NPN SILICON PLANAR MEDIUM POWER HIGH CURRENT TRANSISTOR

ZTX849

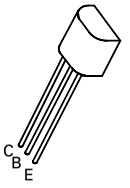
ISSUE 2 – MARCH 94

FEATURES

* 5 Amps continuous current
* Up to 20 Amps peak current
* Very low saturation voltages

APPLICATIONS

* LCD backlight converter
* Flash gun converters
* Battery powered circuits
* Motor drivers



E-Line
TO92 Compatible

ABSOLUTE MAXIMUM RATINGS.

PARAMETER	SYMBOL	VALUE	UNIT
Collector-Base Voltage	V_{CBO}	80	V
Collector-Emitter Voltage	V_{CEO}	30	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°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	$V_{(BR)CBO}$	80	120		V	I_C=100µA
Collector-Emitter Breakdown Voltag	$V_{(BR)CER}$	80	120		V	IC=1µA, RB ≤1KΩ
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	30	40		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}=70V V_{CB}=70V, T_{amb}=100°C
Collector Cut-Off Current	I_{CER} R ≤1KΩ			50 1	nA µA	V_{CB}=70V V_{CB}=70V, T_{amb}=100°C
Emitter Cut-Off Current	I_{EBO}			10	nA	V_{EB}=6V
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$		25 50 110 180	50 100 200 220	mV mV mV mV	I_C=0.5A, I_B=20mA* I_C=1A, I_B=20mA* I_C=2A, I_B=20mA* I_C=5A, I_B=200mA*
Base-Emitter Saturation Voltage	$V_{BE(sat)}$		930	1050	mV	I_C=5A, I_B=200mA*

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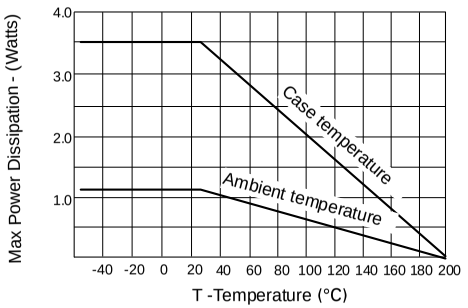
ELECTRICAL CHARACTERISTICS (at T_{amb} = 25°C)

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	CONDITIONS.
Base-Emitter Turn-On Voltage	$V_{BE(on)}$		850	950	mV	IC=5A, V_{CE}=1V*
Static Forward Current Transfer Ratio	h_{FE}	100 100 100 30	200 200 170 65	300		I_C=10mA, V_{CE}=1V I_C=1A, V_{CE}=1V* I_C=5A, V_{CE}=1V* I_C=20A, V_{CE}=1V*
Transition Frequency	f_T		100		MHz	I_C=100mA, V_{CE}=10V f=50MHz
Output Capacitance	C_{obo}		75		pF	V_{CB}=10V, f=1MHz*
Switching Times	t_{on} t_{off}		45 630		ns ns	I_C=1A, $I_{B!}$=100mA I_{B2}=100mA, V_{CC}=10V

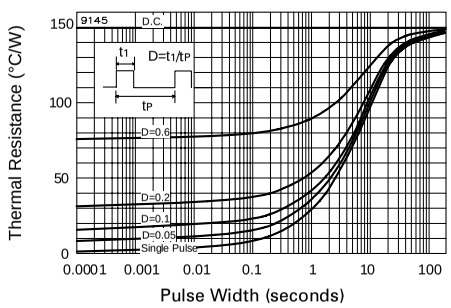
*Measured under pulsed conditions. Pulse width=300µs. Duty cycle ≤2%

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

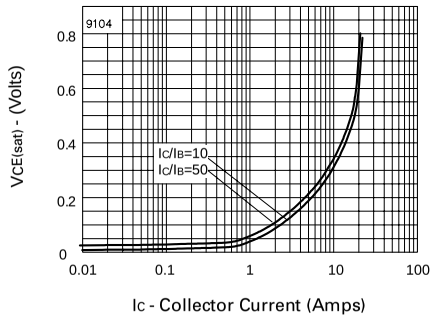


Derating curve

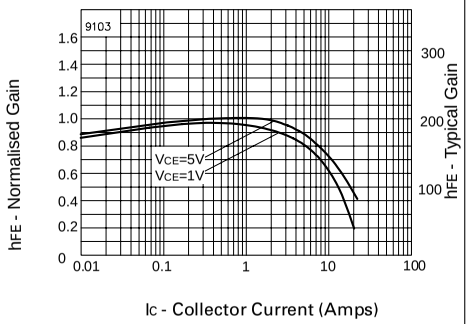


Maximum transient thermal impedance

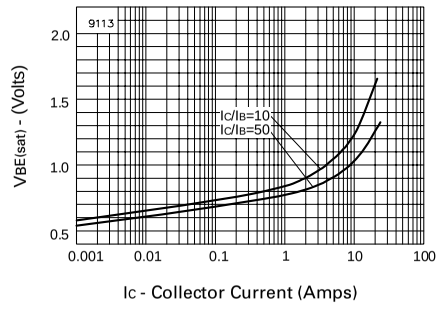
TYPICAL CHARACTERISTICS



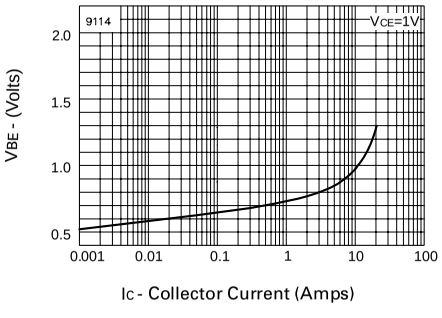
VCE(sat) v IC



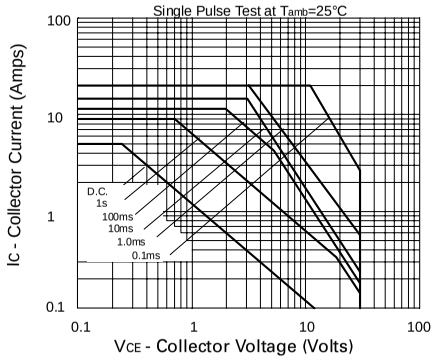
hFE v IC



VBE(sat) v IC



VBE(on) v IC



Safe Operating Area