

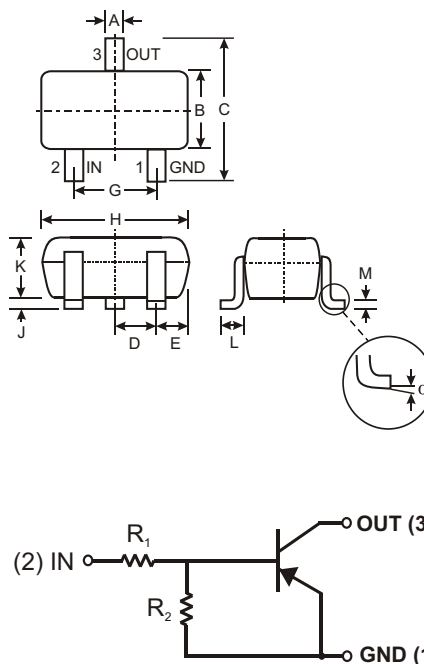
Features

- Epitaxial Planar Die Construction
- Complementary NPN Types Available (DDTD)
- Built-In Biasing Resistors
- Lead Free Product

Mechanical Data

- Case: SOT-323, Molded Plastic
- Case material - UL Flammability Rating 94V-0
- Moisture sensitivity: Level 1 per J-STD-020A
- Terminals: Finish - Matte Tin (Note 1)
Solderable per MIL-STD-202, Method 208
- Terminal Connections: See Diagram
- Marking: Date Code and Marking Code
(See Diagrams & Page 2)
- Weight: 0.006 grams (approx.)
- Ordering Information (See Page 2)

P/N	R1 (NOM)	R2 (NOM)	MARKING
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



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		

Maximum Ratings @ $T_A = 25^\circ\text{C}$ unless otherwise specified

Characteristic	Symbol	Value	Unit
Supply Voltage, (3) to (1)	V_{CC}	-50	V
Input Voltage, (2) to (1)	V_{IN}	+5 to -6 +5 to -6	V
Input Voltage, (1) to (2)	$V_{EBO} \text{ (MAX)}$	-5	V
Output Current	I_C	-500	mA
Power Dissipation (Note 2)	P_d	200	mW
Thermal Resistance, Junction to Ambient Air (Note 2)	$R_{\theta JA}$	625	$^\circ\text{C/W}$
Operating and Storage and Temperature Range	T_j, T_{STG}	-55 to +150	$^\circ\text{C}$

Note: 1. If lead-bearing terminal plating is required, please contact your Diodes Inc. sales representative for availability and minimum order details.
 2. Mounted on FR4 PC Board with recommended pad layout at <http://www.diodes.com/datasheets/ap02001.pdf>.

Electrical Characteristics @ $T_A = 25^\circ\text{C}$ 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	$V_{CC} = -5V, I_O = -100\mu A$
	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 @ $T_A = 25^\circ\text{C}$ unless otherwise specified

R1-Only Types

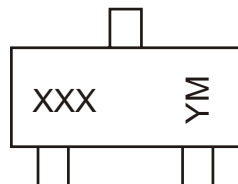
Characteristic		Symbol	Min	Typ	Max	Unit	Test Condition
Collector-Base Breakdown Voltage		BV_{CBO}	-50	—	—	V	$I_C = -50\mu A$
Collector-Emitter Breakdown Voltage		BV_{CEO}	-40	—	—	V	$I_C = -1mA$
Emitter-Base Breakdown Voltage	DDTB122TU DDTB142TU	BV_{EBO}	-5	—	—	V	$I_E = -50\mu A$ $I_E = -50\mu A$
Collector 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

Ordering Information (Note 3)

Device	Packaging	Shipping
DDTB122LU-7	SOT-323	3000/Tape & Reel
DDTB142JU-7	SOT-323	3000/Tape & Reel
DDTB122TU-7	SOT-323	3000/Tape & Reel
DDTB142TU-7	SOT-323	3000/Tape & Reel

Notes: 1. If lead-bearing terminal plating is required, please contact your Diodes Inc. sales representative for availability and minimum order details.
3. For Packaging Details, go to our website at <http://www.diodes.com/datasheets/ap02007.pdf>.

Marking Information


XXX = Product Type Marking Code
See Sheet 1 Diagrams
YM = Date Code Marking
Y = Year ex: P = 2003
M = Month ex: 9 = September

Date Code Key

Year	2002	2003	2004	2005	2006	2007	2008	2009
Code	N	P	R	S	T	U	V	W

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

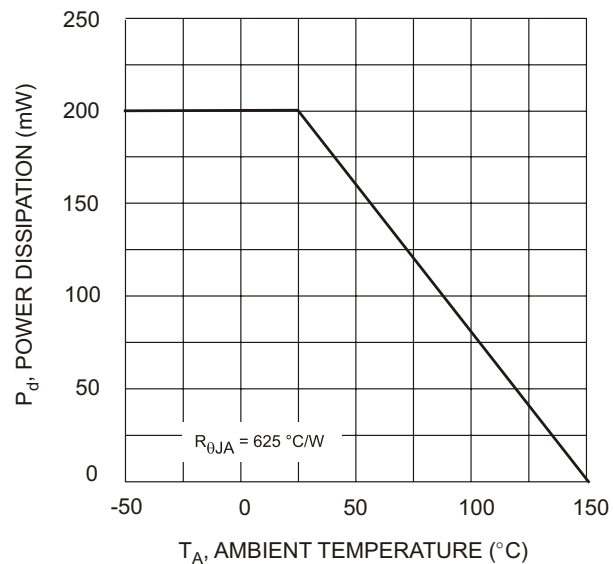


Fig. 1 Power Derating Curve