

# ZTX853STOB Datasheet

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DiGi Electronics Part Number	ZTX853STOB-DG
Manufacturer	<a href="#">Diodes Incorporated</a>
Manufacturer Product Number	ZTX853STOB
Description	TRANS NPN 100V 4A E-LINE
Detailed Description	Bipolar (BJT) Transistor NPN 100 V 4 A 130MHz 1.2 W Through Hole E-Line (TO-92 compatible)



Tel: +00 852-30501935

RFQ Email: [Info@DiGi-Electronics.com](mailto:Info@DiGi-Electronics.com)

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## Purchase and inquiry

Manufacturer Product Number:

ZTX853STOB

Series:

-

Transistor Type:

NPN

Voltage - Collector Emitter Breakdown (Max):

100 V

Current - Collector Cutoff (Max):

50nA (ICBO)

Power - Max:

1.2 W

Operating Temperature:

-55°C ~ 200°C (TJ)

Package / Case:

E-Line-3

Base Product Number:

ZTX853

Manufacturer:

Diodes Incorporated

Product Status:

Obsolete

Current - Collector (Ic) (Max):

4 A

Vce Saturation (Max) @ Ib, Ic:

200mV @ 400mA, 4A

DC Current Gain (hFE) (Min) @ Ic, Vce:

100 @ 2A, 2V

Frequency - Transition:

130MHz

Mounting Type:

Through Hole

Supplier Device Package:

E-Line (TO-92 compatible)

## Environmental & Export classification

RoHS Status:

ROHS3 Compliant

REACH Status:

REACH Unaffected

HTSUS:

8541.29.0075

Moisture Sensitivity Level (MSL):

1 (Unlimited)

ECCN:

EAR99

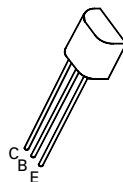
# NPN SILICON PLANAR MEDIUM POWER HIGH CURRENT TRANSISTOR

## ZTX853

ISSUE 3 - NOVEMBER 1995

### FEATURES

- \* 100 Volt  $V_{CE0}$
- \* 4 Amps continuous current
- \* Up to 10 Amps peak current
- \* Very low saturation voltage
- \*  $P_{tot}=1.2$  Watts



**E-Line  
TO92 Compatible**

### ABSOLUTE MAXIMUM RATINGS.

PARAMETER	SYMBOL	VALUE	UNIT
Collector-Base Voltage	$V_{CBO}$	200	V
Collector-Emitter Voltage	$V_{CEO}$	100	V
Emitter-Base Voltage	$V_{EBO}$	6	V
Peak Pulse Current	$I_{CM}$	10	A
Continuous Collector Current	$I_C$	4	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	$T_j; T_{stg}$	-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	$V_{(BR)CBO}$	200	300		V	$I_C=100\mu A$
Collector-Emitter Breakdown Voltage	$V_{(BR)CER}$	200	300		V	$I_C=1\mu A, R_B \leq 1K\Omega$
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	100	120		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 $\mu A$	$V_{CB}=150V$ $V_{CB}=150V, T_{amb}=100^{\circ}C$
Collector Cut-Off Current	$I_{CER}$ $R \leq 1K\Omega$			50 1	nA $\mu A$	$V_{CB}=150V$ $V_{CB}=150V, T_{amb}=100^{\circ}C$
Emitter Cut-Off Current	$I_{EBO}$			10	nA	$V_{EB}=6V$
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$		14 100 160	50 150 200	mV mV mV	$I_C=0.1A, I_B=5mA$ $I_C=2A, I_B=100mA$ $I_C=4A, I_B=400mA^*$
Base-Emitter Saturation Voltage	$V_{BE(sat)}$		960	1100	mV	$I_C=4A, I_B=400mA^*$

ZTX853ST0B Diodes Incorporated TRANS NPN 100V 4A E-LINE

# ZTX853

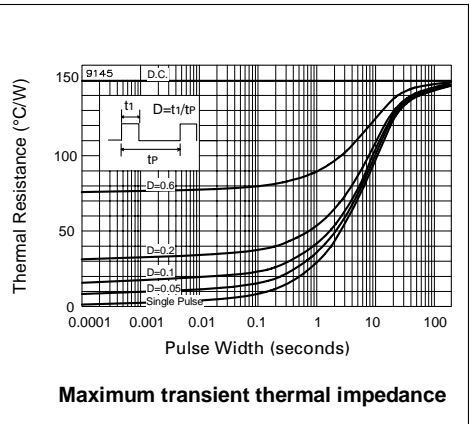
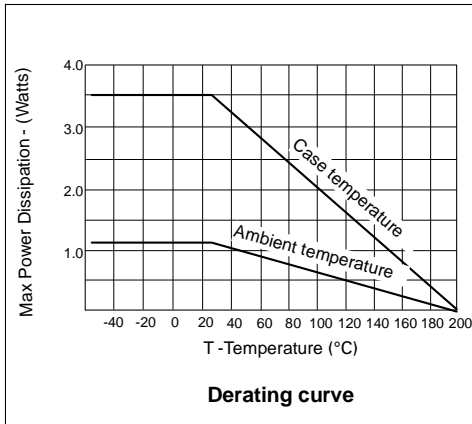
## ELECTRICAL CHARACTERISTICS (at $T_{amb} = 25^{\circ}\text{C}$ )

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	CONDITIONS.
Base-Emitter Turn-On Voltage	$V_{BE(on)}$		830	950	V	$I_C=4A, V_{CE}=2V^*$
Static Forward Current Transfer Ratio	$h_{FE}$	100 100 50 20	200 200 100 30	300		$I_C=10mA, V_{CE}=2V$ $I_C=2A, V_{CE}=2V^*$ $I_C=4A, V_{CE}=2V^*$ $I_C=10A, V_{CE}=2V^*$
Transition Frequency	$f_T$		130		MHz	$I_C=100mA, V_{CE}=10V$ $f=50MHz$
Output Capacitance	$C_{obo}$		35		pF	$V_{CB}=10V, f=1MHz$
Switching Times	$t_{on}$ $t_{off}$		50 1650		ns ns	$I_C=1A, I_B=100mA$ $I_B=100mA, V_{CC}=10V$

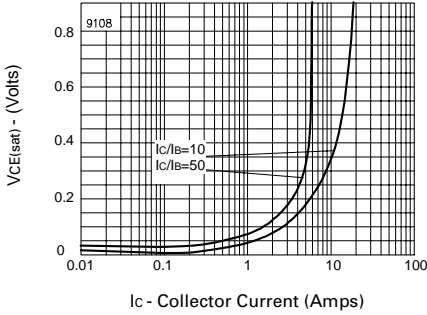
\*Measured under pulsed conditions. Pulse width=300 $\mu$ s. Duty cycle  $\leq$ 2%

## THERMAL CHARACTERISTICS

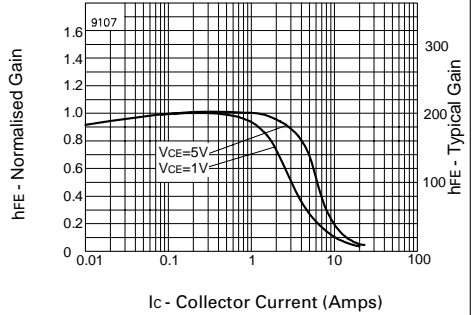
PARAMETER	SYMBOL	MAX.	UNIT
Thermal Resistance: Junction to Ambient Junction to Case	$R_{th(j-amb)}$ $R_{th(j-case)}$	150 50	$^{\circ}\text{C/W}$ $^{\circ}\text{C/W}$



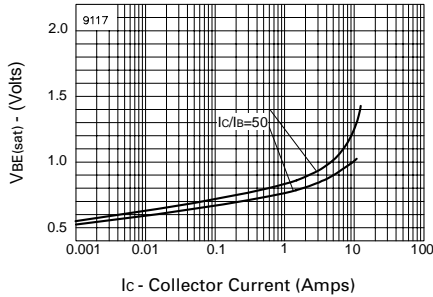
## TYPICAL CHARACTERISTICS



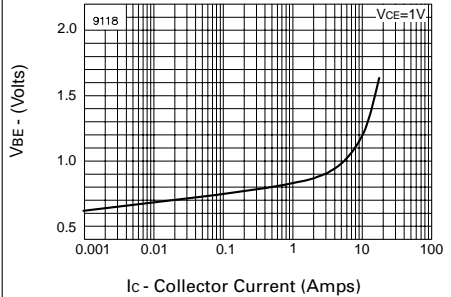
**$V_{CE(sat)}$  v  $I_C$**



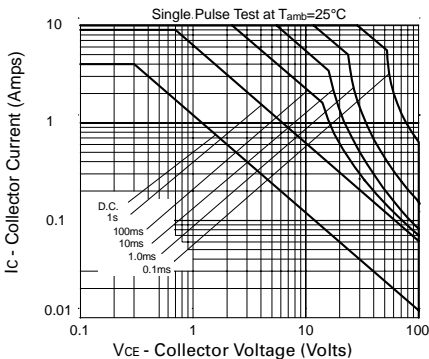
**hFE v  $I_C$**



**$V_{BE(sat)}$  v  $I_C$**



**$V_{BE(on)}$  v  $I_C$**



**Safe Operating Area**



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