

ZTX849

NPN SILICON PLANAR MEDIUM POWER HIGH CURRENT TRANSISTOR

ZTX849

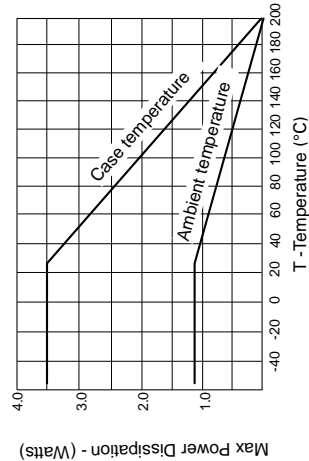
ELECTRICAL CHARACTERISTICS (at T_{amb} = 25°C)

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	CONDITIONS.
Base-Emitter Turn-On Voltage	V _{BE(on)}		850	950	mV	I _C =5A, V _{CE} =1V*
Static Forward Current Transfer Ratio	h _{FE}	100	200	300		I _C =10mA, V _{CE} =1V
		100	200			I _C =1A, V _{CE} =1V*
		100	170			I _C =5A, V _{CE} =1V*
		30	65			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 _{CE} =10V, f=1MHz*
Switching Times	t _{on} t _{off}		45		ns	I _C =1A, I _B =100mA
			630		ns	I _{B2} =100mA, V _{CE} =10V

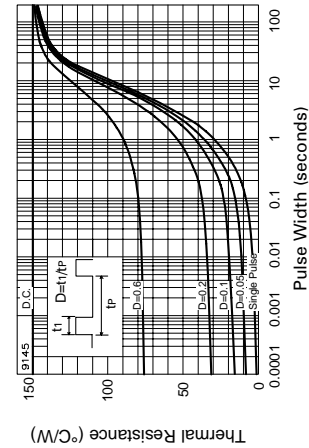
*Measured under pulsed conditions. Pulse width=300µs. Duty cycle ≤2%

THERMAL CHARACTERISTICS

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



Derating curve



Maximum transient thermal impedance

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

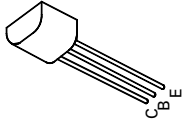
ABSOLUTE MAXIMUM RATINGS.

PARAMETER	SYMBOL	VALUE	UNIT
Collector-Base Voltage	V _{CB0}	80	V
Collector-Emitter Voltage	V _{CE0}	30	V
Emitter-Base Voltage	V _{EB0}	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 Voltage	V _{(BR)CER}	80	120		V	I _C =1µA, R _B ≤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	nA	V _{CE} =70V
				1	µA	V _{CE} =70V, T _{amb} =100°C
Collector Cut-Off Current	I _{CER} R ≤1KΩ			50	nA	V _{CE} =70V
				1	µA	V _{CE} =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		mV	I _C =0.5A, I _B =20mA*
		50	100		mV	I _C =1A, I _B =20mA*
		110	200		mV	I _C =2A, I _B =20mA*
		180	220		mV	I _C =5A, I _B =200mA*
Base-Emitter Saturation Voltage	V _{BE(sat)}		930	1050	mV	I _C =5A, I _B =200mA*



E-Line
TO92 Compatible

ZTX849

NPN SILICON PLANAR MEDIUM POWER HIGH CURRENT TRANSISTOR

ZTX849

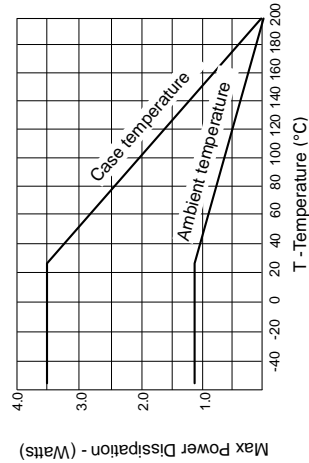
ELECTRICAL CHARACTERISTICS (at $T_{amb} = 25^{\circ}C$)

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

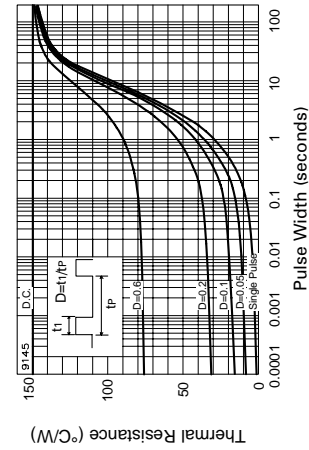
*Measured under pulsed conditions. Pulse width=300 μ s. Duty cycle \leq 2%

THERMAL CHARACTERISTICS

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



Derating curve



Maximum transient thermal impedance

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

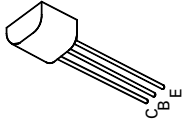
ABSOLUTE MAXIMUM RATINGS.

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 $T_{amb}=25^{\circ}C$	P_{tot}	1.2	W
Operating and Storage Temperature Range	T_j, T_{sg}	-55 to +200	$^{\circ}C$

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

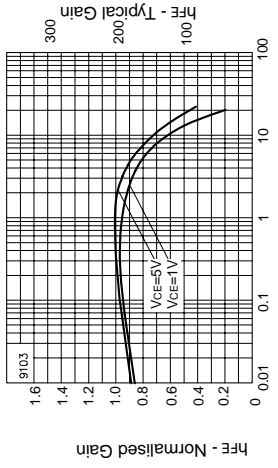
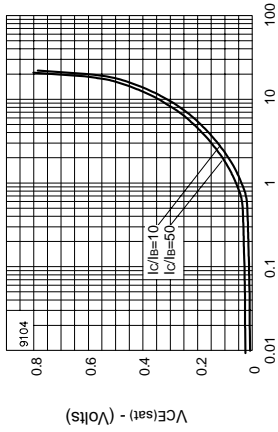
PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	CONDITIONS.
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	80	120		V	$I_C=100\mu A$
Collector-Emitter Breakdown Voltage	$V_{(BR)CER}$	80	120		V	$I_C=1\mu A, R_B \leq 1K\Omega$
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	30	40		V	$I_C=10mA^*$
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	6	8		V	$I_E=100\mu A$
Collector Cut-Off Current	I_{CBO}			50	nA	$V_{CE}=70V, T_{amb}=100^{\circ}C$
				1	μA	$V_{CE}=70V, T_{amb}=100^{\circ}C$
Collector Cut-Off Current	I_{CER} $R \leq 1K\Omega$			50	nA	$V_{CE}=70V, T_{amb}=100^{\circ}C$
				1	μA	$V_{CE}=70V, T_{amb}=100^{\circ}C$
Emitter Cut-Off Current	I_{EBO}			10	nA	$V_{EB}=6V$
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	25	50		mV	$I_C=0.5A, I_B=20mA^*$
		50	100		mV	$I_C=1A, I_B=20mA^*$
		110	200		mV	$I_C=2A, I_B=20mA^*$
		180	220		mV	$I_C=5A, I_B=200mA^*$
Base-Emitter Saturation Voltage	$V_{BE(sat)}$		930	1050	mV	$I_C=5A, I_B=200mA^*$



E-Line
TO92 Compatible

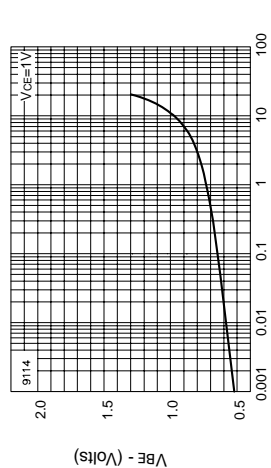
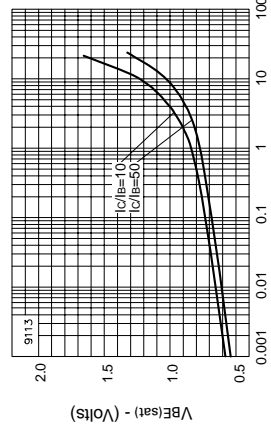
ZTX849

TYPICAL CHARACTERISTICS



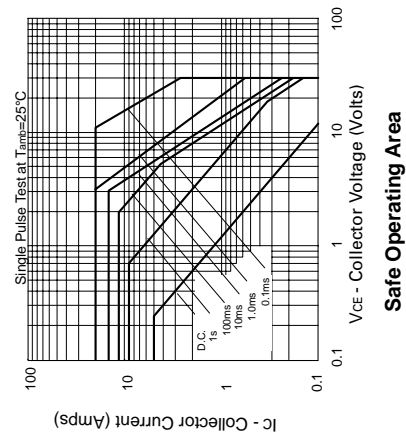
IC - Collector Current (Amps)
VCE(sat) v IC

IC - Collector Current (Amps)
hFE v IC



IC - Collector Current (Amps)
VBE(sat) v IC

IC - Collector Current (Amps)
VBE(on) v IC



IC - Collector Current (Amps)
Safe Operating Area