Features

- Epitaxial Planar Die Construction
- Built-In Biasing Resistors
- Surface Mount Package Suited for Automated Assembly
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **For automotive applications requiring specific change control (i.e. parts qualified to AEC-Q100/101/200, PPAP capable, and manufactured in IATF 16949 certified facilities), please contact us or your local Diodes representative. https://www.diodes.com/quality/product-definitions/**

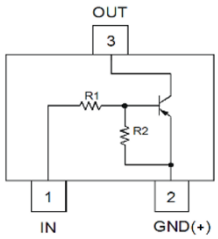
Mechanical Data

- Case: SOT323
- Case Material: Molded Plastic, "Green" Molding Compound; UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish – Matte Tin Plated Leads, Solderable per MIL-STD-202, Method 208 (e3)
- Weight: 0.006 grams (Approximate)

Part Number	R1(NOM)	R2(NOM)
DDTB113EU	1kΩ	1kΩ
DDTB123EU	2.2kΩ	2.2kΩ
DDTB143EU	4.7kΩ	4.7kΩ
DDTB114EU	10kΩ	10kΩ
DDTB122JU	0.22kΩ	4.7kΩ
DDTB113ZU	1kΩ	10kΩ
DDTB123YU	2.2kΩ	10kΩ
DDTB133HU	3.3kΩ	10kΩ
DDTB123TU	2.2kΩ	Open
DDTB143TU	4.7kΩ	Open
DDTB114TU	10kΩ	Open
DDTB114GU	0	10kΩ

SOT323

Top View



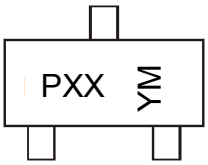
Device Schematic

Ordering Information (Note 4)

Product	Status	Compliance	Marking	Reel Size (inches)	Tape Width (mm)	Quantity per Reel
DDTB113EU-7-F	Obsolete	Standard	P60	7	8	3,000
DDTB123EU-7-F	Obsolete	Standard	P61	7	8	3,000
DDTB143EU-7-F	Active	Standard	P62	7	8	3,000
DDTB114EU-7-F	Obsolete	Standard	P63	7	8	3,000
DDTB122JU-7-F	Obsolete	Standard	P64	7	8	3,000
DDTB113ZU-7-F	Obsolete	Standard	P65	7	8	3,000
DDTB123YU-7-F	Obsolete	Standard	P66	7	8	3,000
DDTB133HU-7-F	Obsolete	Standard	P67	7	8	3,000
DDTB123TU-7-F	Obsolete	Standard	P69	7	8	3,000
DDTB143TU-7-F	Obsolete	Standard	P70	7	8	3,000
DDTB114TU-7-F	Obsolete	Standard	P71	7	8	3,000
DDTB114GU-7-F	Obsolete	Standard	P72	7	8	3,000

Notes:
1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant.
2. See https://www.diodes.com/quality/lead-free/ for more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "Green" and Lead-free.
3. Halogen- and Antimony-free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
4. For packaging details, go to our website at https://www.diodes.com/design/support/packaging/diodes-packaging/.

Marking Information



PXX = Product Type Marking Code
YM = Date Code Marking
Y = Year (ex: I = 2021)
M = Month (ex: 9 = September)

Date Code Key

Year	2016	.....	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Code	D	.....	I	J	K	L	M	N	O	P	R	S

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Code	1	2	3	4	5	6	7	8	9	O	N	D

Absolute Maximum Ratings (@ T_A = +25°C, unless otherwise specified.)

Characteristic		Symbol	Value	Unit
Supply Voltage, (3) to (2)		V_{CC}	50	V
Input Voltage, (1) to (2)	DDTB113EU DDTB123EU DDTB143EU DDTB114EU DDTB122JU DDTB113ZU DDTB123YU DDTB133HU	V_{IN}	+10 to -10 +10 to -12 +10 to -30 +10 to -40 +5 to -5 +5 to -10 +5 to -12 +6 to -20	V
Input Voltage, (2) to (1)	DDTB123TU DDTB143TU DDTB114TU DDTB114GU	$V_{EBO\ (MAX)}$	-5	V
Output Current	All	I_C	-500	mA

Thermal Characteristics (@ T_A = +25°C, unless otherwise specified.)

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 5)	P_D	200	mW
Thermal Resistance, Junction to Ambient Air (Note 5)	$R_{\theta JA}$	625	°C/W
Operating and Storage Temperature Range	T_J, T_{STG}	-55 to +150	°C

Note: 5. Mounted on FR4 PC Board with minimum recommended pad layout.

Electrical Characteristics (@ T_A = +25°C, unless otherwise specified.) R1, R2 Types

Characteristic		Symbol	Min	Typ	Max	Unit	Test Condition
Input Voltage	DDTB113EU DDTB123EU DDTB143EU DDTB114EU DDTB122JU DDTB113ZU DDTB123YU DDTB133HU	$V_{I(off)}$	-0.5 -0.5 -0.5 -0.5 -0.5 -0.3 -0.3 -0.3	—	—	V	V_{CC} = -5V, I_O = -100μA
	DDTB113EU DDTB123EU DDTB143EU DDTB114EU DDTB122JU DDTB113ZU DDTB123YU DDTB133HU	$V_{I(on)}$	—	—	-3.0 -3.0 -3.0 -3.0 -3.0 -2.0 -2.0 -2.0	V	V_O = -0.3V, I_O = -20mA V_O = -0.3V, I_O = -20mA V_O = -0.3V, I_O = -20mA V_O = -0.3V, I_O = -10mA V_O = -0.3V, I_O = -30mA V_O = -0.3V, I_O = -20mA V_O = -0.3V, I_O = -20mA V_O = -0.3V, I_O = -20mA
Output Voltage		$V_{O(on)}$	—	—	-0.3	V	I_O/I_I = -50mA/-2.5mA
Input Current	DDTB113EU DDTB123EU DDTB143EU DDTB114EU DDTB122JU DDTB113ZU DDTB123YU DDTB133HU	I_I	—	—	-7.2 -3.8 -1.8 -0.88 -28 -7.2 -3.6 -2.4	mA	V_I = -5V
Output Current		$I_{O(off)}$	—	—	-0.5	μA	V_{CC} = -50V, V_I = 0V
DC Current Gain	DDTB113EU DDTB123EU DDTB143EU DDTB114EU DDTB122JU DDTB113ZU DDTB123YU DDTB133HU	G_I	33 39 47 56 47 56 56 56	—	—	—	V_O = 5V, I_O = 50mA
Gain-Bandwidth Product (Note 6)		f_T	—	200	—	MHz	V_{CE} = -10V, I_E = -5mA, f = 100MHz

Electrical Characteristics @ T_A = 25°C unless otherwise specified R1-Only, R2-Only Types

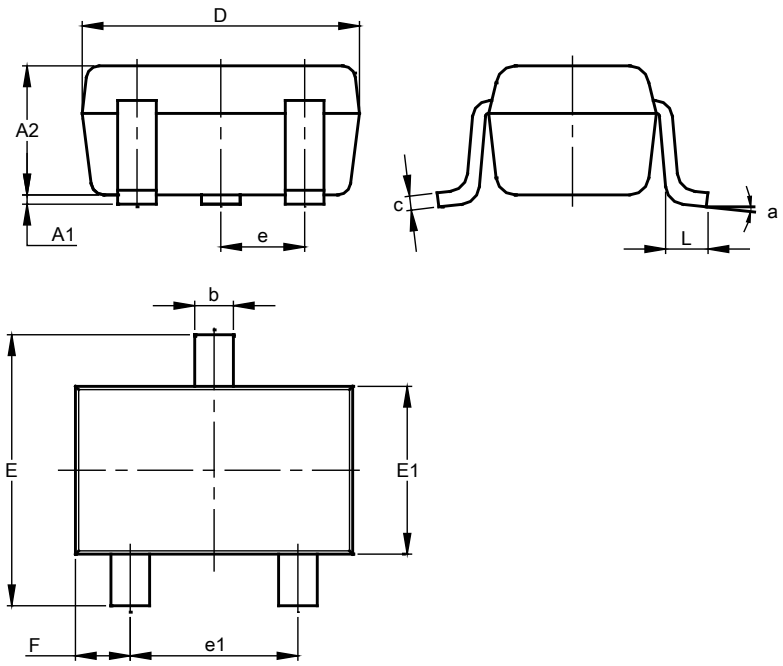
Characteristic		Symbol	Min	Typ	Max	Unit	Test Condition
Collector-Base Breakdown Voltage		BV_{CBO}	-50	—	—	V	I_C = -50μA
Collector-Emitter Breakdown Voltage		BV_{CEO}	-40	—	—	V	I_C = -1mA
Emitter-Base Breakdown Voltage	DDTB123TU DDTB143TU DDTB114TU DDTB114GU	BV_{EBO}	-5	—	—	V	I_E = -50μA I_E = -50μA I_E = -50μA I_E = -720μA
Collector Cutoff Current		I_{CBO}	—	—	-0.5	μA	V_{CB} = -50V
Emitter Cutoff Current	DDTB123TU DDTB143TU DDTB114TU DDTB114GU	I_{EBO}	— — — -300	—	-0.5 -0.5 -0.5 -580	μA	V_{EB} = -4V
Collector-Emitter Saturation Voltage		$V_{CE(sat)}$	—	—	-0.3	V	I_C = -50mA, I_B = -2.5mA
DC Current Transfer Ratio	DDTB123TU DDTB143TU DDTB114TU DDTB114GU	h_{FE}	100 100 100 56	250 250 250 —	600 600 600 —	—	I_C = -5mA, V_{CE} = -5V
Gain-Bandwidth Product (Note 6)		f_T	—	200	—	MHz	V_{CE} = -10V, I_E = -5mA, f = 100MHz

Note: 6. Transistor - for reference only

Package Outline Dimensions

Please see http://www.diodes.com/package-outlines.html for the latest version.

SOT323

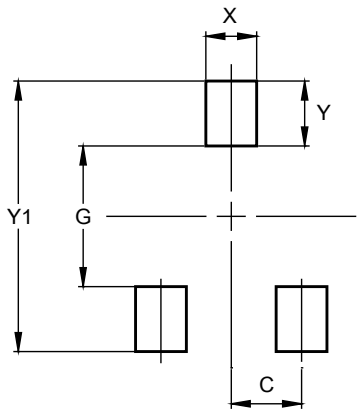


SOT323			
Dim	**Min**	**Max**	**Typ**
A1	0.00	0.10	0.05
A2	0.90	1.00	0.95
b	0.25	0.40	0.30
c	0.10	0.18	0.11
D	1.80	2.20	2.15
E	2.00	2.20	2.10
E1	1.15	1.35	1.30
e	0.650 BSC		
e1	1.20	1.40	1.30
F	0.375	0.475	0.425
L	0.25	0.40	0.30
a	0°	8°	--
All Dimensions in mm			

Suggested Pad Layout

Please see http://www.diodes.com/package-outlines.html for the latest version.

SOT323



Dimensions	Value (in mm)
C	0.650
G	1.300
X	0.470
Y	0.600
Y1	2.500

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