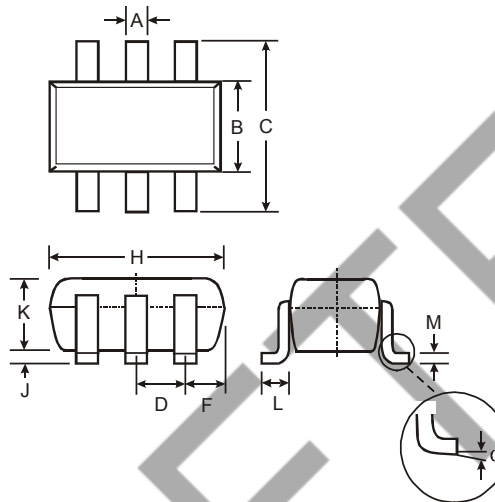


Features

- Epitaxial Planar Die Construction
- Complementary NPN Types Available (DDC)
- Built-In Biasing Resistors
- **Lead-Free/RoHS Compliant (Note 3)**
- **"Green" Device (Note 4 and 5)**

Mechanical Data

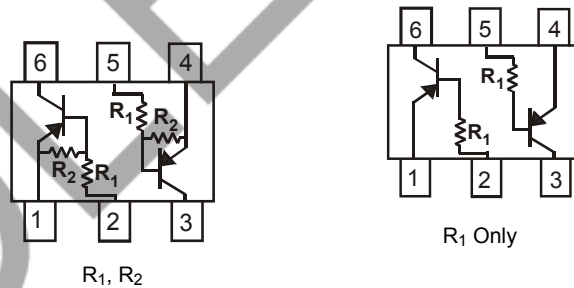
- Case: SOT-363
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020C
- Terminals: Finish - Matte Tin Solderable per MIL-STD-202, Method 208
- Lead Free Plating (Matte Tin Finish annealed over Alloy 42 leadframe).
- Terminal Connections: See Diagram
- Marking Information: See Page 3
- Type Code: See Table Below
- Ordering Information: See Page 3
- Weight: 0.0058 grams (approximate)



SOT-363		
Dim	Min	Max
A	0.10	0.30
B	1.15	1.35
C	2.00	2.20
D	0.65 Nominal	
F	0.30	0.40
H	1.80	2.20
J	—	0.10
K	0.90	1.00
L	0.25	0.40
M	0.10	0.25
α	0°	8°

All Dimensions in mm

P/N	R1 (NOM)	R2 (NOM)	Type Code
DDA122LU	0.22K	10K	P81
DDA142JU	0.47K	10K	P82
DDA122TU	0.22K	OPEN	P83
DDA142TU	0.47K	OPEN	P84



SCHMATIC DIAGRAM

Maximum Ratings NPN Section

@T_A = 25°C unless otherwise specified

Characteristic	Symbol	Value	Unit
Supply Voltage (1) to (6) and (4) to (3)	V _{CC}	-50	V
Input Voltage (1) to (2) and (4) to (5)	V _{IN}	+5 to -6	V
Input Voltage (1) to (2) and (4) to (5)	V _{EBO (MAX)}	-5	V
Output Current	I _C	-100	mA
Power Dissipation (Note 2)	P _d	200	mW
Thermal Resistance, Junction to Ambient Air (Note 2)	R _{θJA}	625	°C/W
Operating and Storage Temperature Range	T _j , T _{STG}	-55 to +150	°C

- Notes:
1. Mounted on FR4 PC Board with recommended pad layout at <http://www.diodes.com/datasheets/ap02001.pdf>.
 2. 150mW per element must not be exceeded.
 3. No purposefully added lead.
 4. Diodes Inc.'s "Green" policy can be found on our website at http://www.diodes.com/products/lead_free/index.php.
 5. Product manufactured with Date Code UO (week 40, 2007) and newer are built with Green Molding Compound. Product manufactured prior to Date Code UO are built with Non-Green Molding Compound and may contain Halogens or Sb2O3 Fire Retardants.

Electrical Characteristics @ $T_A = 25^\circ\text{C}$ unless otherwise specified **R1, R2 Types**

Characteristic		Symbol	Min	Typ	Max	Unit	Test Condition
Input Voltage	DDA122LU DDA142JU	$V_{I(off)}$	-0.3 -0.3	—	—	V	$V_{CC} = -5V, I_O = -100\mu A$
	DDA122LU DDA142JU	$V_{I(on)}$	—	—	-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	$I_O/I_I = -5mA/-0.25mA$
Input Current		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		G_I	56 56	—	—	—	$V_O = -5V, I_O = -10mA$
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		DDA122TU DDA142TU 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		DDA122TU DDA142TU I_{EBO}	—	—	-0.5 -0.5	μA	$V_{EB} = -4V$
Collector-Emitter Saturation Voltage		$V_{CE(sat)}$	—	—	-0.3	V	$I_C = -5mA, I_B = -0.25mA$
DC Current Transfer Ratio		DDA122TU DDA142TU h_{FE}	100 100	250 250	600 600	—	$I_C = -1mA, V_{CE} = -5V$
Gain-Bandwidth Product*		f_T	—	200	—	MHz	$V_{CE} = -10V, I_E = 5mA, f = 100MHz$

* Transistor - For Reference Only

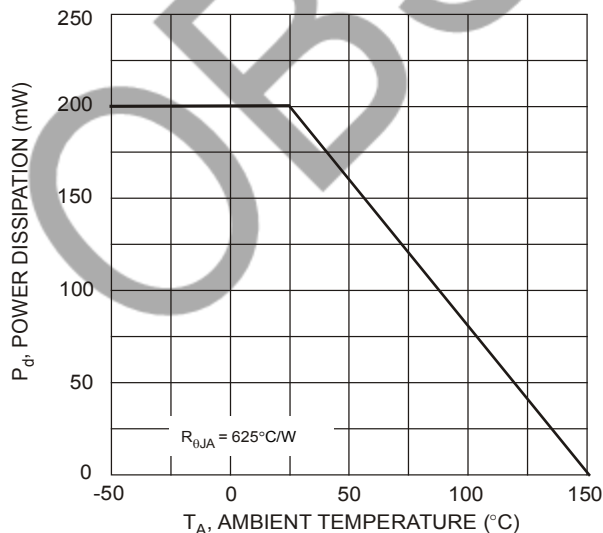


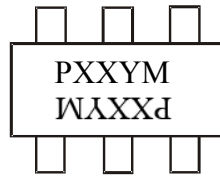
Fig. 1 Power Derating Curve
(150mW per element must not be exceeded)

Ordering Information (Note 6)

Device	Packaging	Shipping
DDA122LU-7-F	SOT-363	3000/Tape & Reel
DDA142JU-7-F	SOT-363	3000/Tape & Reel
DDA122TU-7-F	SOT-363	3000/Tape & Reel
DDA142TU-7-F	SOT-363	3000/Tape & Reel

Note: 6. For packaging details, go to our website at <http://www.diodes.com/datasheets/ap02007.pdf>.

Marking Information

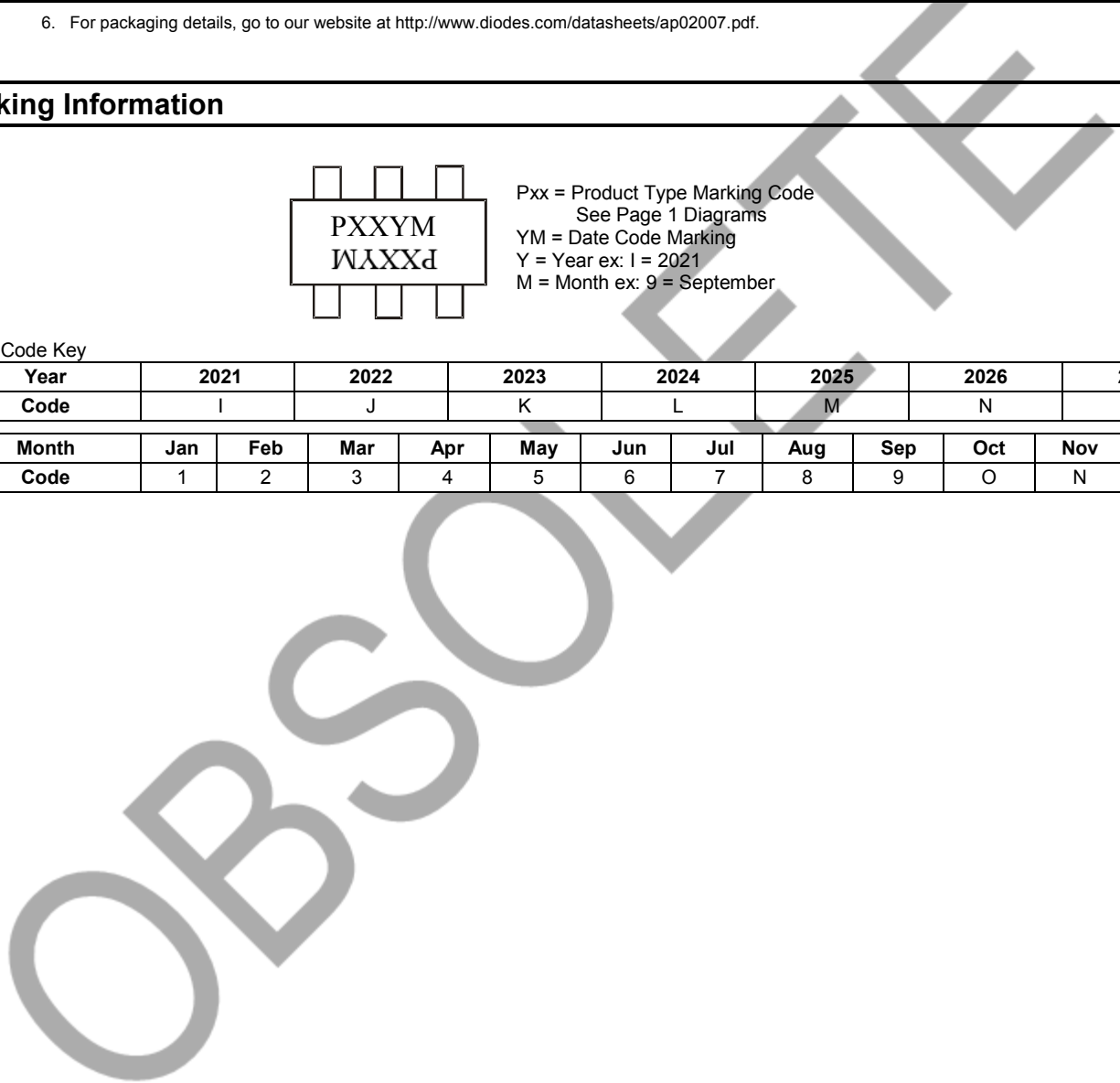


Pxx = Product Type Marking Code
See Page 1 Diagrams
YM = Date Code Marking
Y = Year ex: I = 2021
M = Month ex: 9 = September

Date Code Key

Year	2021	2022	2023	2024	2025	2026	2027
Code	I	J	K	L	M	N	O

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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