



**THE DATASHEET OF
DDTD142JU-7-F**



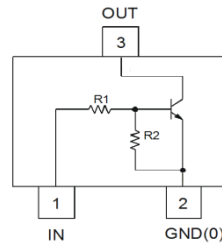
Features

- Complementary PNP Types Available (DDTB)
- 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 refer to the related automotive grade (Q-suffix) part. A listing can be found at <https://www.diodes.com/products/automotive/automotive-products/>.**
- **This part is qualified to JEDEC standards (as references in AEC-Q) for High Reliability. <https://www.diodes.com/quality/product-definitions/>**

Part Number	R1(NOM)	R2(NOM)
DDTD122LU	0.22kΩ	10kΩ
DDTD142JU	0.47kΩ	10kΩ
DDTD122TU	0.22kΩ	Open
DDTD142TU	0.47kΩ	Open



Top View



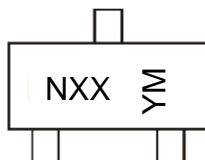
Device Schematic

Ordering Information (Note 4)

Part Number	Status	Compliance	Marking	Reel Size (inches)	Tape Width (mm)	Quantity per Reel
DDTD122LU-7-F	Obsolete	Standard	N75	7	8	3,000
DDTD142JU-7-F	Active	Standard	N76	7	8	3,000
DDTD122TU-7-F	Obsolete	Standard	N77	7	8	3,000
DDTD142TU-7-F	Obsolete	Standard	N78	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



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

Date Code Key

Year	2010	...	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Code	X	...	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.)

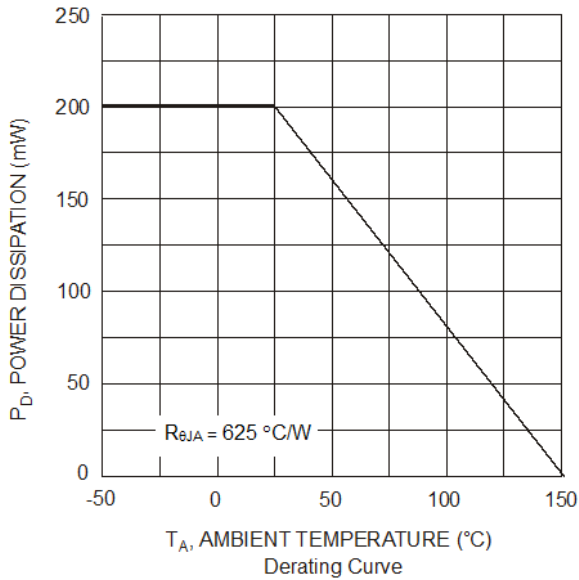
Characteristic		Symbol	Value	Unit
Supply Voltage, (3) to (2)		V _{CC}	50	V
Input Voltage, (1) to (2)	DDTD122TU DDTD142TU	V _{IN}	-5 to +6 -5 to +6	V
Input Voltage, (2) to (1)	DDTD122TU DDTD142TU	V _{EBO(MAX)}	5	V
Output Current	All	I _C	500	mA

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 _{θJA}	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.

Power Derating Curve



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

Characteristic		Symbol	Min	Typ	Max	Unit	Test Condition
Input Voltage	DDTD122LU DDTD142JU	V _{I(off)}	0.3 0.3	—	—	V	V _{CC} = 5V, I _O = 100μA
	DDTD122LU DDTD142JU	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)}	—	—	0.3	V	I _O /I _I = 50mA/2.5mA
Input Current	DDTD122LU DDTD142JU	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	DDTD122LU DDTD142JU	G _I	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 Types**

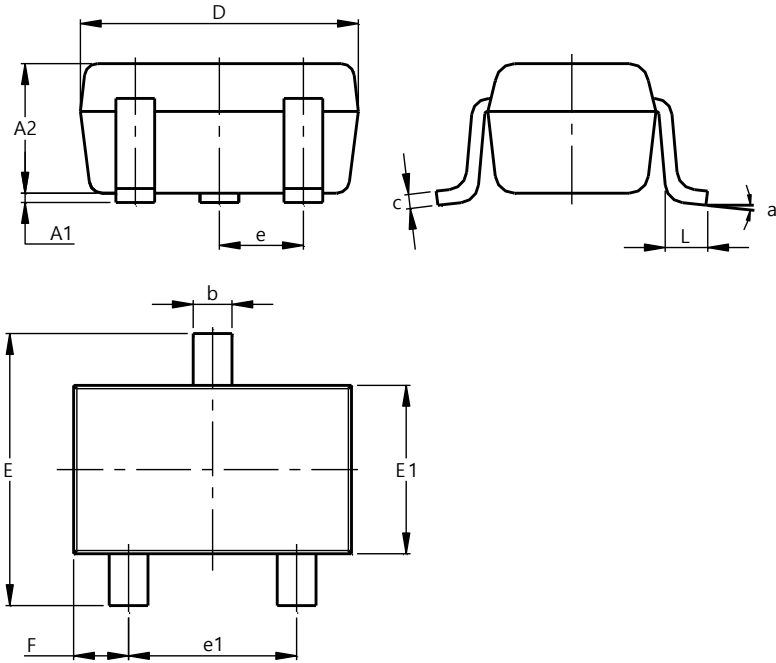
Characteristic		Symbol	Min	Typ	Max	Unit	Test Condition
Collector-Base Breakdown Voltage		BV _{CBO}	50	—	—	V	I _C = 50μA
Collector-Emitter Breakdown Voltage		BV _{CEO}	40	—	—	V	I _C = 1mA
Emitter-Base Breakdown Voltage	DDTD122TU DDTD142TU	BV _{EBO}	5	—	—	V	I _E = 50μA I _E = 50μA
Collector Cutoff Current		I _{CBO}	—	—	0.5	μA	V _{CB} = 50V
Emitter Cutoff Current	DDTD122TU DDTD142TU	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	DDTD122TU DDTD142TU	h _{FE}	100 100	250 250	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

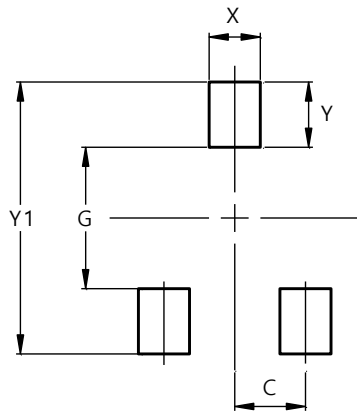


SOT323			
Dim	Min	Max	Typ
A1	0.00	0.10	0.05
A2	0.90	1.00	0.95
b	0.25	0.40	0.30
c	0.10	0.18	0.11
D	1.80	2.20	2.15
E	2.00	2.20	2.10
E1	1.15	1.35	1.30
e	0.650 BSC		
e1	1.20	1.40	1.30
F	0.375	0.475	0.425
L	0.25	0.40	0.30
a	0°	8°	--
All Dimensions in mm			

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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