

ZTX752 ZTX753

PNP SILICON PLANAR MEDIUM POWER TRANSISTORS

ZTX752 ZTX753

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

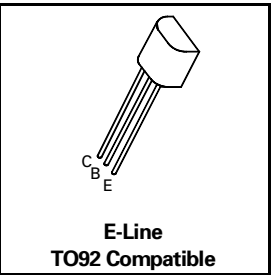
PARAMETER	SYMBOL	ZTX752			ZTX753			UNIT	CONDITIONS.
		MIN.	TYP.	MAX.	MIN.	TYP.	MAX.		
Transition Frequency	f_T	100	140		100	140		MHz	$I_C = -100mA, V_{CE} = -5V$ $f = 100MHz$
Switching Times	t_{on}		40			40		ns	$I_C = -500mA, V_{CC} = -10V$ $I_B = I_{B2} = -50mA$
	t_{off}		600			600		ns	
Output Capacitance	C_{obo}			30			30	pF	$V_{CB} = 10V, f = 1MHz$

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

ISSUE 2 - JULY 94

FEATURES

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



THERMAL CHARACTERISTICS

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

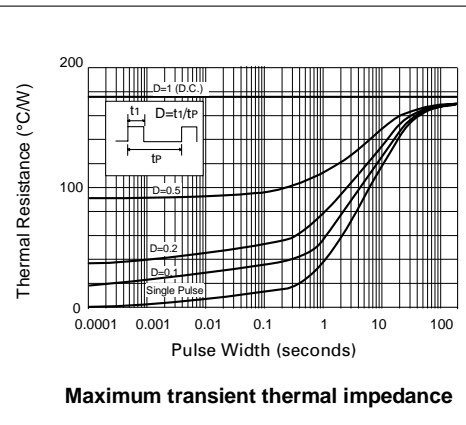
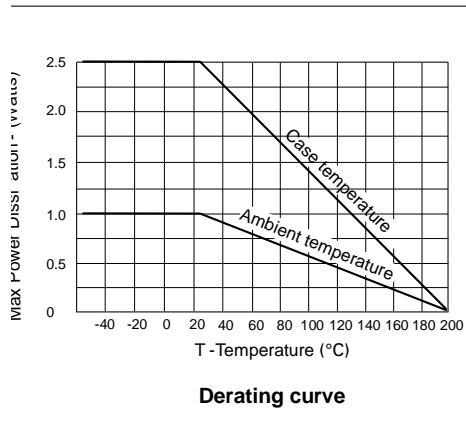
\dagger Device mounted on P.C.B. with copper equal to 1 sq. Inch minimum.

ABSOLUTE MAXIMUM RATINGS.

PARAMETER	SYMBOL	ZTX752	ZTX753	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 $T_{amb} = 25^{\circ}C$ derate above $25^{\circ}C$	P_{tot}		1 5.7	W mW/ $^{\circ}C$
Operating and Storage Temperature Range	$T_j; T_{stg}$		-55 to +200	$^{\circ}C$

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

PARAMETER	SYMBOL	ZTX752			ZTX753			UNIT	CONDITIONS.
		MIN.	TYP.	MAX.	MIN.	TYP.	MAX.		
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	-100			-120			V	$I_C = -100\mu A$
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	-80			-100			V	$I_C = -10mA^*$
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	-5			-5			V	$I_E = -100\mu A$
Collector Cut-Off Current	I_{CBO}			-0.1			-0.1	μA	$V_{CB} = -80V$ $V_{CB} = -100V$ $V_{CB} = -80V, T_{amb} = 100^{\circ}C$ $V_{CB} = -100V, T_{amb} = 100^{\circ}C$
Emitter Cut-Off Current	I_{EBO}			-0.1			-0.1	μA	$V_{EB} = -4V$
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$		-0.17 -0.30	-0.3 -0.5		-0.17 -0.30	-0.3 -0.5	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	$I_C = -1A, V_{CE} = -2V^*$



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

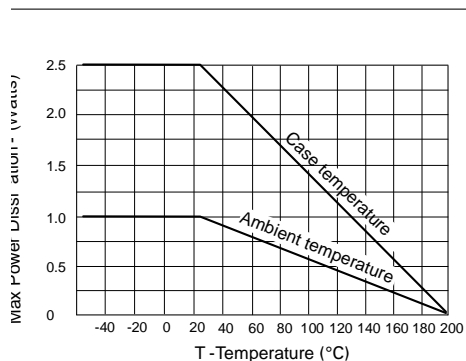
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Transition Frequency	f_T	100	140		100	140		MHz	$I_C=100\text{mA}$, $V_{CE}=5\text{V}$ $f=100\text{MHz}$
Switching Times	t_{on}		40			40		ns	$I_C=500\text{mA}$, $V_{CC}=10\text{V}$ $I_{B1}=I_{B2}=50\text{mA}$
	t_{off}		600			600		ns	
Output Capacitance	C_{obo}			30			30	pF	$V_{CB}=10\text{V}$ $f=1\text{MHz}$

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

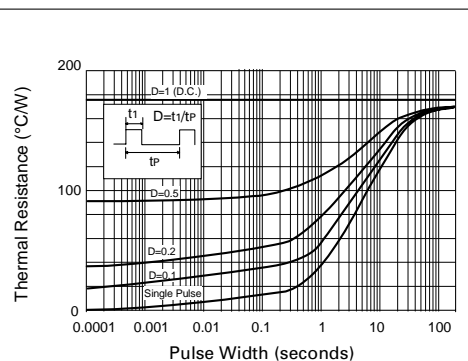
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\dagger Device mounted on P.C.B. with copper equal to 1 sq. Inch minimum.



Derating curve



Maximum transient thermal impedance

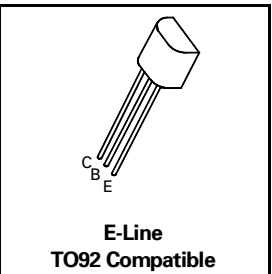
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ABSOLUTE MAXIMUM RATINGS.

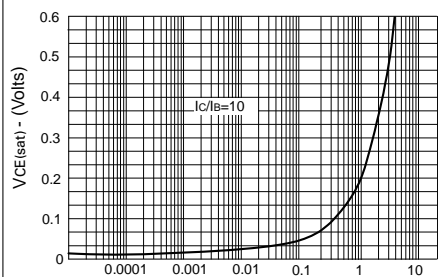
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Operating and Storage Temperature Range	$T_j; T_{stg}$		-55 to +200	$^{\circ}\text{C}$

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PARAMETER	SYMBOL	ZTX752			ZTX753			UNIT	CONDITIONS.
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Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	-100			-120			V	$I_C=100\mu\text{A}$
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	-80			-100			V	$I_C=10\text{mA}^*$
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	-5			-5			V	$I_E=100\mu\text{A}$
Collector Cut-Off Current	I_{CBO}			-0.1			-0.1	μA	$V_{CB}=80\text{V}$ $V_{CB}=100\text{V}$ $V_{CB}=80\text{V}, T_{amb}=100^{\circ}\text{C}$ $V_{CB}=100\text{V}, T_{amb}=100^{\circ}\text{C}$
Emitter Cut-Off Current	I_{EBO}			-0.1			-0.1	μA	$V_{EB}=4\text{V}$
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	-0.17 -0.30	-0.3 -0.5		-0.17 -0.30	-0.3 -0.5		V	$I_C=1\text{A}, I_B=100\text{mA}^*$ $I_C=2\text{A}, I_B=200\text{mA}^*$
Base-Emitter Saturation Voltage	$V_{BE(sat)}$	-0.9	-1.25		-0.9	-1.25		V	$I_C=1\text{A}, I_B=100\text{mA}^*$
Base-Emitter Turn-On Voltage	$V_{BE(on)}$	-0.8	-1		-0.8	-1		V	$I_C=1\text{A}, V_{CE}=2\text{V}^*$

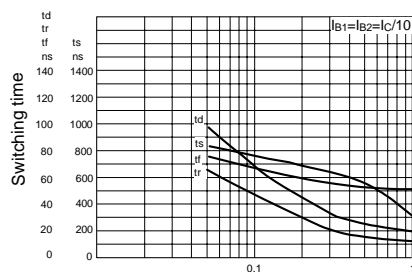
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TYPICAL CHARACTERISTICS



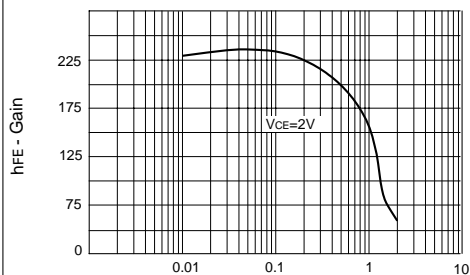
I_C - Collector Current (Amps)

$V_{CE(sat)}$ v I_C



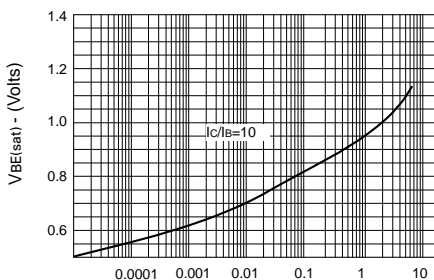
I_C - Collector Current (Amps)

Switching Speeds



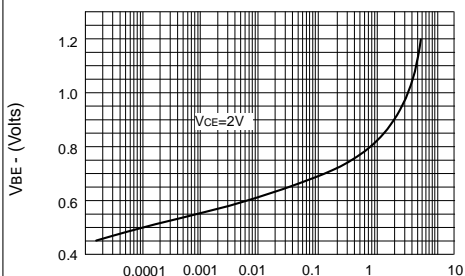
I_C - Collector Current (Amps)

h_{FE} v I_C



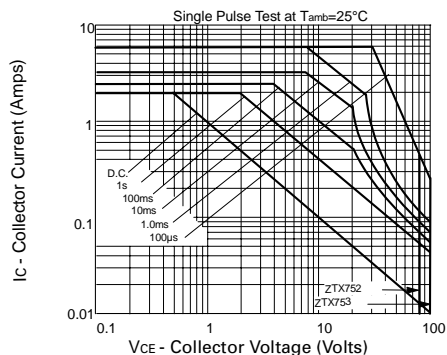
I_C - Collector Current (Amps)

$V_{BE(sat)}$ v I_C



I_C - Collector Current (Amps)

$V_{BE(on)}$ v I_C



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