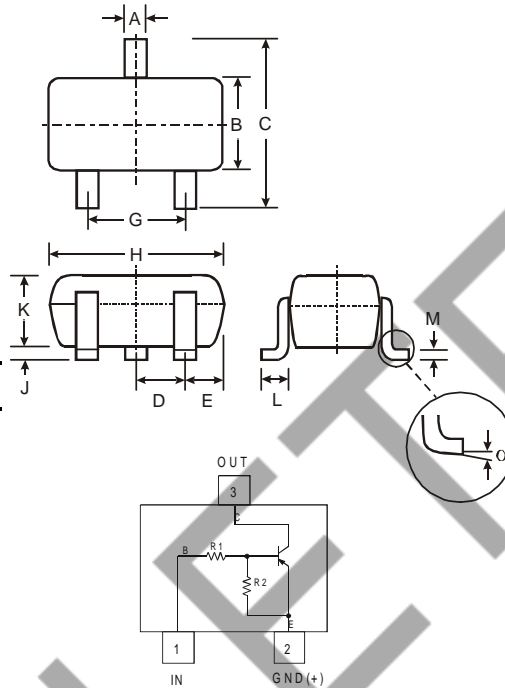


Features

- Epitaxial Planar Die Construction
- Complementary NPN Types Available (DDTD)
- Built-In Biasing Resistors
- **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](https://www.diodes.com/quality/product-definitions/) or your local Diodes representative.**
<https://www.diodes.com/quality/product-definitions/>



SOT-323		
Dim	Min	Max
A	0.25	0.40
B	1.15	1.35
C	2.00	2.20
D	0.65 Nominal	
E	0.30	0.40
G	1.20	1.40
H	1.80	2.20
J	0.0	0.10
K	0.90	1.00
L	0.25	0.40
M	0.10	0.18
α	0°	8°

All Dimensions in mm

Mechanical Data

- Case: SOT-323
- Case Material: Molded Plastic, "Green" Molding Compound, Note 4. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020C
- Terminals: Solderable per MIL-STD-202, Method 208
- Terminal Connections: See Diagram
- Lead Free Plating (Matte Tin Finish Annealed over Alloy 42 Leadframe)
- Marking Information: See Table Below & Page 3
- Ordering Information: See Page 3
- Weight: 0.006 grams (Approximate)

P/N	R1 (NOM)	R2 (NOM)	Type Code
DDTB122LU	0.22k Ω	10k Ω	P75
DDTB142JU	0.47k Ω	10k Ω	P76
DDTB122TU	0.22k Ω	OPEN	P77
DDTB142TU	0.47k Ω	OPEN	P78

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) DDTB122LU	V _{IN}	+5 to -6	V
DDTB142JU		+5 to -6	
Input Voltage, (2) to (1) DDTB122TU	V _{EBO} (MAX)	-5	V
DDTB142TU			
Output Current	I _c	-500	mA
Power Dissipation	P _d	200	mW
Thermal Resistance, Junction to Ambient Air	R _{θJA}	625	°C/W
Operating and Storage Temperature Range	T _j , T _{STG}	-55 to +150	°C

- 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. Product manufactured with Date Code 0627 (week 27, 2006) and newer are built with Green Molding Compound. Product manufactured prior to Date Code 0627 are built with Non-Green Molding Compound and may contain Halogens or Sb2O3 Fire Retardants.
 5. Mounted on FR4 PC Board with recommended pad layout at <http://www.diodes.com/package-outlines.html>.

Electrical Characteristics

 @T_A = +25°C, unless otherwise specified.

R1, R2 Types

Characteristic		Symbol	Min	Typ	Max	Unit	Test Condition
Input Voltage	DDTB122LU DDTB142JU	V _{I(off)}	-0.3 -0.3	—	—	V	V _{CC} = -5V, I _O = -100μA
	DDTB122LU DDTB142JU	V _{I(on)}	—	—	-2.0 -2.0	V	V _O = -0.3V, I _O = -20mA V _O = -0.3V, I _O = -20mA
Output Voltage		V _{O(on)}	—	—	-0.3V	V	I _O /I _I = -50mA/-2.5mA
Input Current	DDTB122LU DDTB142JU	I _I	—	—	-28 -13	mA	V _I = -5V
Output Current		I _{O(off)}	—	—	-0.5	μA	V _{CC} = -50V, V _I = 0V
DC Current Gain	DDTB122LU DDTB142JU	G _I	56 56	—	—	—	V _O = -5V, I _O = -50mA
Gain-Bandwidth Product*		f _T	—	200	—	MHz	V _{CE} = -10V, I _E = -5mA, f = 100MHz

* Transistor - For Reference Only

Electrical Characteristics

 @T_A = +25°C, unless otherwise specified.

R1 – Only Types

Characteristic		Symbol	Min	Typ	Max	Unit	Test Condition
Collector-Base Breakdown Voltage		BV _{CB0}	-50	—	—	V	I _C = -50μA
Collector-Emitter Breakdown Voltage		BV _{CEO}	-40	—	—	V	I _C = -1mA
Emitter-Base Breakdown Voltage	DDTB122TU DDTB142TU	BV _{EBO}	-5	—	—	V	I _E = -50μA I _E = -50μA
Collector Cutoff Current		I _{CBO}	—	—	-0.5	μA	V _{CB} = -50V
Emitter Cutoff Current	DDTB122TU DDTB142TU	I _{EBO}	—	—	-0.5 -0.5	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	DDTB122TU DDTB142TU	h _{FE}	100 100	250 250	600 600	—	I _C = -5mA, V _{CE} = -5V
Gain-Bandwidth Product*		f _T	—	200	—	MHz	V _{CE} = -10V, I _E = 5mA, f = 100MHz

* Transistor - For Reference Only

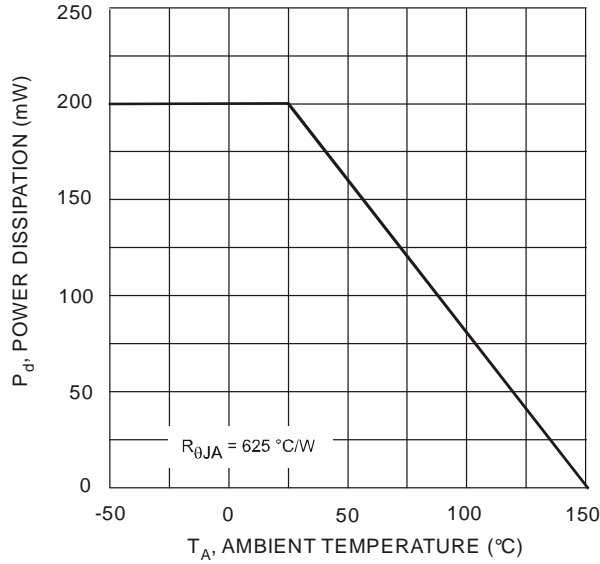


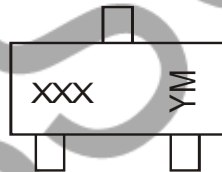
Fig. 1 Power Derating Curve

Ordering Information (Notes 4 & 6)

Part Number	Packaging	Shipping
DDTB122LU-7-F	SOT-323	3000/Tape & Reel
DDTB142JU-7-F	SOT-323	3000/Tape & Reel
DDTB122TU-7-F	SOT-323	3000/Tape & Reel
DDTB142TU-7-F	SOT-323	3000/Tape & Reel

- Notes:
- 4. Product manufactured with Date Code 0627 (week 27, 2006) and newer are built with Green Molding Compound. Product manufactured prior to Date Code 0627 are built with Non-Green Molding Compound and may contain Halogens or Sb2O3 Fire Retardants.
 - 5. Mounted on FR4 PC Board with recommended pad layout at <http://www.diodes.com/package-outlines.html>.
 - 6. For packaging details, go to our website at <https://www.diodes.com/design/support/packageing/diodes-packaging/>.

Marking Information



XXX = Product Type Marking Code (See Page 1)
 YM = Date Code Marking
 Y = Year ex: 1 = 2021
 M = Month ex: 9 = September

Date Code Key

Year	2006	...	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Code	T	...	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

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