ZTX652
ZTX653

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

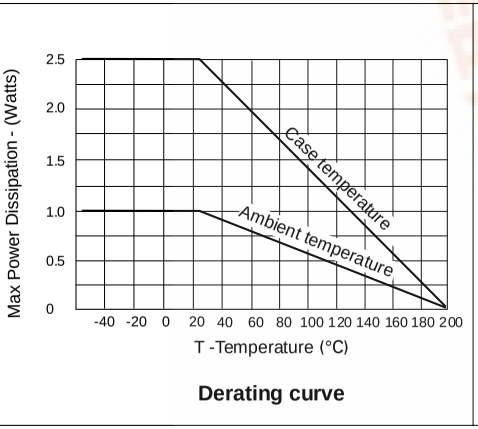
PARAMETER	SYMBOL	ZTX652			ZTX653			UNIT	CONDITIONS.
		MIN.	TYP.	MAX.	MIN.	TYP.	MAX.		
Transition Frequency	f_T	140	175		140	175		MHz	I_C=100mA, V_{CE}=5V f=100MHz
Switching Times	t_{on}		80			80		ns	I_C=500mA, V_{CC}=10V I_{B1}=I_{B2}=50mA
	t_{off}		1200			1200		ns	
Output Capacitance	C_{obo}			30			30	pF	V_{CB}=10V f=1MHz

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

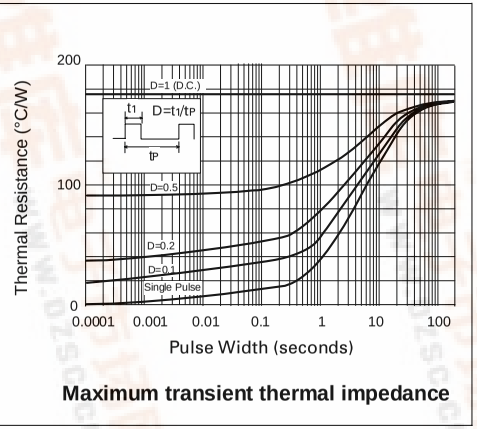
THERMAL CHARACTERISTICS

PARAMETER	SYMBOL	MAX.	UNIT
Thermal Resistance: Junction to Ambient$_1$	$R_{th(j\text{-}amb)1}$	175	°C/W
Junction to Ambient$_2$	$R_{th(j\text{-}amb)2}$†	116	°C/W
Junction to Case	$R_{th(j\text{-}case)}$	70	°C/W

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



Derating curve



Maximum transient thermal impedance

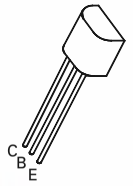
NPN SILICON PLANAR MEDIUM POWER TRANSISTORS

ZTX652
ZTX653

ISSUE 2 – JULY 94

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_{CBO}	100	120	V
Collector-Emitter Voltage	V_{CEO}	80	100	V
Emitter-Base Voltage	V_{EBO}	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 5.7		W mW/°C
Operating and Storage Temperature Range	T_j:T_{stg}	-55 to +200		°C

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

PARAMETER	SYMBOL	ZTX652			ZTX653			UNIT	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 10			0.1 10	µA µA µA µA	V_{CB}=80V V_{CB}=100V V_{CB}=80V,T_{amb}=100°C V_{CB}=100V,T_{amb}=100°C
Emitter Cut-Off Current	I_{EBO}			0.1			0.1	µA	V_{EB}=4V
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$		0.13 0.23	0.3 0.5		0.13 0.23	0.3 0.5	V V	I_C=1A, I_B=100mA* I_C=2A, I_B=200mA*
Base-Emitter Saturation Voltage	$V_{BE(sat)}$		0.9	1.25		0.9	1.25	V	I_C=1A, I_B=100mA*
Base-Emitter Turn-On Voltage	$V_{BE(on)}$		0.8	1		0.8	1	V	IC=1A, V_{CE}=2V*

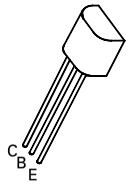
NPN SILICON PLANAR MEDIUM POWER TRANSISTORS

ZTX652
ZTX653

ISSUE 2 – JULY 94

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_{CBO}	100	120	V
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Power Dissipation at T_{amb}=25°C derate above 25°C	P_{tot}	1 5.7		W mW/°C
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Collector Cut-Off Current	I_{CBO}			0.1 10			0.1 10	µA µA µA µA	V_{CB}=80V V_{CB}=100V V_{CB}=80V,T_{amb}=100°C V_{CB}=100V,T_{amb}=100°C
Emitter Cut-Off Current	I_{EBO}			0.1			0.1	µA	V_{EB}=4V
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$		0.13 0.23	0.3 0.5		0.13 0.23	0.3 0.5	V V	I_C=1A, I_B=100mA* I_C=2A, I_B=200mA*
Base-Emitter Saturation Voltage	$V_{BE(sat)}$		0.9	1.25		0.9	1.25	V	I_C=1A, I_B=100mA*
Base-Emitter Turn-On Voltage	$V_{BE(on)}$		0.8	1		0.8	1	V	IC=1A, V_{CE}=2V*

ZTX652
ZTX653

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

PARAMETER	SYMBOL	ZTX652			ZTX653			UNIT	CONDITIONS.
		MIN.	TYP.	MAX.	MIN.	TYP.	MAX.		
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	t_{off}		1200			1200		ns	
Output Capacitance	C_{obo}			30			30	pF	V_{CB}=10V f=1MHz

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Junction to Case	$R_{th(j\text{-}case)}$	70	°C/W

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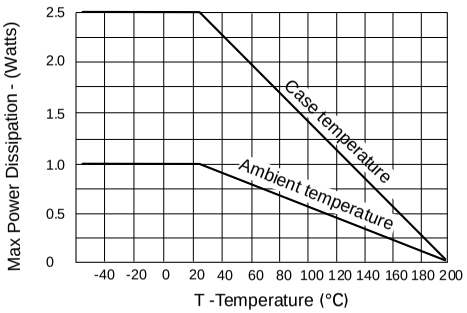
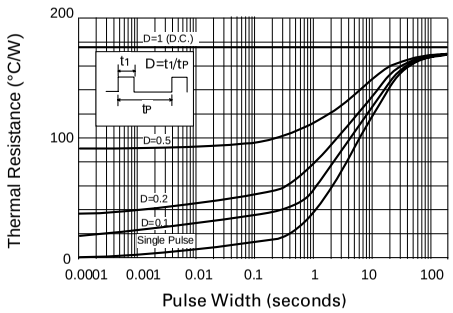


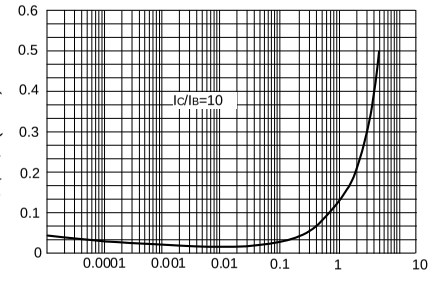
Derating curve



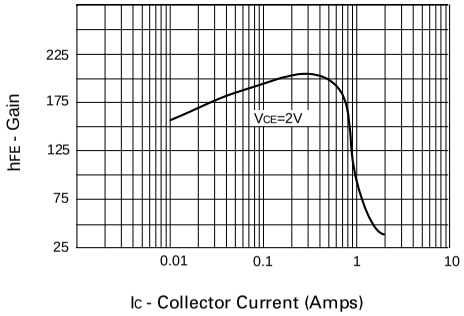
Maximum transient thermal impedance

ZTX652
ZTX653

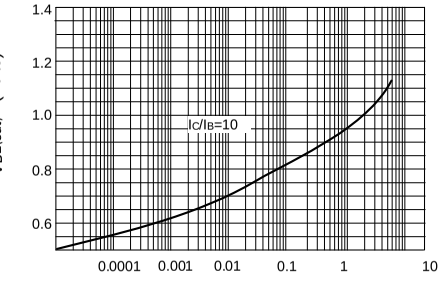
TYPICAL CHARACTERISTICS



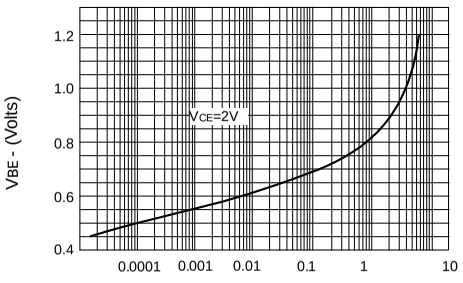
VCE(sat) v IC



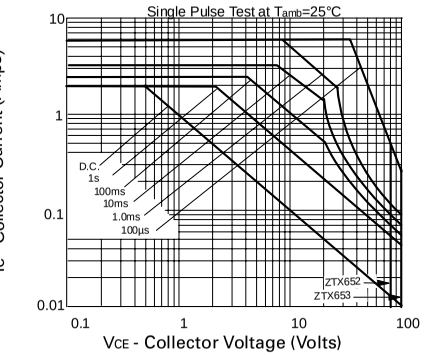
hFE v IC



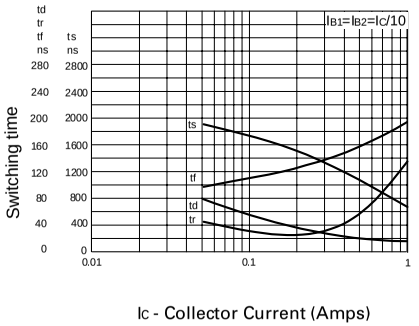
VBE(sat) v IC



VBE(on) v IC



Safe Operating Area



Switching Speeds