ZTX653STOB Datasheet

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DiGi Electronics Part Number	ZTX653STOB-DG
Manufacturer	Diodes Incorporated
Manufacturer Product Number	ZTX653STOB
Description	TRANS NPN 100V 2A E-LINE
Detailed Description	Bipolar (BJT) Transistor NPN 100 V 2 A 175MHz 1 W Through Hole E-Line (TO-92 compatible)

Tel: +00 852-30501935

RFQ Email: Info@DiGi-Electronics.com

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Purchase and inquiry

Manufacturer Product Number:	ZTX653STOB	Manufacturer:	Diodes Incorporated
Series:	-	Product Status:	Obsolete
Transistor Type:	NPN	Current - Collector (Ic) (Max):	2 A
Voltage - Collector Emitter Breakdown (Max):	100 V	Vce Saturation (Max) @ Ib, Ic:	500mV @ 200mA, 2A
Current - Collector Cutoff (Max):	100nA (ICBO)	DC Current Gain (hFE) (Min) @ Ic, Vce:	-
Power - Max:	1 W	Frequency - Transition:	175MHz
Operating Temperature:	-55°C ~ 200°C (TJ)	Mounting Type:	Through Hole
Package / Case:	E-Line-3, Formed Leads	Supplier Device Package:	E-Line (TO-92 compatible)
Base Product Number:	ZTX653		

Environmental & Export classification

RoHS Status:	ROHS3 Compliant	Moisture Sensitivity Level (MSL):	1 (Unlimited)
REACH Status:	REACH Unaffected	ECCN:	EAR99
HTSUS:	8541.29.0075		

ZTX652 Not Recommended for
New Design Please Use ZTX653

NPN SILICON PLANAR MEDIUM POWER TRANSISTORS

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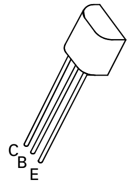
ZTX652
ZTX653

FEATURES

- 100 Volt V_{CEO}
- 2 Amp continuous current
- Low saturation voltage
- P_{tot}=1 Watt



E-Line
TO92 Compatible

ABSOLUTE MAXIMUM RATINGS.

PARAMETER	SYMBOL	ZTX652	ZTX653	UNIT
Collector-Base Voltage	V_{CBO}	100	120	V
Collector-Emitter Voltage	V_{CEO}	80	100	V
Emitter-Base Voltage	V_{EBO}	5		V
Peak Pulse Current	I_{CM}	6		A
Continuous Collector Current	I_C	2		A
Power Dissipation at T_{amb}=25°C derate above 25°C	P_{tot}	1 5.7		W mW/°C
Operating and Storage Temperature Range	T_j:T_{stg}	-55 to +200		°C

ELECTRICAL CHARACTERISTICS (at T_{amb} = 25°C unless otherwise stated).

PARAMETER	SYMBOL	ZTX652			ZTX653			UNIT	CONDITIONS.
		MIN.	TYP.	MAX.	MIN.	TYP.	MAX.		
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	100			120			V	I_C=100µA
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	80			100			V	I_C=10mA*
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	5			5			V	I_E=100µA
Collector Cut-Off Current	I_{CBO}			0.1				µA	V_{CB}=80V
							0.1	µA	V_{CB}=100V
				10				µA	V_{CB}=80V,T_{amb}=100°C
							10	µA	V_{CB}=100V,T_{amb}=100°C
Emitter Cut-Off Current	I_{EBO}			0.1			0.1	µA	V_{EB}=4V
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$		0.13	0.3		0.13	0.3	V	I_C=1A, I_B=100mA*
			0.23	0.5		0.23	0.5	V	I_C=2A, I_B=200mA*
Base-Emitter Saturation Voltage	$V_{BE(sat)}$		0.9	1.25		0.9	1.25	V	I_C=1A, I_B=100mA*
Base-Emitter Turn-On Voltage	$V_{BE(on)}$		0.8	1		0.8	1	V	IC=1A, V_{CE}=2V*

ZTX653STOB Diodes Incorporated TRANS NPN 100V 2A E-LINE

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ELECTRICAL CHARACTERISTICS (at T_{amb} = 25°C unless otherwise stated).

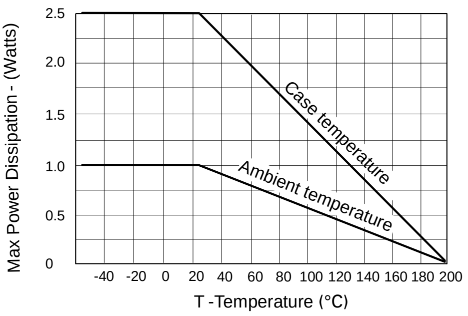
PARAMETER	SYMBOL	ZTX652			ZTX653			UNIT	CONDITIONS.
		MIN.	TYP.	MAX.	MIN.	TYP.	MAX.		
Transition Frequency	f_T	140	175		140	175		MHz	I_C=100mA, V_{CE}=5V f=100MHz
Switching Times	t_{on}		80			80		ns	I_C=500mA, V_{CC}=10V I_{B1}=I_{B2}=50mA
	t_{off}		1200			1200		ns	
Output Capacitance	C_{obo}			30			30	pF	V_{CB}=10V f=1MHz

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

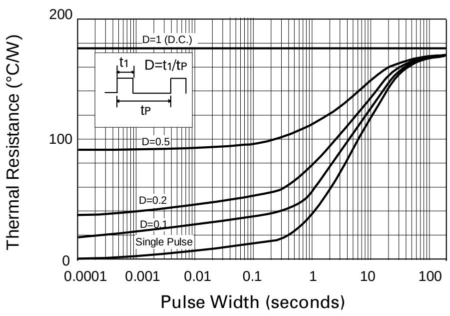
THERMAL CHARACTERISTICS

PARAMETER	SYMBOL	MAX.	UNIT
Thermal Resistance: Junction to Ambient$_1$	$R_{th(j-amb)1}$	175	°C/W
Junction to Ambient$_2$	$R_{th(j-amb)2}$†	116	°C/W
Junction to Case	$R_{th(j-case)}$	70	°C/W

† Device mounted on P.C.B. with copper equal to 1 sq. Inch minimum.



Derating curve



Maximum transient thermal impedance

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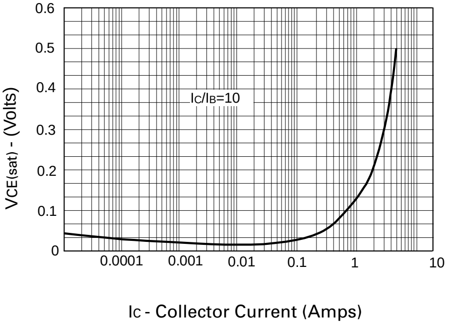
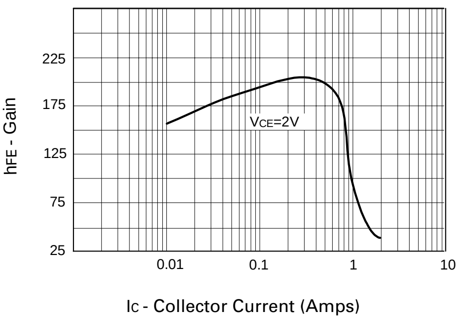
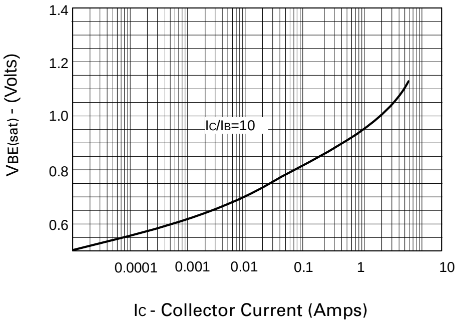
TYPICAL CHARACTERISTICS



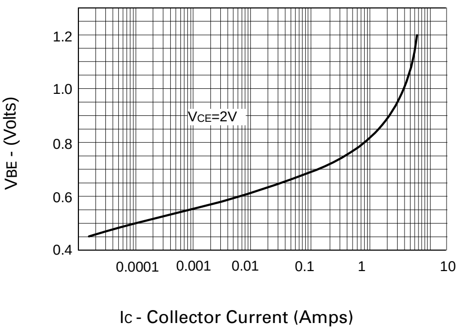
VCE(sat) v IC



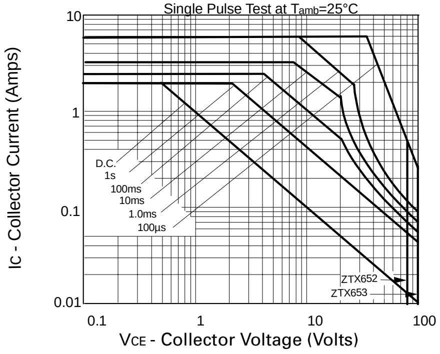
hFE v IC



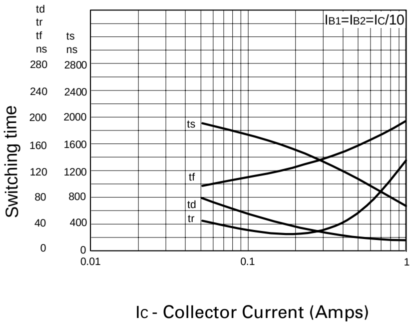
VBE(sat) v IC



VBE(on) v IC



Safe Operating Area



Switching Speeds

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CR
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a limited company.
Registrar of Companies
Hong Kong Special Administrative Region

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Certificate
The Aviation Suppliers Association has enrolled as a Regular Member
DIGI ELECTRONICS HK LIMITED
Michele Dickstein
President

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