

NPN SILICON PLANAR MEDIUM POWER HIGH CURRENT TRANSISTOR

ZTX851

ISSUE 2 – AUGUST 94

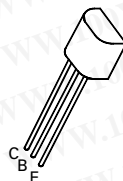
FEATURES

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

APPLICATIONS

- * Emergency lighting circuits

勝特力材料 886-3-5753170
 勝特力电子(上海) 86-21-54151736
 勝特力电子(深圳) 86-755-83298787
[Http://www.100y.com.tw](http://www.100y.com.tw)



E-Line
TO92 Compatible

ABSOLUTE MAXIMUM RATINGS.

PARAMETER	SYMBOL	VALUE	UNIT
Collector-Base Voltage	V_{CBO}	150	V
Collector-Emitter Voltage	V_{CEO}	60	V
Emitter-Base Voltage	V_{EBO}	6	V
Peak Pulse Current	I_{CM}	20	A
Continuous Collector Current	I_C	5	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	$V_{(BR)CBO}$	150	220		V	$I_C = 100\mu\text{A}$
Collector-Emitter Breakdown Voltage	$V_{(BR)CER}$	150	220		V	$I_C = 1\mu\text{A}$, $R_B \leq 1\text{K}\Omega$
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	60	85		V	$I_C = 10\text{mA}^*$
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	6	8		V	$I_E = 100\mu\text{A}$
Collector Cut-Off Current	I_{CBO}			50 1	nA μA	$V_{CB} = 120\text{V}$ $V_{CB} = 120\text{V}$, $T_{amb} = 100^\circ\text{C}$
Collector Cut-Off Current	I_{CER} $R \leq 1\text{K}\Omega$			50 1	nA μA	$V_{CB} = 120\text{V}$ $V_{CB} = 120\text{V}$, $T_{amb} = 100^\circ\text{C}$
Emitter Cut-Off Current	I_{EBO}			10	nA	$V_{EB} = 6\text{V}$
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$		10 50 100 200	50 100 150 250	mV mV mV mV	$I_C = 0.1\text{A}$, $I_B = 5\text{mA}^*$ $I_C = 1\text{A}$, $I_B = 50\text{mA}^*$ $I_C = 2\text{A}$, $I_B = 50\text{mA}^*$ $I_C = 5\text{A}$, $I_B = 200\text{mA}^*$
Base-Emitter Saturation Voltage	$V_{BE(sat)}$		920	1050	mV	$I_C = 4\text{A}$, $I_B = 200\text{mA}^*$

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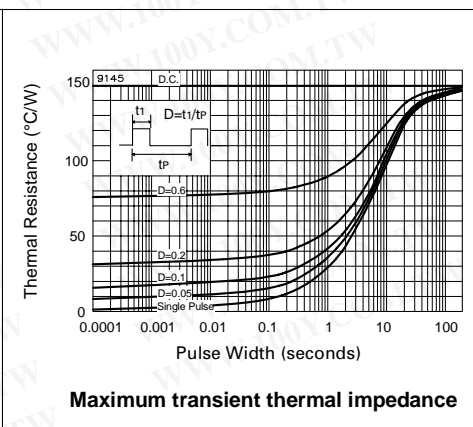
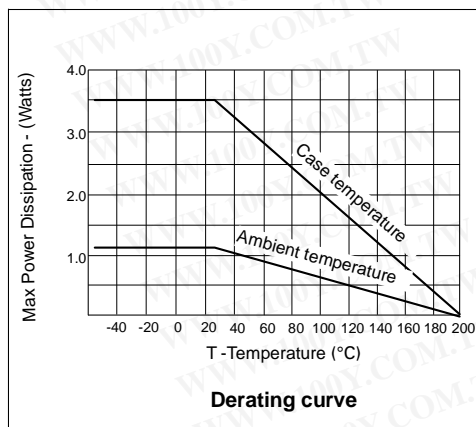
ELECTRICAL CHARACTERISTICS (at $T_{amb} = 25^{\circ}\text{C}$)

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}	100 100 75 25	200 200 120 50	300		$I_C=10mA, V_{CE}=1V$ $I_C=2A, V_{CE}=1V^*$ $I_C=5A, V_{CE}=1V^*$ $I_C=10A, V_{CE}=1V^*$
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} t_{off}		45 1100		ns ns	$I_C=1A, I_B=100mA$ $I_{B2}=100mA, V_{CC}=10V$

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

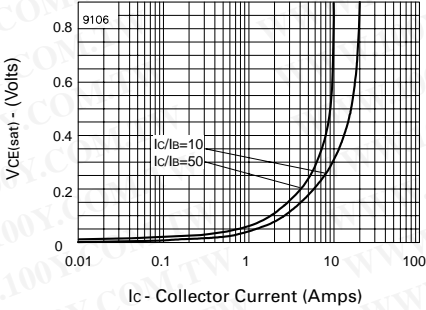
THERMAL CHARACTERISTICS

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

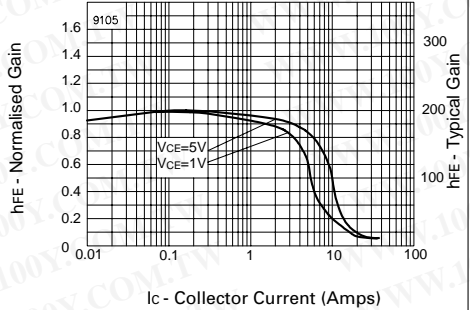


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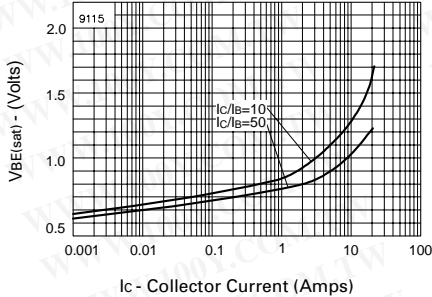
TYPICAL CHARACTERISTICS



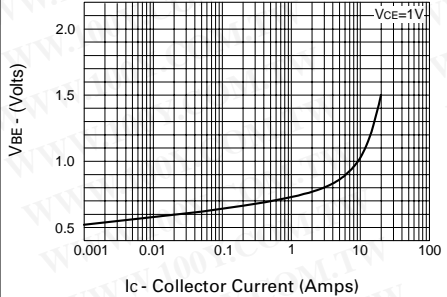
$V_{CE(sat)}$ v I_c



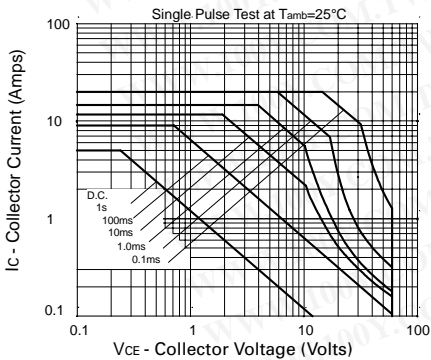
h_{FE} v I_c



$V_{BE(sat)}$ v I_c



$V_{BE(on)}$ v I_c



Safe Operating Area