

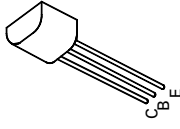
# ZTX752 ZTX753

## PNP SILICON PLANAR MEDIUM POWER TRANSISTORS

ISSUE 2 - JULY 94

### FEATURES

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



E-Line  
TO92 Compatible

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

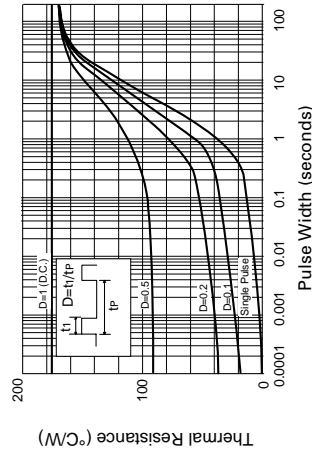
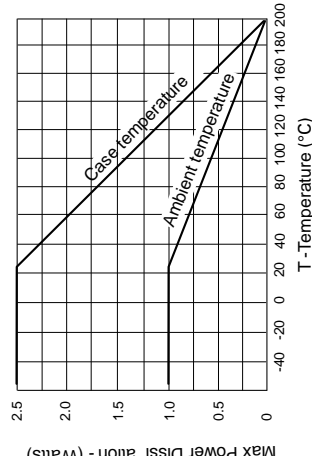
PARAMETER	SYMBOL	ZTX752		ZTX753		UNIT	CONDITIONS.
		MIN.	TYP.	MAX.	MIN.		
Transition Frequency	$f_T$	100	140		100	140	MHz $I_C=100mA, V_{CE}=5V$ $f=100MHz$
Switching Times	$t_{on}$		40		40	ns	$I_C=500mA, V_{CC}=10V$ $I_B=I_{BZ}=50mA$
	$t_{off}$		600		600	ns	
Output Capacitance	$C_{obo}$		30		30	pF	$V_{CB}=10V,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

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

### THERMAL CHARACTERISTICS

PARAMETER	SYMBOL	MAX.	UNIT
Thermal Resistance: Junction to Ambient, Junction to Ambient, Junction to Case	$R_{th(j-amb)1}$	175	$^{\circ}C/W$
	$R_{th(j-amb)2}^{\dagger}$	116	$^{\circ}C/W$
	$R_{th(j-case)}$	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	-5	V
Peak Pulse Current	$I_{CM}$	-6	-6	A
Continuous Collector Current	$I_C$	-2	-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.		
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				$V_{CB}=80V$ $V_{CB}=100V$
			-10				$V_{CB}=80V, T_{amb}=100^{\circ}C$ $V_{CB}=100V, T_{amb}=100^{\circ}C$
Emitter Cut-Off Current	$I_{EBO}$		-0.1				$V_{EB}=4V$
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	-0.17	-0.3	-0.17	-0.3	V	$I_C=1A, I_B=100mA^*$
		-0.30	-0.5	-0.30	-0.5	V	$I_C=2A, I_B=200mA^*$
Base-Emitter Saturation Voltage	$V_{BE(sat)}$	-0.9	-1.25	-0.9	-1.25	V	$I_C=1A, I_B=100mA^*$
		-0.8	-1	-0.8	-1	V	$I_C=1A, V_{CE}=2V^*$

**ZTX752  
ZTX753**

**ELECTRICAL CHARACTERISTICS (at T<sub>amb</sub> = 25°C).**

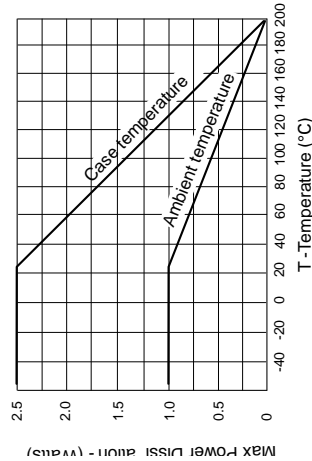
PARAMETER	SYMBOL	ZTX752		ZTX753		UNIT	CONDITIONS.
		MIN.	TYP.	MAX.	MIN.		
Transition Frequency	f <sub>T</sub>	100	140	100	140	MHz	I <sub>C</sub> =100mA, V <sub>CE</sub> =5V f=100MHz
Switching Times	t <sub>on</sub>	40	40	40	40	ns	I <sub>C</sub> =500mA, V <sub>CC</sub> =10V I <sub>B1</sub> =I <sub>B2</sub> =50mA
	t <sub>off</sub>	600	600	600	600	ns	
Output Capacitance	C <sub>obo</sub>	30	30	30	30	pF	V <sub>CB</sub> =10V f=1MHz

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

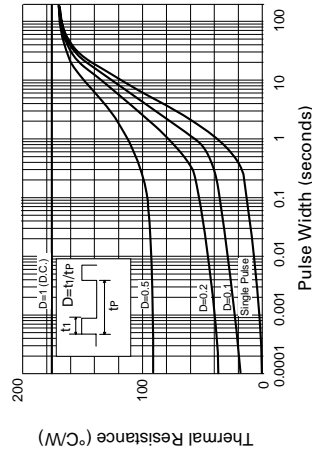
**THERMAL CHARACTERISTICS**

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

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



**Derating curve**



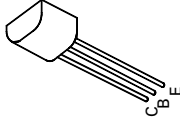
**Maximum transient thermal impedance**

**PNP SILICON PLANAR  
MEDIUM POWER TRANSISTORS**

ISSUE 2 – JULY 94

**FEATURES**

- \* 100 Volt V<sub>CE0</sub>
- \* 2 Amp continuous current
- \* Low saturation voltage
- \* P<sub>tot</sub>=1 Watt



**E-Line  
TO92 Compatible**

**ABSOLUTE MAXIMUM RATINGS.**

PARAMETER	SYMBOL	ZTX752	ZTX753	UNIT
Collector-Base Voltage	V <sub>CB0</sub>	-100	-120	V
Collector-Emitter Voltage	V <sub>CE0</sub>	-80	-100	V
Emitter-Base Voltage	V <sub>EB0</sub>	-5	-5	V
Peak Pulse Current	I <sub>CM</sub>	-6	-6	A
Continuous Collector Current	I <sub>C</sub>	-2	-2	A
Power Dissipation at T <sub>amb</sub> =25°C derate above 25°C	P <sub>tot</sub>	1	5.7	W
Operating and Storage Temperature Range	T <sub>J</sub> ; T <sub>stg</sub>	-55 to +200		°C

**ELECTRICAL CHARACTERISTICS (at T<sub>amb</sub> = 25°C unless otherwise stated).**

PARAMETER	SYMBOL	ZTX752			ZTX753			CONDITIONS.
		MIN.	TYP.	MAX.	MIN.	TYP.	MAX.	
Collector-Base Breakdown Voltage	V <sub>(BR)CBO</sub>	-100			-120			V I <sub>C</sub> =-100µA
Collector-Emitter Breakdown Voltage	V <sub>(BR)CEO</sub>	-80			-100			V I <sub>C</sub> =-10mA*
Emitter-Base Breakdown Voltage	V <sub>(BR)EBO</sub>	-5			-5			V I <sub>E</sub> =-100µA
Collector Cut-Off Current	I <sub>CBO</sub>			-0.1				µA V <sub>CB</sub> =-80V V <sub>CB</sub> =-100V, T <sub>amb</sub> =100°C V <sub>CB</sub> =-80V, T <sub>amb</sub> =100°C V <sub>CB</sub> =-100V, T <sub>amb</sub> =100°C
Emitter Cut-Off Current	I <sub>EBO</sub>			-0.1				µA V <sub>EB</sub> =-4V
Collector-Emitter Saturation Voltage	V <sub>CE(sat)</sub>	-0.17	-0.3	-0.5	-0.17	-0.3	-0.5	V I <sub>C</sub> =-1A, I <sub>B</sub> =-100mA*
Base-Emitter Saturation Voltage	V <sub>BE(sat)</sub>	-0.9	-1.25	-1.25	-0.9	-1.25	-1.25	V I <sub>C</sub> =-2A, I <sub>B</sub> =-200mA*
Base-Emitter Turn-On Voltage	V <sub>BE(on)</sub>	-0.8	-1	-1	-0.8	-1	-1	V I <sub>C</sub> =-1A, V <sub>CE</sub> =-2V*

**ZTX752**  
**ZTX753**

**TYPICAL CHARACTERISTICS**

