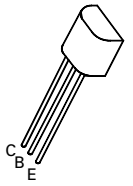
PNP SILICON PLANAR MEDIUM POWER HIGH CURRENT TRANSISTOR

ZTX953

ISSUE 4 – JUNE 94

FEATURES

* 3.5 Amps continuous current
* Up to 10 Amps peak current
* Very low saturation voltage
* Excellent gain up to 10 Amps
* Spice model available



E-Line
TO92 Compatible

ABSOLUTE MAXIMUM RATINGS.

PARAMETER	SYMBOL	VALUE	UNIT
Collector-Base Voltage	V_{CBO}	-140	V
Collector-Emitter Voltage	V_{CEO}	-100	V
Emitter-Base Voltage	V_{EBO}	-6	V
Peak Pulse Current	I_{CM}	-10	A
Continuous Collector Current	I_C	-3.5	A
Practical Power Dissipation*	P_{totp}	1.58	W
Power Dissipation at T_{amb}=25°C	P_{tot}	1.2	W
Operating and Storage Temperature Range	T_j:T_{stg}	-55 to +200	°C

*The power which can be dissipated assuming the device is mounted in a typical manner on a P.C.B. with copper equal to 1 inch square minimum

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

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	CONDITIONS.
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	-140	-170		V	I_C=-100μA
Collector-Emitter Breakdown Voltag	$V_{(BR)CER}$	-140	-170		V	IC=-1μA, RB ≤1KΩ
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	-100	-120		V	I_C=-10mA*
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	-6	-8		V	I_E=-100μA
Collector Cut-Off Current	I_{CBO}			-50 -1	nA μA	V_{CB}=-100V V_{CB}=-100V, T_{amb}=100°C
Collector Cut-Off Current	I_{CER} R ≤1KΩ			-50 -1	nA μA	V_{CB}=-100V V_{CB}=-100V, T_{amb}=100°C
Emitter Cut-Off Current	I_{EBO}			-10	nA	V_{EB}=-6V
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$		-20 -80 -140 -250	-50 -100 -170 -330	mV mV mV mV	I_C=-100mA, I_B=-10mA* I_C=-1A, I_B=-100mA* I_C=-2A, I_B=-200mA* I_C=-4A, I_B=-400mA*
Base-Emitter Saturation Voltage	$V_{BE(sat)}$		-960	-1100	mV	I_C=-4A, I_B=-400mA*

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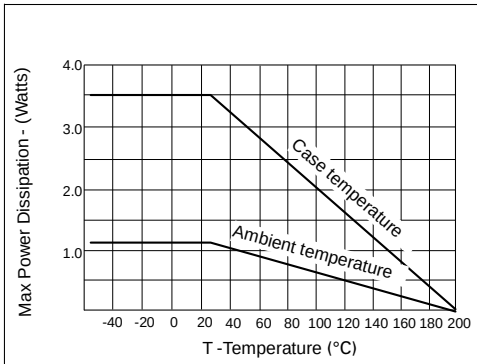
ELECTRICAL CHARACTERISTICS (at T_{amb} = 25°C)

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	CONDITIONS.
Base-Emitter Turn-On Voltage	$V_{BE(on)}$		-880	-1100	mV	IC=-4A, V_{CE}=-1V*
Static Forward Current Transfer	h_{FE}	100 100 50 30	200 200 90 50 15	300		I_C=-10mA, V_{CE}=-1V* I_C=-1A, V_{CE}=-1V* I_C=-3A, V_{CE}=-1V* I_C=-4A, V_{CE}=-1V* I_C=-10A, V_{CE}=-1V*
Transition Frequency	f_T		125		MHz	I_C=-100mA, V_{CE}=-10V f=50MHz
Output Capacitance	C_{obo}		65		pF	V_{CB}=-10V, f=1MHz
Switching Times	t_{on} t_{off}		110 460		ns ns	I_C=-2A, I_{B1}=-200mA I_{B2}=200mA, V_{CC}=-10V

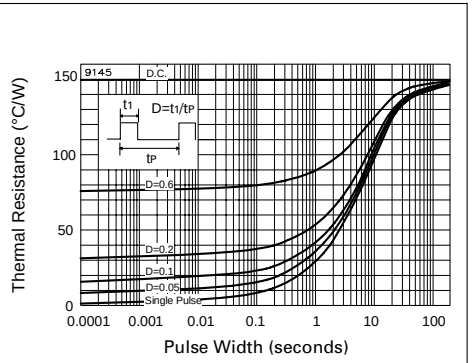
*Measured under pulsed conditions. Pulse width=300μs. Duty cycle ≤2%

THERMAL CHARACTERISTICS

PARAMETER	SYMBOL	MAX.	UNIT
Thermal Resistance: Junction to Ambient Junction to Case	$R_{th(j\text{-}amb)}$ $R_{th(j\text{-}case)}$	150 50	°C/W °C/W



Derating curve



Maximum transient thermal impedance

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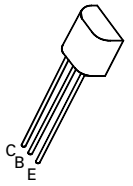

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Collector-Emitter Saturation Voltage	$V_{CE(sat)}$		-20 -80 -140 -250	-50 -100 -170 -330	mV mV mV mV	I_C=-100mA, I_B=-10mA* I_C=-1A, I_B=-100mA* I_C=-2A, I_B=-200mA* I_C=-4A, I_B=-400mA*
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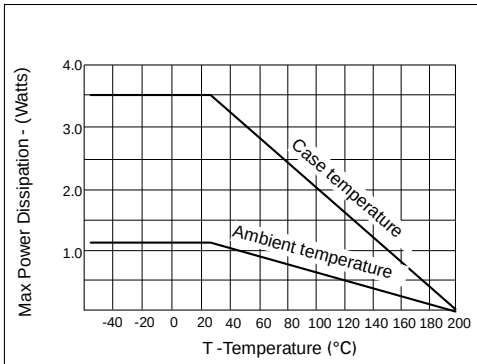

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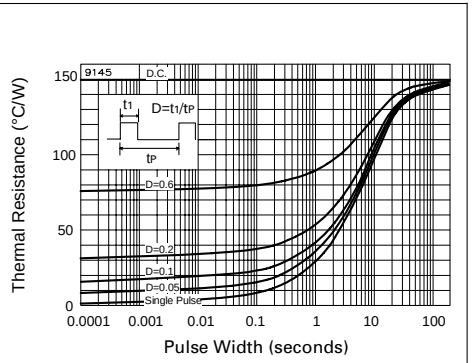

Maximum transient thermal impedance

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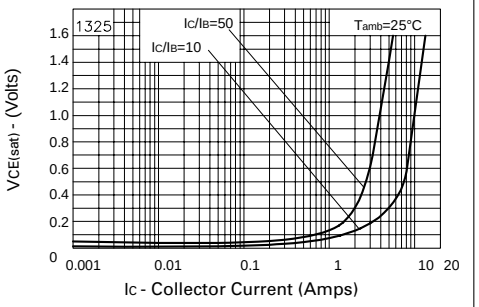
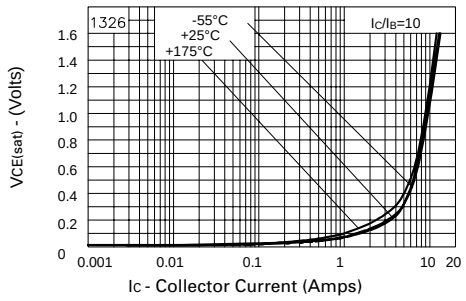
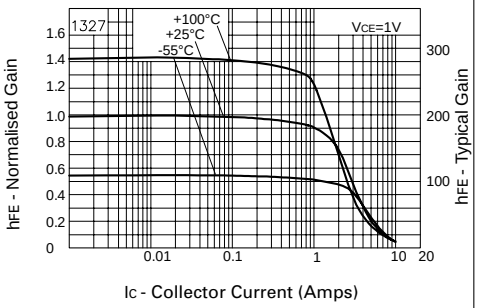
TYPICAL CHARACTERISTICS



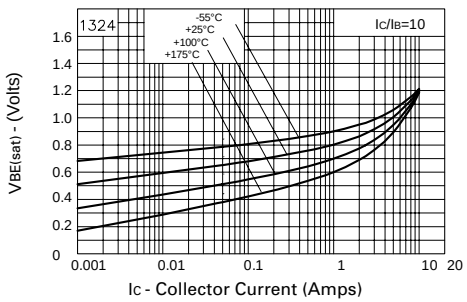
VCE(sat) v IC



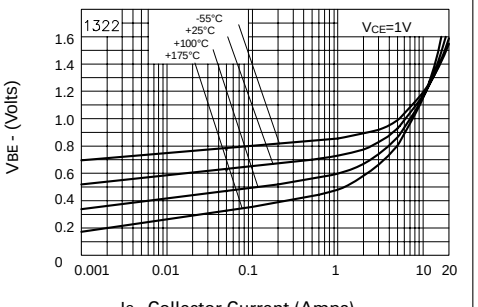
VCE(sat) v IC



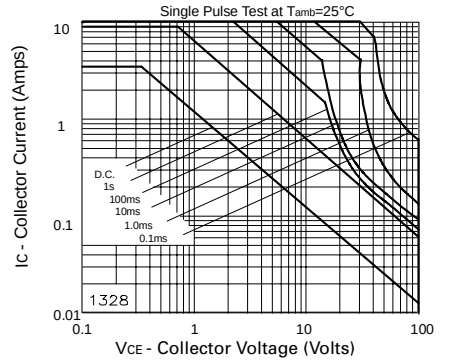
hFE v IC



VBE(sat) v IC



VBE(on) v IC



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