



THE DATASHEET OF ZTX653



NPN SILICON PLANAR MEDIUM POWER TRANSISTOR

ISSUE 2 - JULY 94

FEATURES

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

ZTX652 ZTX653

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

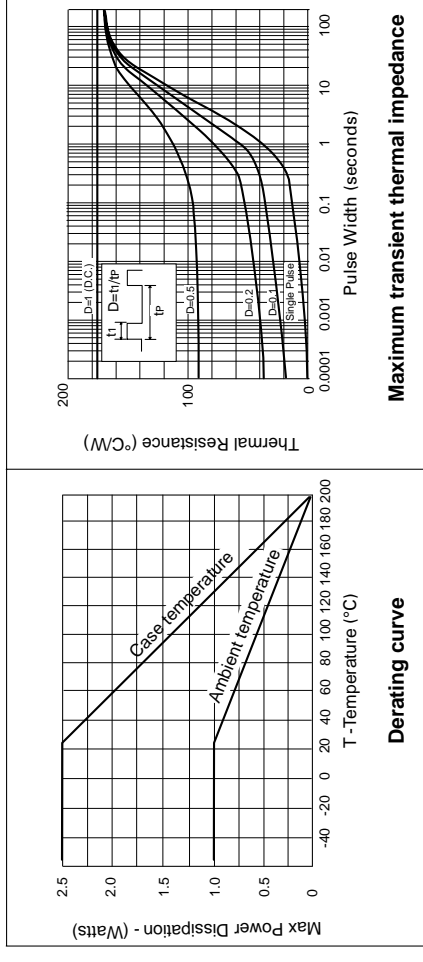
PARAMETER	SYMBOL	ZTX652		ZTX653		UNIT	CONDITIONS.
		MIN.	TYP.	MAX.	TYP.		
Transition Frequency	f_T	140	175	140	175	MHz	$I_C = 100\text{mA}$, $V_{CE} = 5\text{V}$ $f = 100\text{MHz}$
Switching Times	t_{on}	80			80	ns	$I_C = 500\text{mA}$, $V_{CC} = 10\text{V}$ $I_B = I_B = 50\text{mA}$
	t_{off}		1200		1200	ns	
Output Capacitance	C_{obo}			30	30	pF	$V_{CE} = 10\text{V}$ $f = 1\text{MHz}$

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

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	$^{\circ}\text{C/W}$
	$R_{th(j-amb)2}^{\dagger}$	116	$^{\circ}\text{C/W}$
	$R_{th(j-case)}$	70	$^{\circ}\text{C/W}$

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



ABSOLUTE MAXIMUM RATINGS

PARAMETER	MIN.	MAX.	UNIT
Collector-Base Voltage		100	
Collector-Emitter Voltage		80	
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	ZTX	
		MIN.	TYP.
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$		100
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$		80
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 0.2
Base-Emitter Saturation Voltage	$V_{BE(sat)}$		0.9
Base-Emitter Turn-On Voltage	$V_{BE(on)}$		0.8

ZTX652
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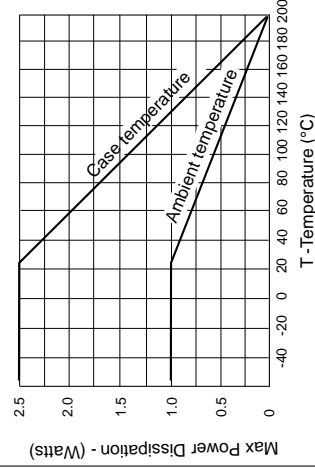
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Output Capacitance	C_{obo}			30	30	pF	$V_{CE} = 10\text{V}$ $f = 1\text{MHz}$

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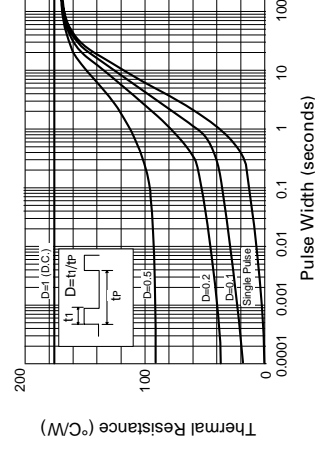
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† Device mounted on P.C.B. with copper equal to 1 sq. Inch minimum.



Derating curve



Maximum transient thermal impedance

ABSOLUTE MAXIMUM RATINGS

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Collector-Emitter Voltage		80	
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			

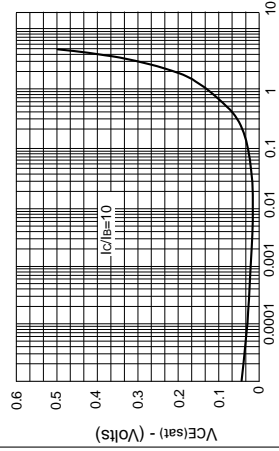
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Emitter Cut-Off Current	I_{EBO}			
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$		0.1	0.2
Base-Emitter Saturation Voltage	$V_{BE(sat)}$			0.9
Base-Emitter Turn-On Voltage	$V_{BE(on)}$			0.8

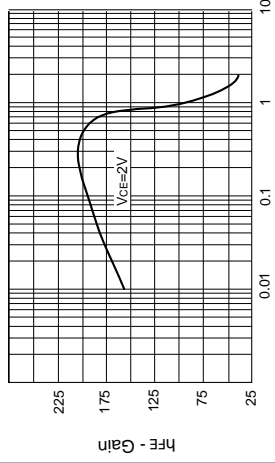
ZTX652 ZTX653

ZTX652 Not Recommended for
New Design Please Use ZTX653

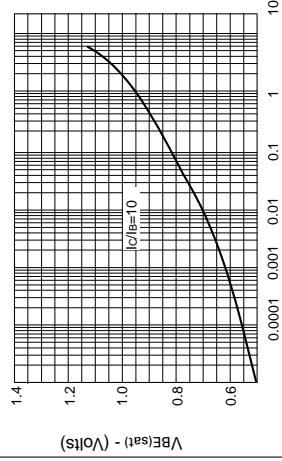
TYPICAL CHARACTERISTICS



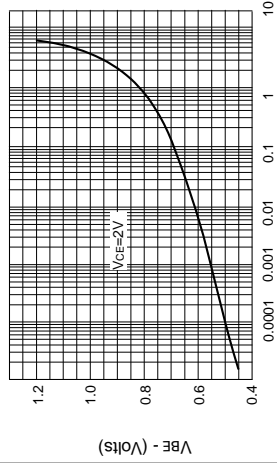
IC - Collector Current (Amps)
VCE(sat) v IC



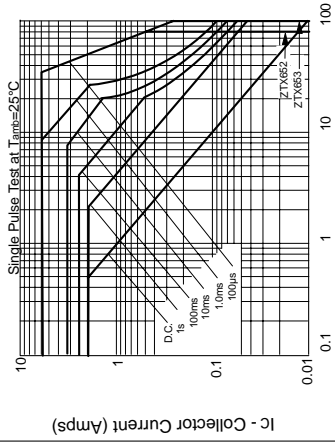
IC - Collector Current (Amps)
hFE v IC



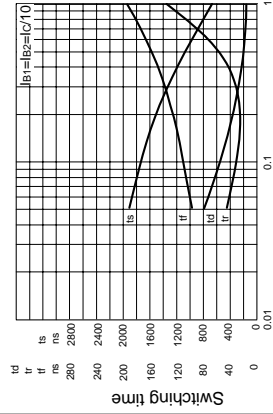
IC - Collector Current (Amps)
VBE(sat) v IC



IC - Collector Current (Amps)
VBE(on) v IC





Safe Operating Area



IC - Collector Current (Amps)
Switching Speeds

Looking for pricing, stock, or lifecycle information?

Click below to explore more details on WIN SOURCE:

-  [View ZTX653 on WIN SOURCE](#)
-  [Diodes Incorporated Information](#)

Optimize Your Supply Chain with WIN SOURCE Solutions

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