

ZTX652 ZTX653

NPN SILICON PLANAR MEDIUM POWER TRANSISTORS

ZTX652 ZTX653

ISSUE 2 – JULY 94

ELECTRICAL CHARACTERISTICS (at T_{amb} = 25°C unless otherwise stated).

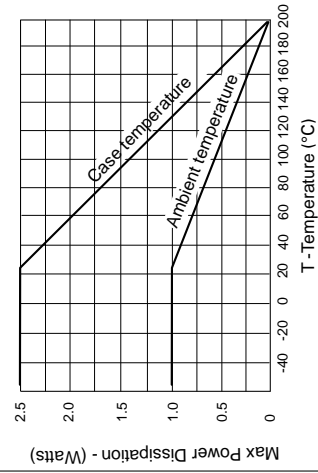
PARAMETER	SYMBOL	ZTX652		ZTX653		UNIT	CONDITIONS.
		MIN.	TYP.	MAX.	TYP.		
Transition Frequency	f _T	140	175	140	175	MHz	I _C =100mA, V _{CE} =5V f _s =100MHz
Switching Times	t _{on}		80		80	ns	I _C =500mA, V _{CE} =10V I _{B1} =I _{B2} =50mA
	t _{off}		1200		1200	ns	
Output Capacitance	C _{obo}		30		30	pF	V _{CE} =10V f=1MHz

*Measured under pulsed conditions. Pulse width=300µs. Duty cycle ≤ 2%

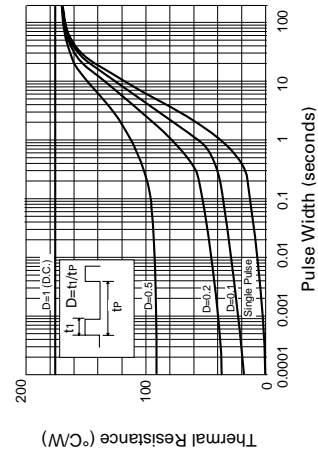
THERMAL CHARACTERISTICS

PARAMETER	SYMBOL	MAX.	UNIT
Thermal Resistance: Junction to Ambient ₁ Junction to Ambient ₂ Junction to Case	R _{th(j-amb)1}	175	°C/W
	R _{th(j-amb)2} †	116	°C/W
	R _{th(j-case)}	70	°C/W

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



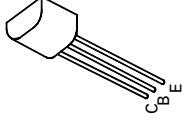
Derating curve



Maximum transient thermal impedance

FEATURES

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



E-Line
TO92 Compatible

ABSOLUTE MAXIMUM RATINGS.

PARAMETER	SYMBOL	ZTX652	ZTX653	UNIT
Collector-Base Voltage	V _{CB0}	100	120	V
Collector-Emitter Voltage	V _{CE0}	80	100	V
Emitter-Base Voltage	V _{EB0}		5	V
Peak Pulse Current	I _{CM}		6	A
Continuous Collector Current	I _C		2	A
Power Dissipation at T _{amb} =25°C derate above 25°C	P _{tot}		1	W
Operating and Storage Temperature Range	T _J , T _{stg}		5.7	mW/°C
			-55 to +200	°C

ELECTRICAL CHARACTERISTICS (at T_{amb} = 25°C unless otherwise stated).

PARAMETER	SYMBOL	ZTX652			ZTX653			CONDITIONS.
		MIN.	TYP.	MAX.	MIN.	TYP.	MAX.	
Collector-Base Breakdown Voltage	V _{(BR)CBO}	100			120			V I _C =100µA
Collector-Emitter Breakdown Voltage	V _{(BR)CEO}	80			100			V I _C =10mA*
Emitter-Base Breakdown Voltage	V _{(BR)EBO}	5			5			V I _E =100µA
Collector Cut-Off Current	I _{CBO}			0.1			0.1	V _{CB} =80V V _{CE} =100V V _{CB} =80V, T _{amb} =100°C V _{CE} =100V, T _{amb} =100°C
Emitter Cut-Off Current	I _{EBO}			0.1			0.1	V _{EB} =4V
Collector-Emitter Saturation Voltage	V _{CE(sat)}	0.13	0.23	0.3	0.13	0.23	0.3	V I _C =1A, I _B =100mA*
Base-Emitter Saturation Voltage	V _{BE(sat)}	0.9	1.25	1.25	0.9	1.25	1.25	V I _C =2A, I _B =200mA*
Base-Emitter Turn-On Voltage	V _{BE(on)}	0.8	1	1	0.8	1	1	V I _C =1A, V _{CE} =2V*

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ELECTRICAL CHARACTERISTICS (at T_{amb} = 25°C unless otherwise stated).

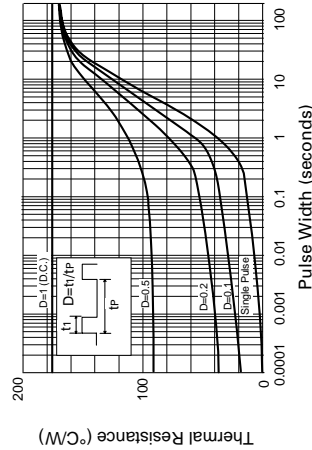
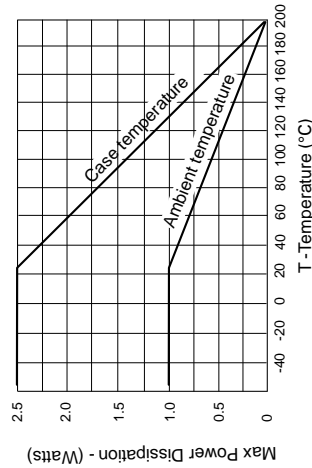
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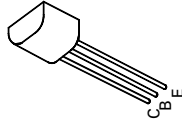


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FEATURES

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- * Low saturation voltage
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Collector Cut-Off Current	I _{CBO}			0.1			0.1	V _{CB} =80V V _{CE} =100V V _{CB} =80V, T _{amb} =100°C V _{CE} =100V, T _{amb} =100°C
Emitter Cut-Off Current	I _{EBO}			0.1			0.1	V _{EB} =4V
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Base-Emitter Turn-On Voltage	V _{BE(on)}	0.8	1	1	0.8	1	1	V I _C =1A, V _{CE} =2V*

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TYPICAL CHARACTERISTICS

