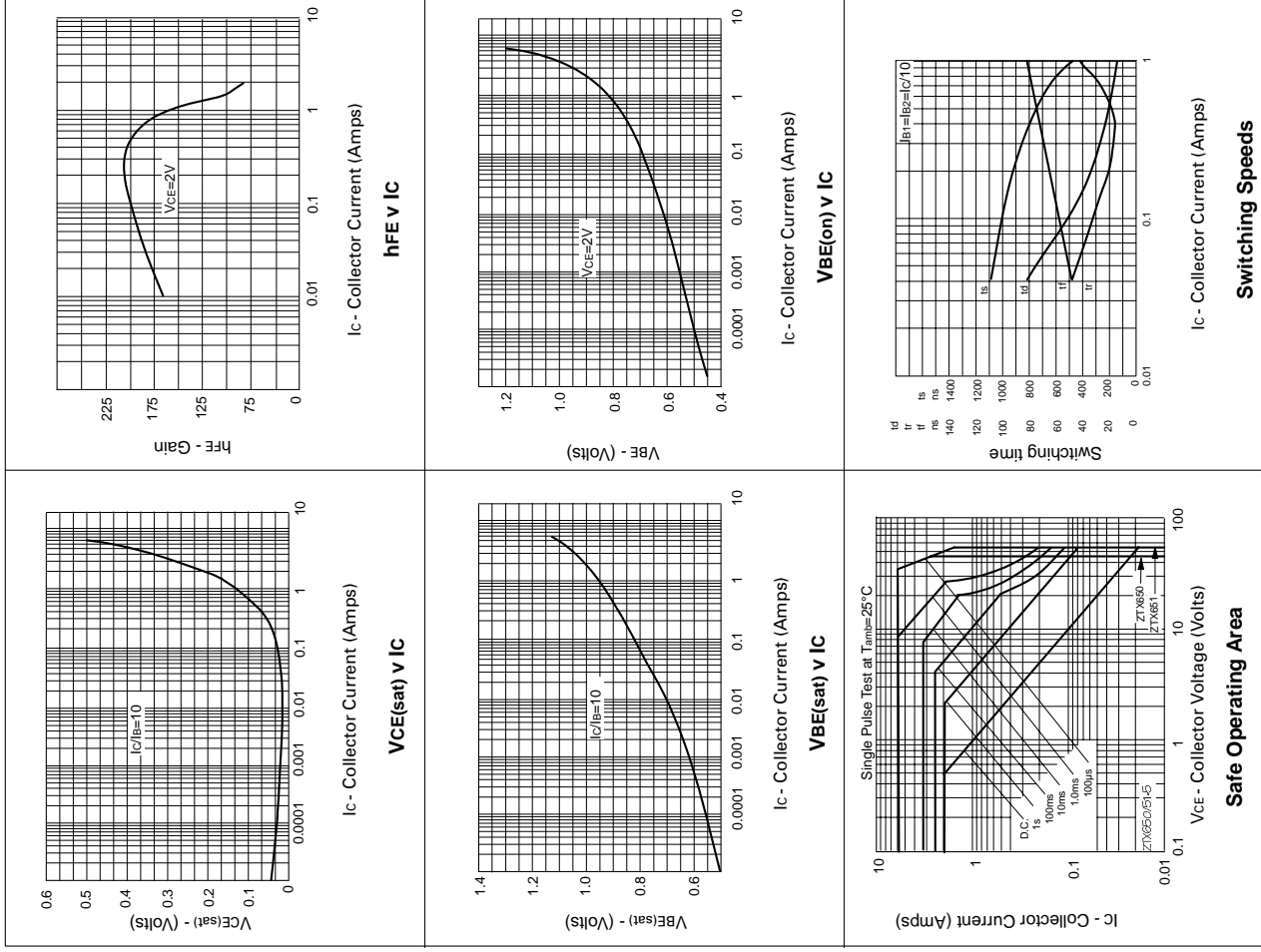
Derating curve



Maximum transient thermal impedance



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## TYPICAL CHARACTERISTICS



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