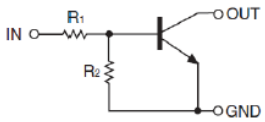
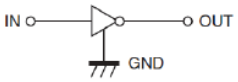
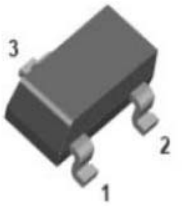
NPN Digital Transistors (Built-in Resistors)







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℃ Unless otherwise specified)

Item	Symbol	Unit	Conditions	Value
Device marking code				W21A
Collector-base voltage	V_{CC}	V		50
Collector-emitter voltage	V_{IN}	V		-5 to +10
Collector current	I_O	mA		500
Power dissipation	P_D	mW		200
Operation junction temperature	T_J	℃		-55 to +150
Storage temperature	T_{STG}	℃		-55 to +150

■ Electrical Characteristics (Ta=25℃ Unless otherwise specified)

Item	Symbol	Unit	Conditions	Min	Typ	Max
Input voltage	$VI_{(off)}$	V	V_{CC}=5V,I_O=100uA	0.3		
	$VI_{(on)}$	V	V_O=0.3V,I_O=20mA			3
Output voltage	$V_{O(on)}$	V	I_O /I_I =50mA/2.5 mA			0.3
Input current	I_I	mA	V_I=5V			7.2
Output current	$I_{O(off)}$	uA	V_{CC}=50V, V_I=0			0.5
DC current gain	G_I		V_O=5V, I_O =50mA	56		
Input resistance	R_1	kΩ		0.7	1	1.3
Resistance ratio	R_2/R_1			7	10	12
Transition frequency	f_T	MHz	V_O=10V,I_O=50mA,f=100MHz		200	

■ Thermal Characteristics

Parameter	Symbol	Unit	Value
Thermal resistance, junction-to-ambient	$R_{\theta J\text{-}A}$(1)	℃/W	625
Thermal resistance, junction-to-case	$R_{\theta J\text{-}C}$(1)	℃/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
DDTC113ZUA	F2	Approximate 0.005	3000	30000	120000	7” reel

■Characteristics

Fig 1：Input Voltage (On) Characteristics

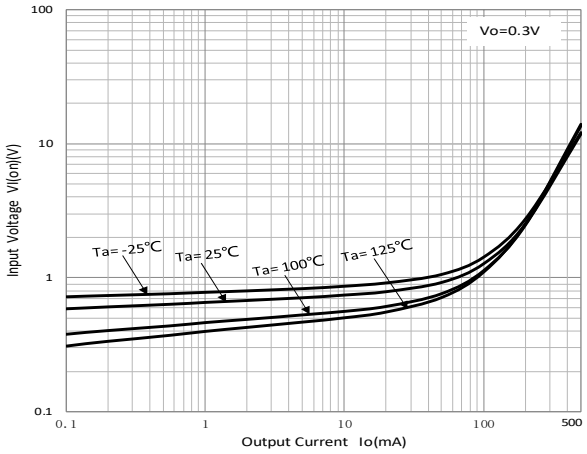


Fig 2：Input Voltage (Off) Characteristic

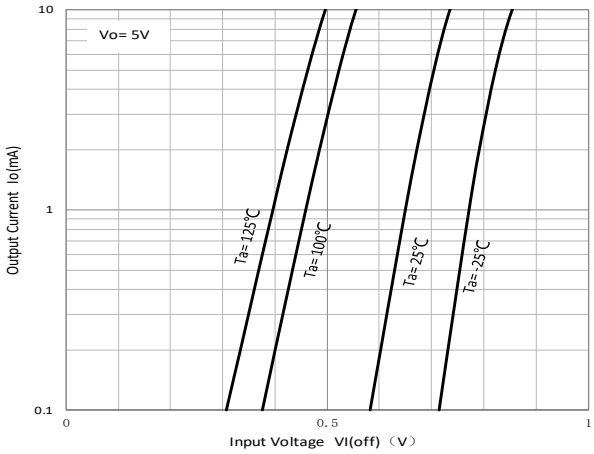


Fig 3：DC Current Gain Characteristics

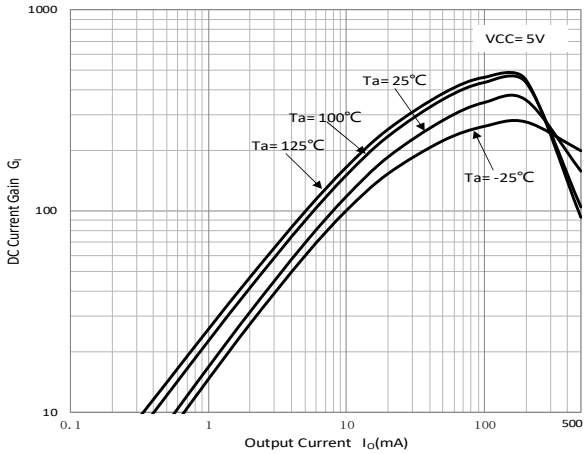


Fig 4：Output Voltage Characteristics

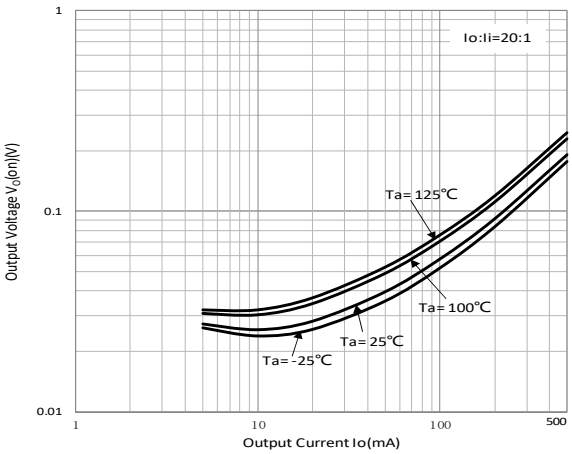
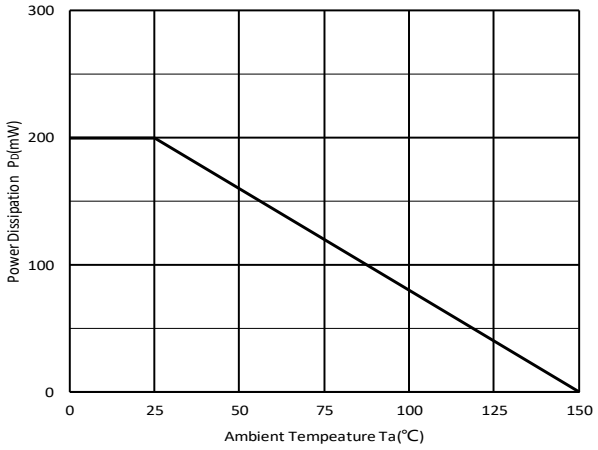
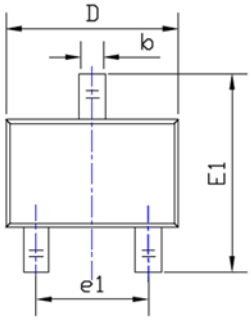


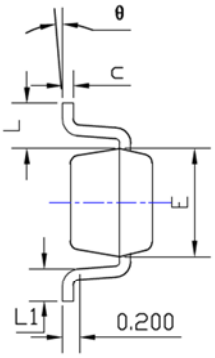
Fig 5：P_D-Ta Curve



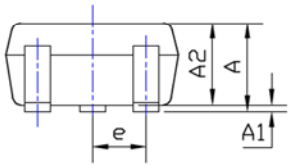
■ Outline Dimensions



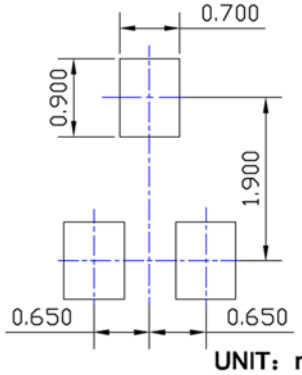
TOP VIEW



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]

Notice

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