



THE DATASHEET OF ZTX651



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 μ 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°C		
Operating and Storage Temperature Range			

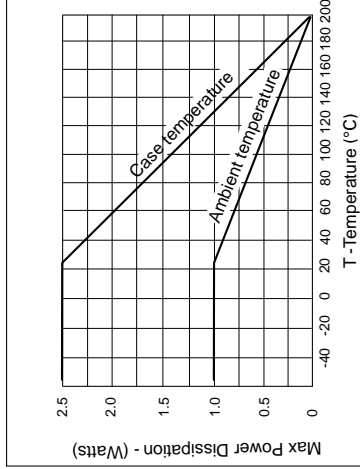
ELECTRICAL CHARACTERISTICS

PARAMETER	SYMBOL	ZTX650		ZTX651
		MIN.	TYP.	
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$			60
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$			45
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$			5
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

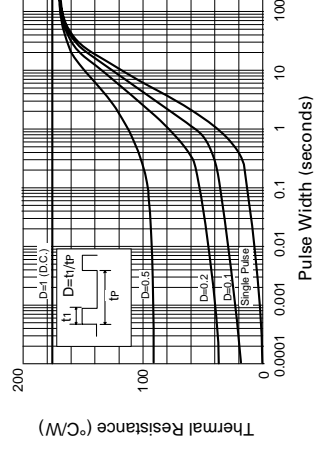
THERMAL CHARACTERISTICS

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

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



Derating curve



Maximum transient thermal impedance

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.	TYP.		
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 μ 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°C		
Operating and Storage Temperature Range			

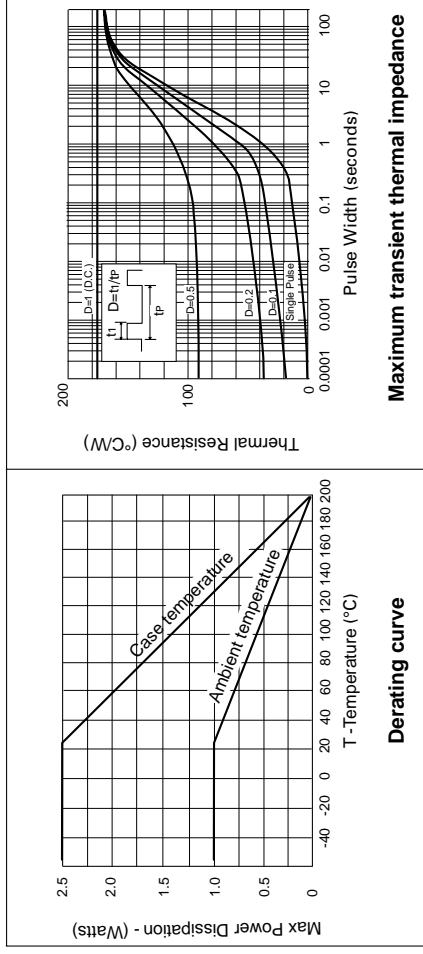
ELECTRICAL CHARACTERISTICS

PARAMETER	SYMBOL	ZTX650		ZTX651
		MIN.	TYP.	
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$			60
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$			45
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$			5
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

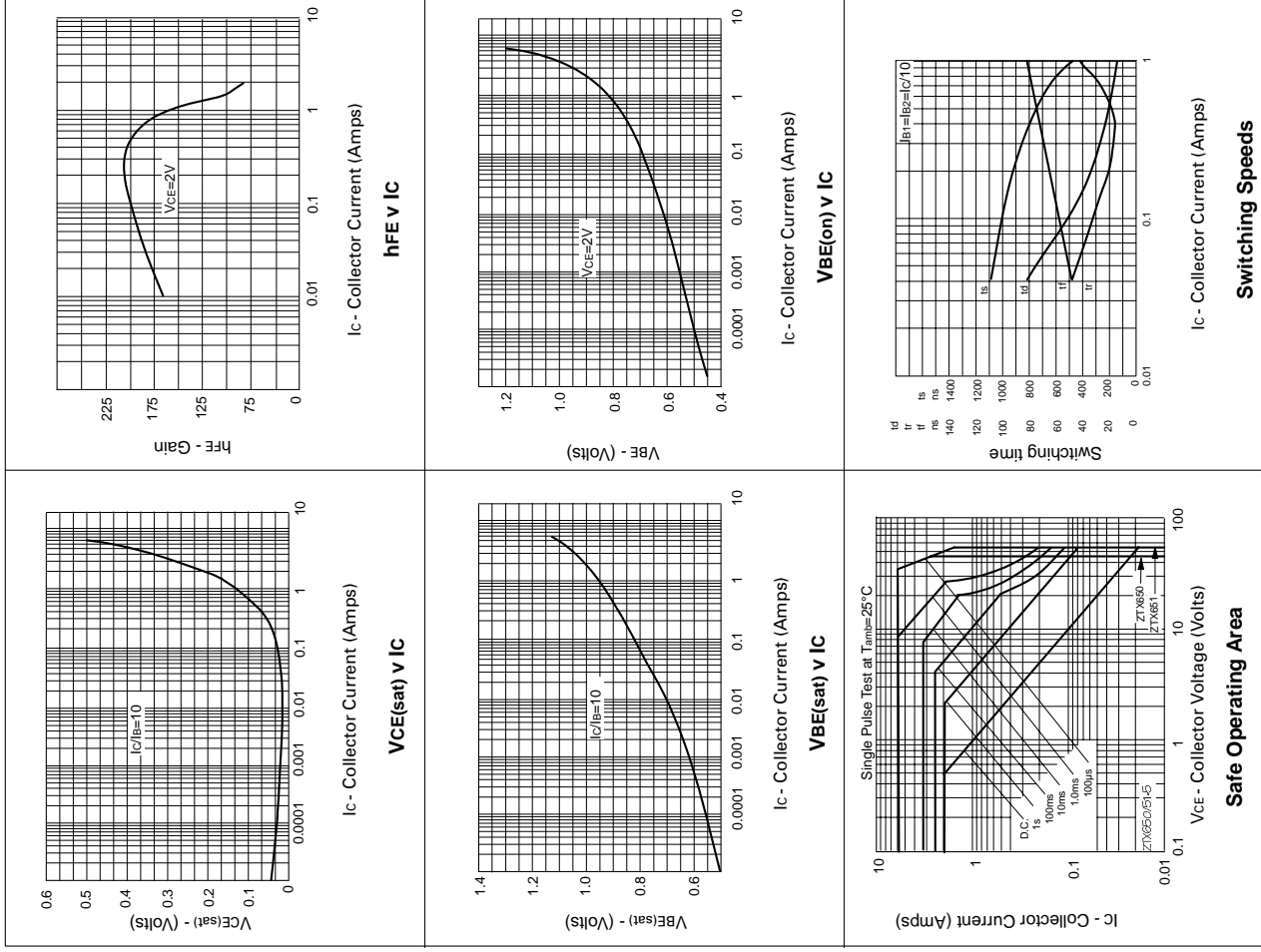
PARAMETER	SYMBOL	MAX.	UNIT
Thermal Resistance: Junction to Ambient ₁ Junction to Ambient ₂ Junction to Case	$R_{th(j-amb)1}$	175	$^\circ\text{C/W}$
	$R_{th(j-amb)2}$	116	$^\circ\text{C/W}$
	$R_{th(j-case)}$	70	$^\circ\text{C/W}$

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





ZTX650 ZTX651

TYPICAL CHARACTERISTICS



Looking for pricing, stock, or lifecycle information?

Click below to explore more details on WIN SOURCE:

-  [View ZTX651 on WIN SOURCE](#)
-  [Diodes Incorporated Information](#)

Optimize Your Supply Chain with WIN SOURCE Solutions

-  Global Sourcing Solution
-  Obsolete Management
-  Cost Control Management
-  Shortage Management
-  Alternative Solution
-  Excess Inventory Management