



THE DATASHEET OF ZTX851



ZTX851

NPN SILICON PLANAR MEDIUM POWER HIGH CURRENT TRANSISTOR

ISSUE 2 – AUGUST 94

FEATURES

- * 60 Volt V_{CE0}
 - * 5 Amps continuous current
 - * Up to 20 Amps peak current
 - * Very low saturation voltage
 - * $P_{tot} = 1.2$ Watts
- APPLICATIONS
- * Emergency lighting circuits

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

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	CONDITIONS.
Base-Emitter Turn-On Voltage	$V_{BE(on)}$		840	950	mV	$I_C = 4A, V_{CE} = 1V^*$
Static Forward Current Transfer Ratio	h_{FE}	100	200	300		$I_C = 10mA, V_{CE} = 1V$
		100	200			$I_C = 2A, V_{CE} = 1V^*$
		75	120			$I_C = 5A, V_{CE} = 1V^*$
		25	50			$I_C = 10A, V_{CE} = 1V^*$
Transition Frequency	f_T		130		MHz	$I_C = 100mA, V_{CE} = 10V, f = 50MHz$
Output Capacitance	C_{obo}		45		pF	$V_{CB} = 10V, f = 1MHz$
Switching Times	t_{on}		45		ns	$I_C = 1A, I_B = 100mA$
	t_{off}		1100		ns	$I_B = 100mA, V_{CE} = 10V$

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

THERMAL CHARACTERISTICS

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

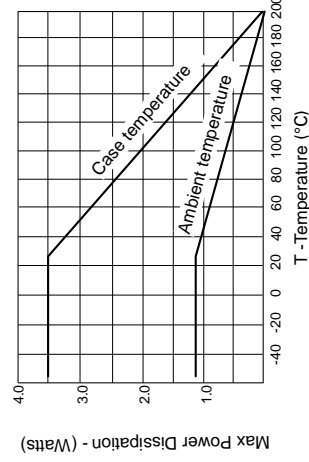
ABSOLUTE MAXIMUM RATINGS

PARAMETER	SYMBOL	UNIT
Collector-Base Voltage		
Collector-Emitter Voltage		
Emitter-Base Voltage		
Peak Pulse Current		
Continuous Collector Current		
Practical Power Dissipation*		
Power Dissipation at $T_{amb} = 25^{\circ}C$		
Operating and Storage Temperature Range		

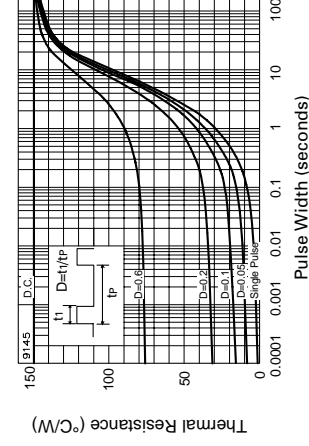
*The power which can be dissipated as a function of ambient temperature is shown on P.C.B. with copper equal to 1 inch square.

ELECTRICAL CHARACTERISTICS

PARAMETER	SYMBOL	UNIT
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	
Collector-Emitter Breakdown Voltage	$V_{(BR)CE}$	
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	
Collector Cut-Off Current	I_{CBO}	
Collector Cut-Off Current	I_{CER} $R_{\theta} \leq 1K\Omega$	
Emitter Cut-Off Current	I_{EBO}	
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	
Base-Emitter Saturation Voltage	$V_{BE(sat)}$	



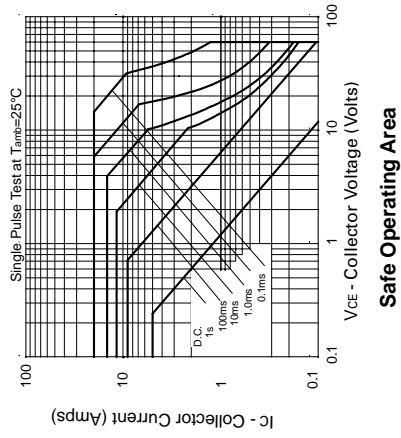
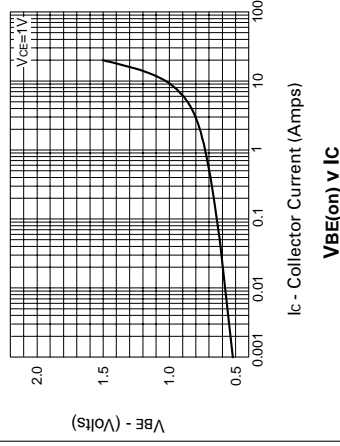
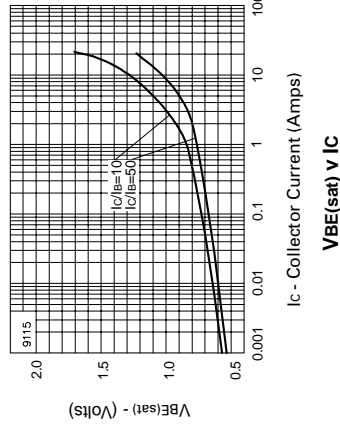
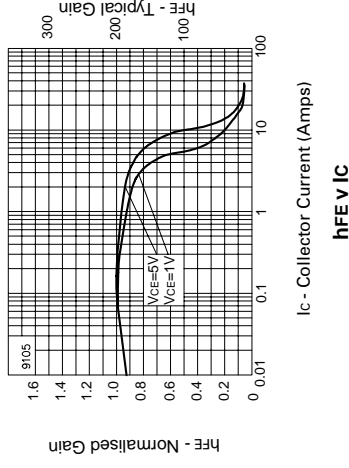
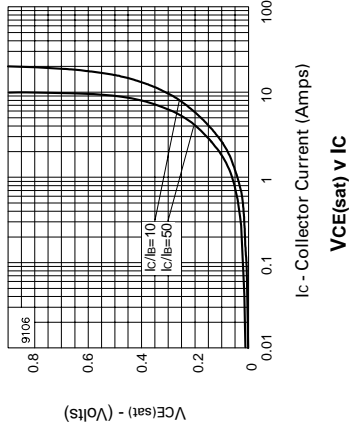
Derating curve



Maximum transient thermal impedance



ZTX851

TYPICAL CHARACTERISTICS



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