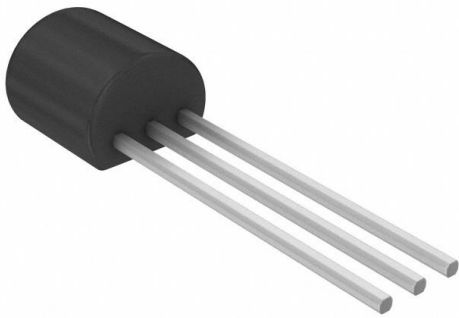


# ZTX658STZ Datasheet

[www.digi-electronics.com](http://www.digi-electronics.com)



<https://www.DiGi-Electronics.com>

DiGi Electronics Part Number	ZTX658STZ-DG
Manufacturer	<a href="#">Diodes Incorporated</a>
Manufacturer Product Number	ZTX658STZ
Description	TRANS NPN 400V 0.5A E-LINE
Detailed Description	Bipolar (BJT) Transistor NPN 400 V 500 mA 50MHz 1 W Through Hole E-Line (TO-92 compatible)



Tel: +00 852-30501935

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

DiGi is a global authorized distributor of electronic components.



## Purchase and inquiry

Manufacturer Product Number:

ZTX658STZ

Series:

-

Transistor Type:

NPN

Voltage - Collector Emitter Breakdown (Max):

400 V

Current - Collector Cutoff (Max):

100nA (ICBO)

Power - Max:

1 W

Operating Temperature:

-55°C ~ 200°C (TJ)

Package / Case:

E-Line-3, Formed Leads

Base Product Number:

ZTX658

Manufacturer:

Diodes Incorporated

Product Status:

Active

Current - Collector (Ic) (Max):

500 mA

Vce Saturation (Max) @ Ib, Ic:

500mV @ 10mA, 100mA

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

50 @ 100mA, 5V

Frequency - Transition:

50MHz

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 VOLTAGE TRANSISTOR

## ZTX658

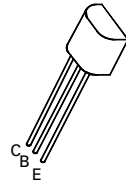
ISSUE 2 – APRIL 2002

### FEATURES

- \* 400 Volt  $V_{CEO}$
- \* 0.5 Amp continuous current
- \*  $P_{tot}=1$  Watt

### APPLICATIONS

- \* Telephone dialler circuits



**E-Line**  
**TO92 Compatible**

### ABSOLUTE MAXIMUM RATINGS.

PARAMETER	SYMBOL	VALUE	UNIT
Collector-Base Voltage	$V_{CBO}$	400	V
Collector-Emitter Voltage	$V_{CEO}$	400	V
Emitter-Base Voltage	$V_{EBO}$	5	V
Peak Pulse Current	$I_{CM}$	1	A
Continuous Collector Current	$I_C$	500	mA
Power Dissipation at $T_{amb}=25^{\circ}C$ derate above $25^{\circ}C$	$P_{tot}$	1 5.7	W mW/ $^{\circ}C$
Operating and Storage Temperature Range	$T_j; T_{stg}$	-55 to +200	$^{\circ}C$

### ELECTRICAL CHARACTERISTICS (at $T_{amb} = 25^{\circ}C$ unless otherwise stated).

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	CONDITIONS.
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	400			V	$I_C=100\mu A$
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	400			V	$I_C=10mA^*$
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	5			V	$I_E=100\mu A$
Collector Cut-Off Current	$I_{CBO}$			100	nA	$V_{CB}=320V$
Collector Cut-Off Current	$I_{CBO}$			100	nA	$V_{CE}=320V$
Emitter Cut-Off Current	$I_{EBO}$			100	nA	$V_{EB}=4V$
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$			0.3 0.25 0.5	V	$I_C=20mA, I_B=1mA$ $I_C=50mA, I_B=5mA^*$ $I_C=100mA, I_B=10mA^*$
Base-Emitter Saturation Voltage	$V_{BE(sat)}$			0.9	V	$I_C=100mA, I_B=10mA^*$
Base-Emitter Turn On Voltage	$V_{BE(on)}$			0.9	V	$I_C=100mA, V_{CE}=5V^*$
Static Forward Current Transfer Ratio	$h_{FE}$	50 50 40				$I_C=1mA, V_{CE}=5V^*$ $I_C=100mA, V_{CE}=5V^*$ $I_C=200mA, V_{CE}=10V^*$

ZTX658STZ Diodes Incorporated TRANS NPN 400V 0.5A E-LINE

# ZTX658

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

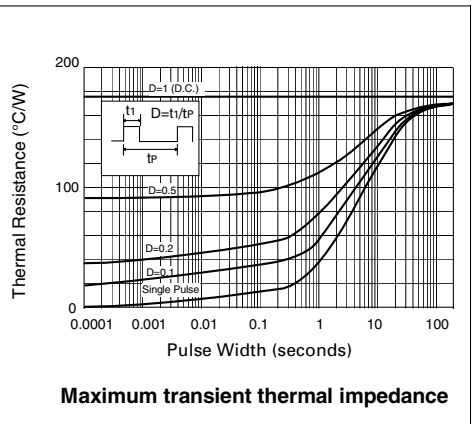
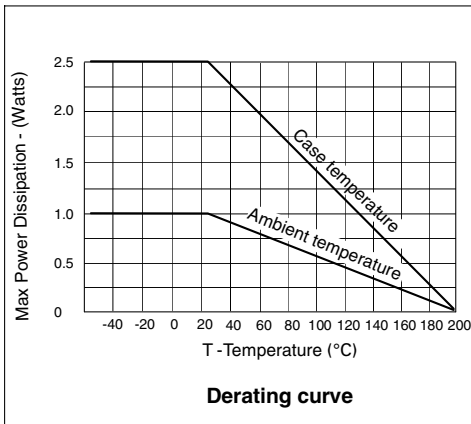
PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	CONDITIONS.
Transition Frequency	$f_T$	50			MHz	$I_C=20\text{mA}$ , $V_{CE}=20\text{V}$ $f=20\text{MHz}$
Output capacitance	$C_{obo}$			10	pF	$V_{CB}=20\text{V}$ , $f=1\text{MHz}$
Switching times	$t_{on}$		130		ns	$I_C=100\text{mA}$ , $V_{CE}=100\text{V}$ $I_{B1}=10\text{mA}$ , $I_{B2}=-20\text{mA}$
	$t_{off}$		3300		ns	

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

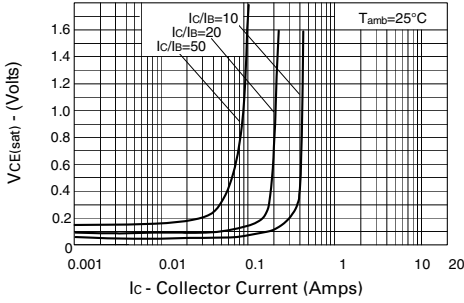
## THERMAL CHARACTERISTICS

PARAMETER	SYMBOL	MAX.	UNIT
Thermal Resistance: Junction to Ambient <sub>1</sub>	$R_{th(j-amb)1}$	175	$^{\circ}\text{C/W}$
Junction to Ambient <sub>2</sub>	$R_{th(j-amb)2} \dagger$	116	$^{\circ}\text{C/W}$
Junction to Case	$R_{th(j-case)}$	70	$^{\circ}\text{C/W}$

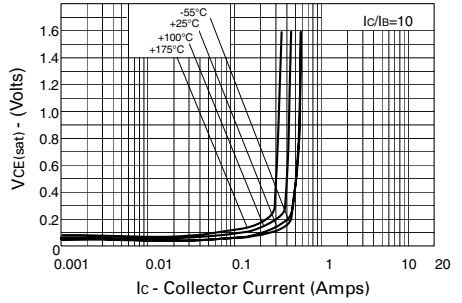
$\dagger$  Device mounted on P.C.B. with copper equal to 1 sq. Inch minimum.



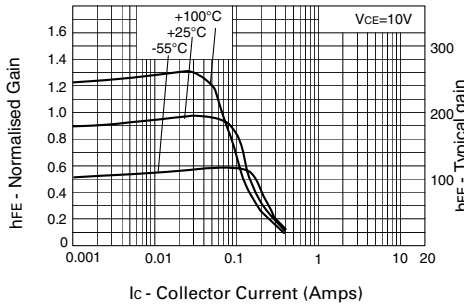
## TYPICAL CHARACTERISTICS



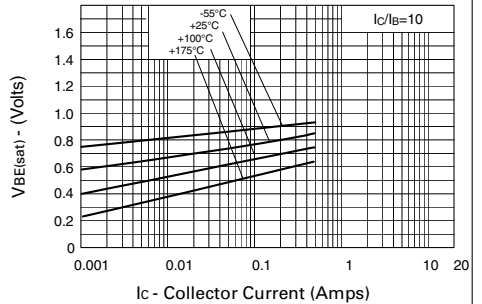
**$V_{CE(sat)}$  v  $I_C$**



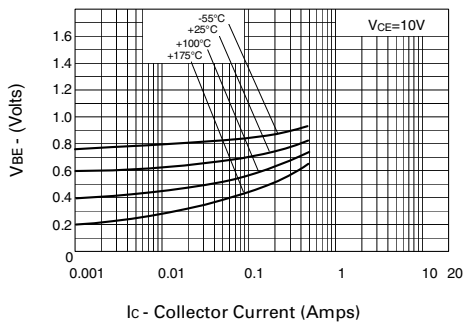
**$V_{CE(sat)}$  v  $I_C$**



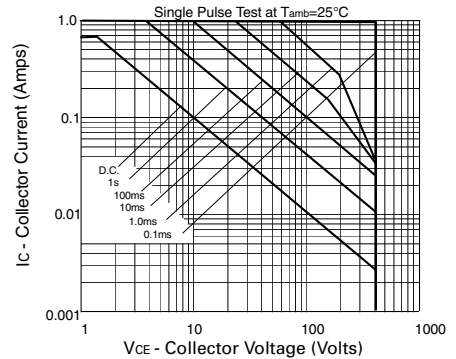
**$h_{FE}$  v  $I_C$**



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



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



**Safe Operating Area**



## OUR CERTIFICATE

DiGi provide top-quality products and perfect service for customer worldwide through standardization, technological innovation and continuous improvement. DiGi through third-party certification, we stricly control the quality of products and services. Welcome your RFQ to

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



Tel: +00 852-30501935

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

DiGi is a global authorized distributor of electronic components.