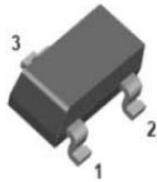
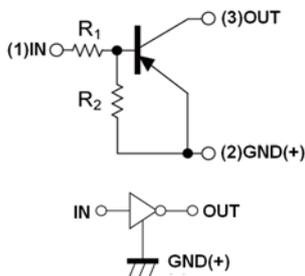


## PNP Digital Transistors (Built-in Resistors)



1. IN  
2. GND  
3. OUT

SOT-323



### Features

- Moisture sensitivity level 1
- Halogen free and RoHS compliant
- Surface mount package ideally suited for automatic insertion

### Application

- Signal amplification
- Switching circuit

### Mechanical data

- **Package:** SOT-323
- **Terminals:** Tin plated leads, solderable per J-STD-002 and JESD22-B102

### ■ Maximum Ratings ( $T_a=25^{\circ}\text{C}$ Unless otherwise specified)

Item	Symbol	Unit	Conditions	Value
Device marking code				E11A
Collector-base voltage	$V_{CC}$	V		-50
Collector-emitter voltage	$V_{IN}$	V		-10 to +5
Collector current	$I_o$	mA		-500
Power dissipation	$P_D$	mW		200
Operation junction temperature	$T_J$	$^{\circ}\text{C}$		-55 to +150
Storage temperature	$T_{STG}$	$^{\circ}\text{C}$		-55 to +150



# DDTA113ZUA

RoHS  
COMPLIANT

## ■ Electrical Characteristics (T<sub>a</sub>=25°C Unless otherwise specified)

Item	Symbol	Unit	Conditions	Min	Typ	Max
Input voltage	V <sub>I(off)</sub>	V	V <sub>CC</sub> =-5V, I <sub>c</sub> =-100uA	-0.3		
	V <sub>I(on)</sub>	V	V <sub>O</sub> =-0.3V, I <sub>c</sub> =-20mA			-3
Output voltage	V <sub>O(on)</sub>	V	I <sub>o</sub> / I <sub>i</sub> = -50mA / -2.5 mA			-0.3
Input current	I <sub>i</sub>	mA	V <sub>i</sub> =-5V			-7.2
Output current	I <sub>O(off)</sub>	uA	V <sub>CC</sub> =-50V, V <sub>i</sub> =0			-0.5
DC current gain	G <sub>1</sub>		V <sub>O</sub> =-5V, I <sub>o</sub> = -50mA	80		
Input resistance	R <sub>1</sub>	kΩ		0.7	1	1.3
Resistance ratio	R <sub>2</sub> /R <sub>1</sub>			8	10	12
Transition frequency	f <sub>T</sub>	MHz	V <sub>CE</sub> =-10V, I <sub>E</sub> =-5mA, f=100MHz		200	

## ■ Thermal Characteristics

Parameter	Symbol	Unit	Value
Thermal resistance, junction-to-ambient	R <sub>θJ-A</sub> <sup>(1)</sup>	°C/W	625
Thermal resistance, junction-to-case	R <sub>θJ-C</sub> <sup>(1)</sup>	°C/W	500

Note:

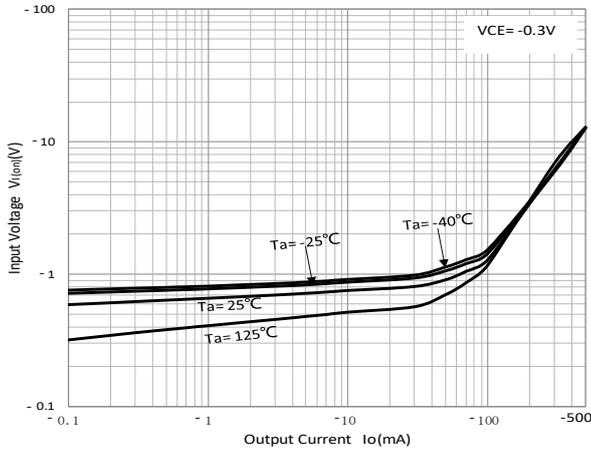
(1) Device mounted on PCB, single-sided copper, with standard footprint

## ■ Ordering Information

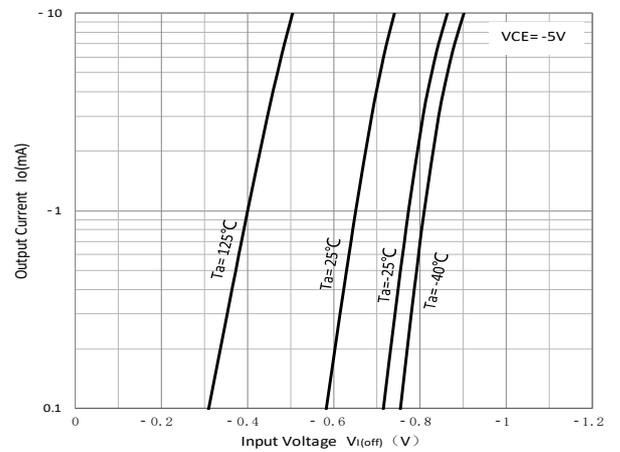
Preferred P/N	Packing code	Unit weight(g)	Minimum package(pcs)	Inner box quantity(pcs)	Outer carton quantity(pcs)	Delivery mode
DDTA113ZUA	F2	Approximate 0.005	3000	30000	120000	7" reel

## ■ Characteristics

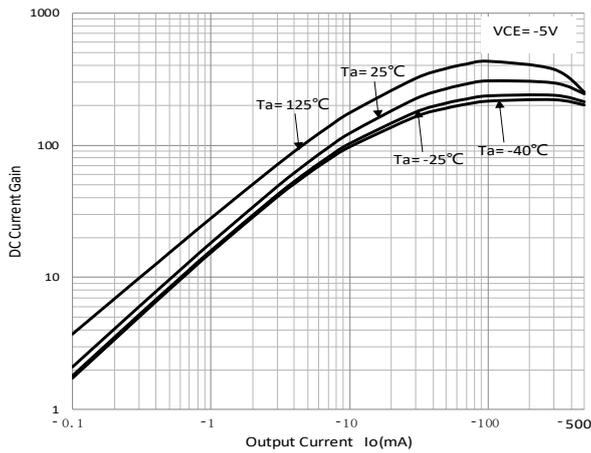
**Fig 1: Input Voltage (On) Characteristics**



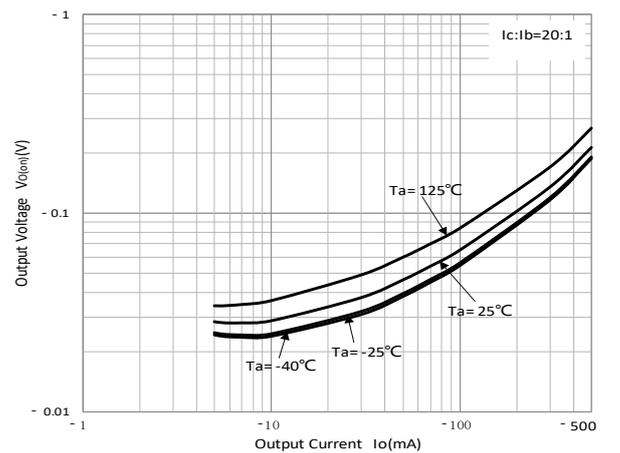
**Fig 2: Input Voltage (Off) Characteristic**



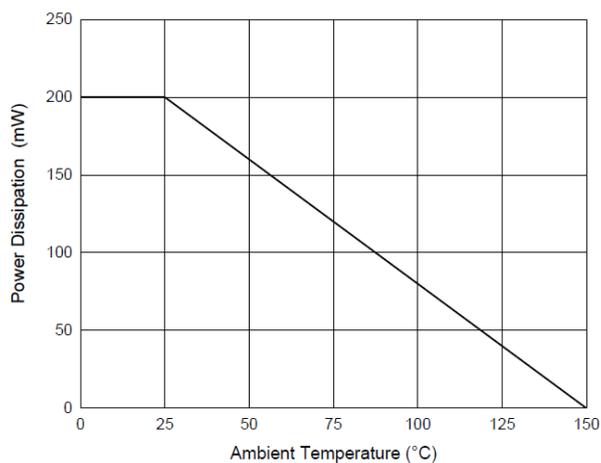
**Fig 3: DC Current Gain Characteristics**



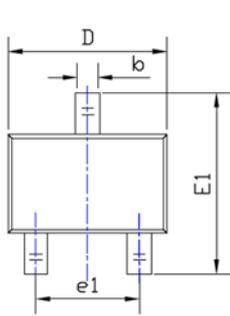
**Fig 4: Output Voltage Characteristics**



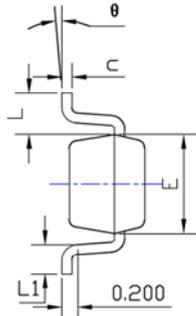
**Fig 5: P<sub>D</sub>-T<sub>a</sub> Curve**



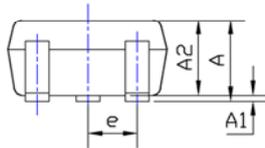
## ■ Outline Dimensions



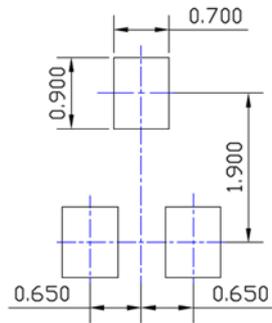
TOP VIEW



SIDE VIEW



SIDE VIEW



UNIT: mm

SUGGESTED SOLDER PAD LAYOUT

SYMBOL	DIMENSIONS			
	INCHES		Millimeter	
	MIN.	MAX.	MIN.	MAX.
A	0.035	0.043	0.900	1.100
A1	0.000	0.004	0.000	0.100
A2	0.035	0.039	0.900	1.000
b	0.006	0.016	0.150	0.400
c	0.004	0.010	0.100	0.250
D	0.071	0.087	1.800	2.200
E	0.045	0.053	1.150	1.350
E1	0.085	0.096	2.150	2.450
e	0.026TYP		0.650TYP	
e1	0.047	0.055	1.200	1.400
L	0.021REF		0.525REF	
L1	0.010	0.018	0.260	0.460
θ	0°	8°	0°	8°

**NOTE:**

- 1.PACKAGE BODY SIZES EXCLUDE MOLD FLASH AND GATE BURRS.
- 2.TOLERANCE 0.1mm UNLESS OTHERWISE SPECIFIED.
- 3.THE PAD LAYOUT IS FOR REFERENCE PURPOSES ONLY.

Note:

1. All dimensions are in millimeters (mm) unless otherwise specified.  
[所有尺寸均以毫米为单位, 除非另有说明]
2. General tolerances: ±0.10mm unless otherwise specified.  
[通用公差为±0.10mm, 除非另有说明]
3. Dimensions and tolerances per ASME Y14.5M-2018.  
[尺寸和公差遵循 ASME Y14.5M-2018 标准]
- 4.All dimensions shown are exclusive of burrs and gate residues.  
Burrs and gate vestiges shall not exceed 0.15 mm in maximum.  
[所有尺寸均不包括毛刺和浇口残留。毛刺与浇口残留的尺寸最大不得超过 0.15mm]
- 5.Dimension b does not include dambar protrusion of max 0.100 mm per side.  
[尺寸b不包括单边最大0.100 MM的中筋凸出部分]
- 6.Dimensions D and E are the overall extreme outer dimensions of the mold compound. These dimensions exclude mold flash, lead flash, protrusions and burrs but include the maximum allowable mold mismatch.  
[D和E是塑封体的外部极限尺寸, 不包括包封溢料、内引线溢料、凸出部分以及胶体毛刺, 但是包含了包封错位的最大尺寸]
- 7.Formed leads shall be planar with respect to one another within a maximum of 0.076 mm relative to the seating plane.  
[成型的管脚应为同一平面, 共面性最大为0.1mm]
8. ★It is the key size.  
[★ 标记为关键尺寸]



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