



ZTX857

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

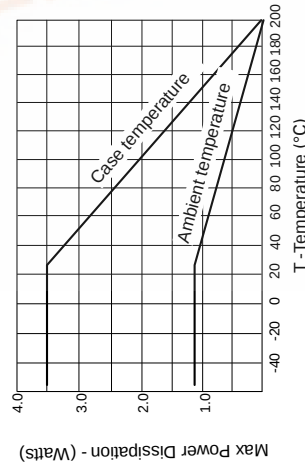
PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	CONDITIONS.
Base-Emitter Turn-On Voltage	$V_{BE(on)}$		810	950	mV	$I_C=2A, V_{CE}=5V^*$
Static Forward Current Transfer Ratio	h_{FE}	100 100 15	200 200 25 15	300		$I_C=10mA, V_{CE}=5V$ $I_C=500mA, V_{CE}=10V^*$ $I_C=2A, V_{CE}=10V^*$ $I_C=3A, V_{CE}=10V^*$
Transition Frequency	f_T		80		MHz	$I_C=100mA, V_{CE}=10V$ $f=100MHz$
Output Capacitance	C_{obo}		11		pF	$V_{CE}=20V, f=1MHz$
Switching Times	t_{on} t_{off}		100 5300		ns ns	$I_C=250mA, I_B=25mA$ $I_B=25mA, V_{CC}=50V$

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

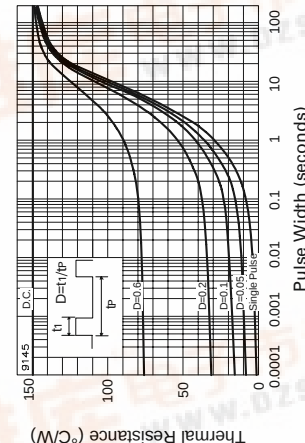
Thermal Characteristics

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

Thermal Resistance: Junction to Ambient
Junction to Case



Derating curve



Maximum transient thermal impedance

ABSOLUTE MAXIMUM RATINGS.

PARAMETER	SYMBOL	VALUE	UNIT
Collector-Base Voltage	V_{CB0}	330	V
Collector-Emitter Voltage	V_{CE0}	300	V
Emitter-Base Voltage	V_{EB0}	6	V
Peak Pulse Current	I_{CM}	5	A
Continuous Collector Current	I_C	3	A
Practical Power Dissipation*	P_{totp}	1.58	W
Power Dissipation at $T_{amb}=25^{\circ}\text{C}$	P_{tot}	1.2	W
Operating and Storage Temperature Range	T_J, T_{stg}	-55 to +200	$^{\circ}\text{C}$

*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 $T_{amb} = 25^{\circ}\text{C}$ unless otherwise stated)

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	CONDITIONS.
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	330	475		V	$I_C = 100\mu A$
Collector-Emitter Breakdown Voltage	$V_{(BR)CER}$	330	475		V	$I_C = 1\mu A, R_B \leq 1k\Omega$
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	300	350		V	$I_C = 10mA^*$
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	6	8		V	$I_E = 100\mu A$
Collector Cut-Off Current	I_{CBO}			50 1	nA μA	$V_{CB} = 300V$ $V_{CB} = 300V, T_{amb} = 100^\circ C$
Collector Cut-Off Current	I_{CER} $R \leq 1k\Omega$			50 1	nA μA	$V_{CB} = 300V$ $V_{CB} = 300V, T_{amb} = 100^\circ C$
Emitter Cut-Off Current	I_{EBO}			10	nA	$V_{EB} = 6V$
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$		50 80 140 170	100 140 200 250	mV mV mV mV	$I_C = 0.5A, I_B = 50mA^*$ $I_C = 1A, I_B = 100mA^*$ $I_C = 2A, I_B = 200mA^*$ $I_C = 3A, I_B = 600mA^*$
Base-Emitter Saturation Voltage	$V_{BE(sat)}$		870	1000	mV	$I_C = 2A, I_B = 200mA^*$

3-304

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ZTX857

NPN SILICON PLANAR MEDIUM POWER
HIGH CURRENT TRANSISTOR

ZTX857

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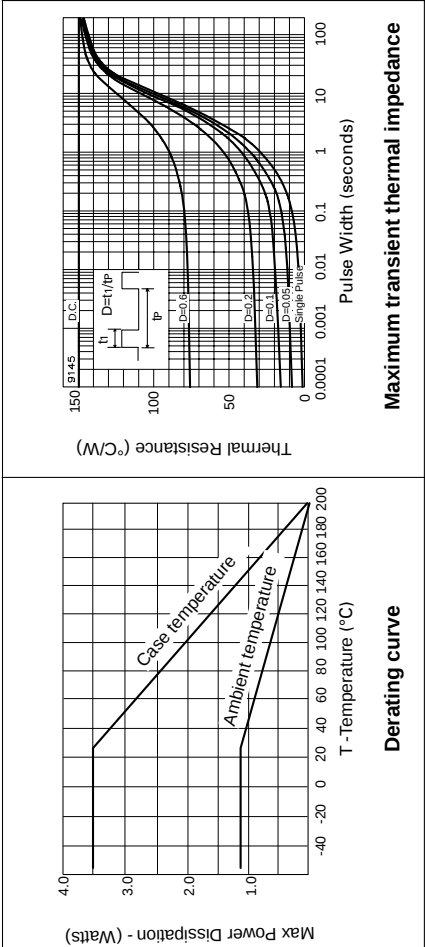
ELECTRICAL CHARACTERISTICS (at T_amb = 25°C)

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	CONDITIONS.
Base-Emitter Turn-On Voltage	V _{BE(on)}		810	950	mV	I _C =2A, V _{CE} =5V*
Static Forward Current Transfer Ratio	h _{FE}	100	200	300		I _C =10mA, V _{CE} =5V
		100	200			I _C =500mA, V _{CE} =10V*
		15	25			I _C =2A, V _{CE} =10V*
			15			I _C =3A, V _{CE} =10V*
Transition Frequency	f _T		80		MHz	I _C =100mA, V _{CE} =10V f=100MHz
Output Capacitance	C _{obo}		11		pF	V _{CB} =20V, f=1MHz
Switching Times	t _{on}		100		ns	I _C =250mA, I _B =25mA
	t _{off}		5300		ns	I _B =25mA, V _{CE} =50V

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

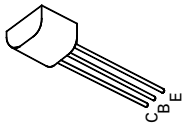
HERMAL CHARACTERISTICS

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



FEATURES

- * 300 Volt V_{CEO}
- * 3 Amps continuous current
- * Up to 5 Amps peak current
- * Very low saturation voltage
- * P_{tot} = 1.2 Watt



E-Line
TO92 Compatible

ABSOLUTE MAXIMUM RATINGS.

PARAMETER	SYMBOL	VALUE	UNIT
Collector-Base Voltage	V _{CB0}	330	V
Collector-Emitter Voltage	V _{CE0}	300	V
Emitter-Base Voltage	V _{EB0}	6	V
Peak Pulse Current	I _{CM}	5	A
Continuous Collector Current	I _C	3	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

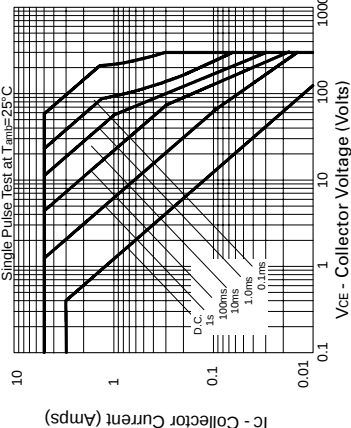
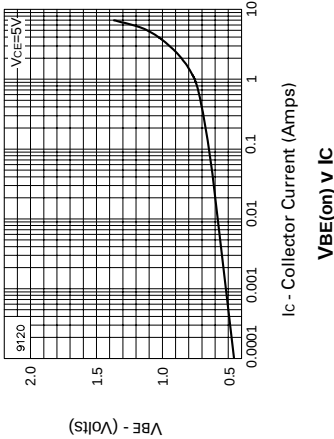
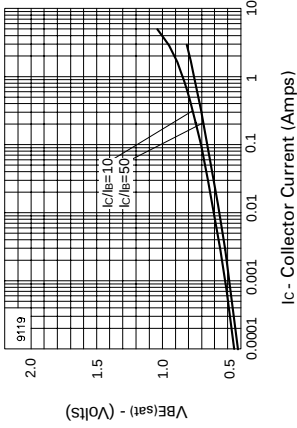
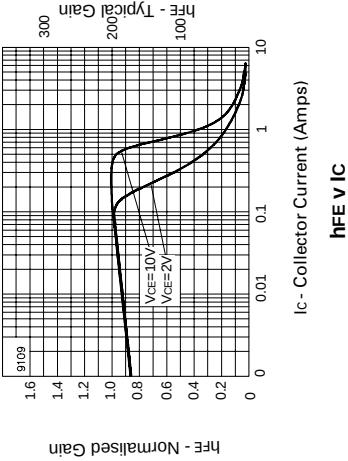
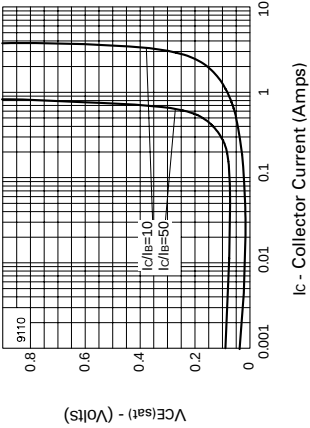
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ELECTRICAL CHARACTERISTICS (at T_amb = 25°C unless otherwise stated)

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	CONDITIONS.
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Collector-Emitter Breakdown Voltage	V _{(BR)CER}	330	475		V	I _C =1µA, R _B ≤1KΩ
Collector-Emitter Breakdown Voltage	V _{(BR)CEO}	300	350		V	I _C =10mA*
Emitter-Base Breakdown Voltage	V _{(BRE)BO}	6	8		V	I _E =100µA
Collector Cut-Off Current	I _{CBO}			50	nA	V _{CB} =300V V _{CE} =300V, T _{amb} =100°C
Collector Cut-Off Current	I _{CER} R ≤1KΩ		50	50	µA	V _{CB} =300V V _{CE} =300V, T _{amb} =100°C
Emitter Cut-Off Current	I _{EB0}			10	nA	V _{EB} =6V
Collector-Emitter Saturation Voltage	V _{CE(sat)}		50	100	mV	I _C =0.5A, I _B =50mA*
			80	140	mV	I _C =1A, I _B =100mA*
			140	200	mV	I _C =2A, I _B =200mA*
			170	250	mV	I _C =3A, I _B =600mA*
Base-Emitter Saturation Voltage	V _{BE(sat)}		870	1000	mV	I _C =2A, I _B =200mA*

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TYPICAL CHARACTERISTICS



Safe Operating Area