

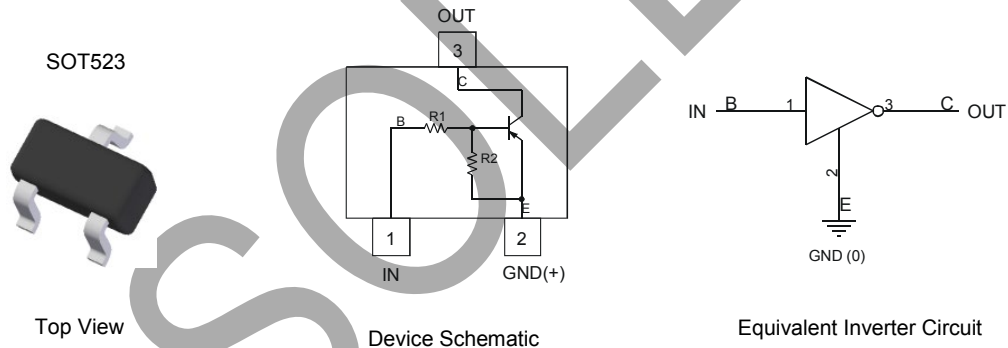
Features

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

Mechanical Data

- Case: SOT-523
- 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: 0.002 grams (approximate)

Part Number	R1 (NOM)	R2 (NOM)
DDTA122LE	0.2kΩ	10kΩ
DDTA142JE	0.47kΩ	10kΩ
DDTA122TE	0.22kΩ	OPEN
DDTA142TE	0.47kΩ	OPEN

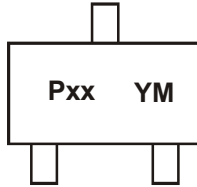


Ordering Information (Note 4)

Product	Compliance	Marking	Reel size (inches)	Tape width (mm)	Quantity per reel
DDTA122LE-7-F	Standard	P81	7	8	3000
DDTA142JE-7-F	Standard	P82	7	8	3000
DDTA122TE-7-F	Standard	P83	7	8	3000
DDTA142TE-7-F	Standard	P84	7	8	3000

- 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 (See Ordering Information)
 YM = Date Code Marking
 Y or Y = Year (ex: 1 = 2021)
 M = Month (ex: 9 = September)

Date Code Key

Year	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
Code	I	J	K	L	M	N	O	P	R	S	T	U

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Code	1	2	3	4	5	6	7	8	9	0	N	D

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

Characteristic	Symbol	Value	Unit
Supply Voltage, (2) to (3)	V _{CC}	-50	V
Input Voltage, (1) to (2)	V _{IN}	+5 to -6 +5 to -6	V
Input Voltage, (2) to (1)	V _{EBO (MAX)}	-5	V
Output Current	I _C	-100	mA

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

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 5)	P _D	150	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

Notes: 5. For a device surface mounted on 15mm x 15mm x 0.6mm FR4 PCB with high coverage of single sided 1oz copper, in still air conditions; device measured when operating in steady state condition.

Electrical Characteristics (@ $T_A = +25^\circ\text{C}$, unless otherwise specified.)

R1, R2 Types

Characteristic		Symbol	Min	Typ	Max	Unit	Test Condition
Input Voltage	DDTA122LE DDTA142JE	$V_{I(off)}$	-0.3 -0.3	—	—	V	$V_{CC} = -5\text{V}$, $I_O = -100\mu\text{A}$
	DDTA122LE DDTA142JE	$V_{I(on)}$	—	—	-2.0 -2.0	V	$V_O = -0.3\text{V}$, $I_O = -20\text{mA}$ $V_O = -0.3\text{V}$, $I_O = -20\text{mA}$
Output Voltage		$V_{O(on)}$	—	—	-0.3V	V	$I_O/I_I = -5\text{mA}/-0.25\text{mA}$
Input Current	DDTA122LE DDTA142JE	I_I	—	—	-28 -13	mA	$V_I = -5\text{V}$
Output Current		$I_{O(off)}$	—	—	-0.5	μA	$V_{CC} = -50\text{V}$, $V_I = 0\text{V}$
DC Current Gain	DDTA122LE DDTA142JE	G_I	56 56	—	—	—	$V_O = -5\text{V}$, $I_O = -10\text{mA}$
Transition frequency		f_T	—	200	—	MHz	$V_{CE} = -10\text{V}$, $I_E = -5\text{mA}$, $f = 100\text{MHz}$

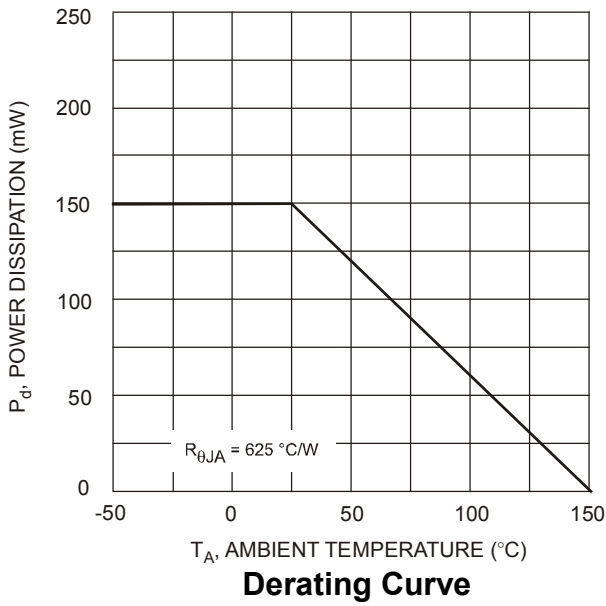
Electrical Characteristics @ $T_A = 25^\circ\text{C}$ unless otherwise specified

R1-Only Types

Characteristic		Symbol	Min	Typ	Max	Unit	Test Condition
Collector-Base Breakdown Voltage		BV_{CBO}	-50	—	—	V	$I_C = -50\mu\text{A}$
Collector-Emitter Breakdown Voltage		BV_{CEO}	-40	—	—	V	$I_C = -1\text{mA}$
Emitter-Base Breakdown Voltage	DDTA122TE DDTA142TE	BV_{EBO}	-5	—	—	V	$I_E = -50\mu\text{A}$ $I_E = -50\mu\text{A}$
Collector Cutoff Current		I_{CBO}	—	—	-0.5	μA	$V_{CB} = -50\text{V}$
Emitter Cutoff Current	DDTA122TE DDTA142TE	I_{EBO}	— —	—	-0.5 -0.5	μA	$V_{EB} = -4\text{V}$
Collector-Emitter Saturation Voltage		$V_{CE(sat)}$	—	—	-0.3	V	$I_C = -5\text{mA}$, $I_B = -0.25\text{mA}$
DC Current Gain	DDTA122TE DDTA142TE	h_{FE}	100 100	250 250	600 600	—	$I_C = -1\text{mA}$, $V_{CE} = -5\text{V}$
Transition frequency		f_T	—	200	—	MHz	$V_{CE} = -10\text{V}$, $I_E = 5\text{mA}$, $f = 100\text{MHz}$

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Typical Electrical Characteristics (@ $T_A = +25^\circ\text{C}$ unless otherwise specified.)



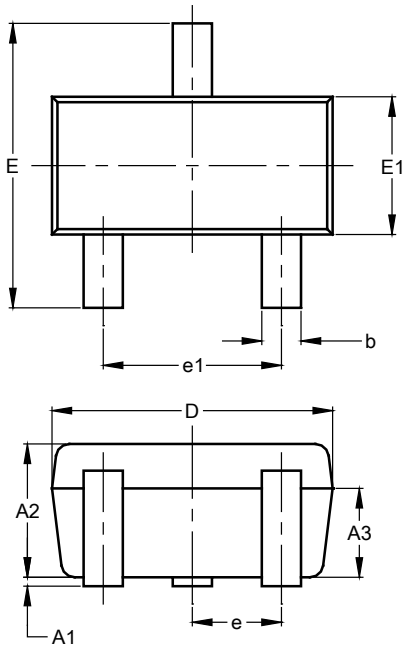
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Package Outline Dimensions

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

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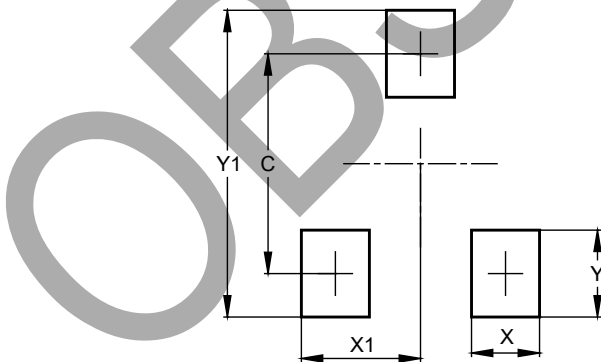


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Dim	Min	Max	Typ
A1	0.00	0.10	0.05
A2	0.60	0.80	0.75
A3	0.45	0.65	0.50
b	0.15	0.30	0.22
c	0.10	0.20	0.12
D	1.50	1.70	1.60
E	1.45	1.75	1.60
E1	0.75	0.85	0.80
e	0.50 BSC		
e1	0.90	1.10	1.00
L	0.20	0.40	0.33
a	0°	--	8°
All Dimensions in mm			

Suggested Pad Layout

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

SOT523



Dimensions	Value
C	1.29
X	0.40
X1	0.70
Y	0.51
Y1	1.80

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