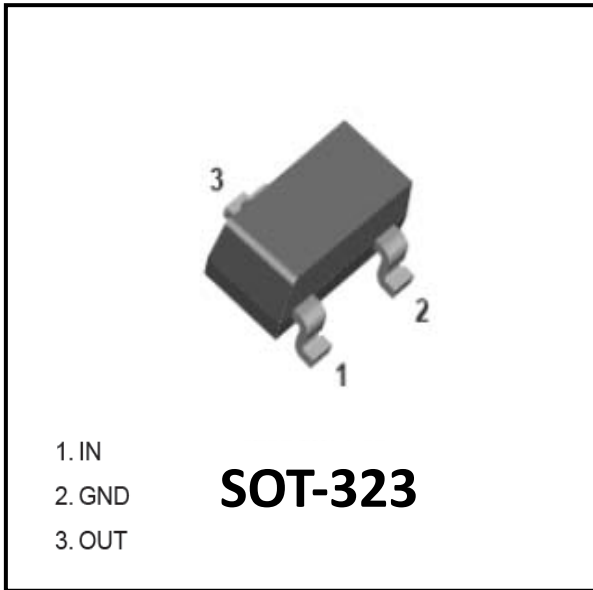


## Digital Transistors (Built-in Resistors)



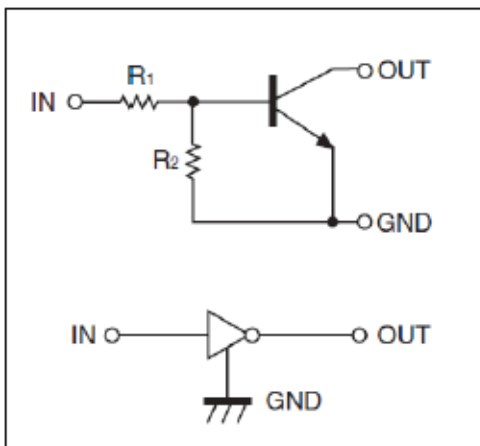
### Features

- Epoxy meets UL-94 V-0 flammability rating
- Moisture Sensitivity Level 1
- Built-in bias resistors enable the configuration of an inverter circuit without connecting external input resistors
- Surface mount package ideally Suited for Automatic Insertion
- NPN

### Mechanical Data

- **Package:** SOT-323
- **Terminals:** Tin plated leads, solderable per J-STD-002 and JESD22-B102
- **Marking:** E21

### ■Equivalent circuit



### ■Maximum Ratings (Ta=25°C Unless otherwise specified)

ITEM	SYMBOL	UNIT	CONDITIONS	VALUE
Supply Voltage	$V_{CC}$	V		50
Input Voltage	$V_{IN}$	V		-5 to +10
Collector Current	$I_C$	mA		100
Power Dissipation	$P_D$	mW		200
Junction Temperature	$T_j$	°C		150
Storage Temperature	$T_{stg}$	°C		-55 to +150



# DTC113ZUA

## ■ Electrical Characteristics (Ta=25°C unless otherwise specified)

ITEM	SYMBOL	UNIT	CONDITIONS	MIN	TYP	MAX
Input voltage	$V_{I(off)}$	V	VCC=5V, I <sub>o</sub> =100uA	0.3		
	$V_{I(on)}$	V	V <sub>o</sub> =0.3V, I <sub>o</sub> =20mA			3
Output voltage	$V_{O(on)}$	V	I <sub>o</sub> / I <sub>i</sub> = 10mA/0.5 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	VCC=50V, V <sub>i</sub> =0			0.5
DC current gain	G <sub>I</sub>		V <sub>o</sub> =5V, I <sub>o</sub> =5mA	33		
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>o</sub> =10V, I <sub>o</sub> =5mA, f=100MHz		250	

## ■ Ordering Information (Example)

PREFERRED P/N	PACKING CODE	UNIT WEIGHT(g)	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
DTC113ZUA	F2	Approximate 0.005	3000	30000	120000	7" reel

## ■ Characteristics (Typical)

Fig. 1 - DC Current Gain Characteristics

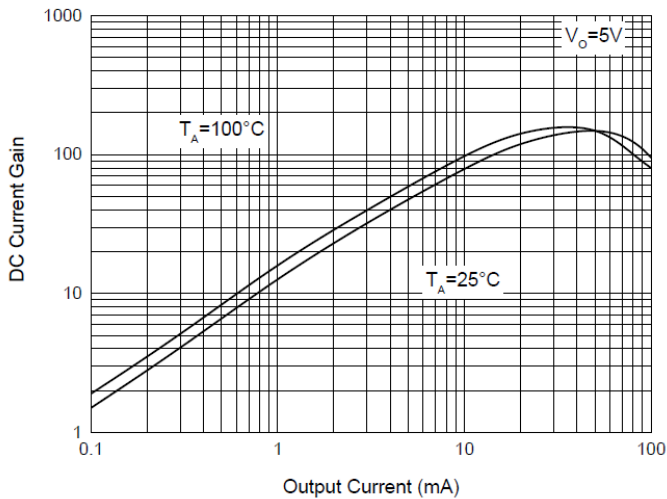


Fig. 2 - Input Voltage (on) Characteristics

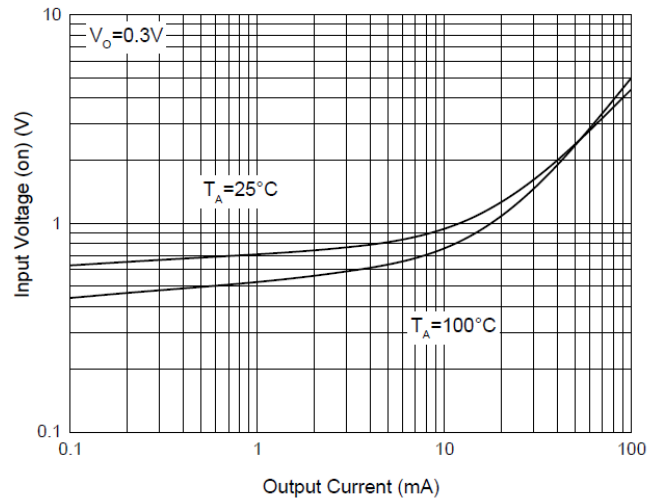




Fig. 3 - Input Voltage (off) Characteristics

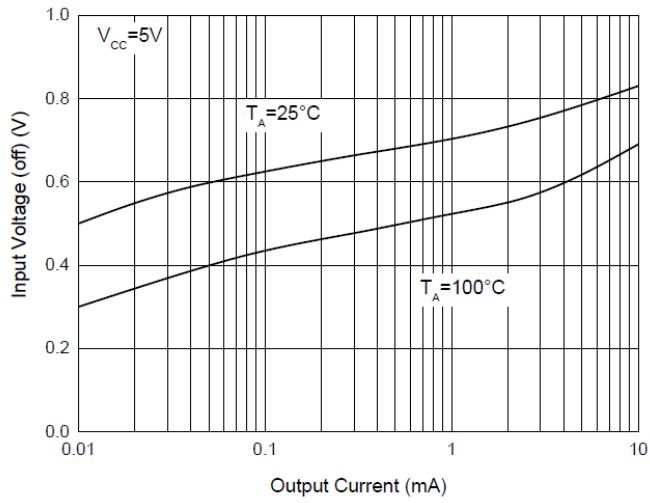


Fig. 4 - Output Voltage Characteristics

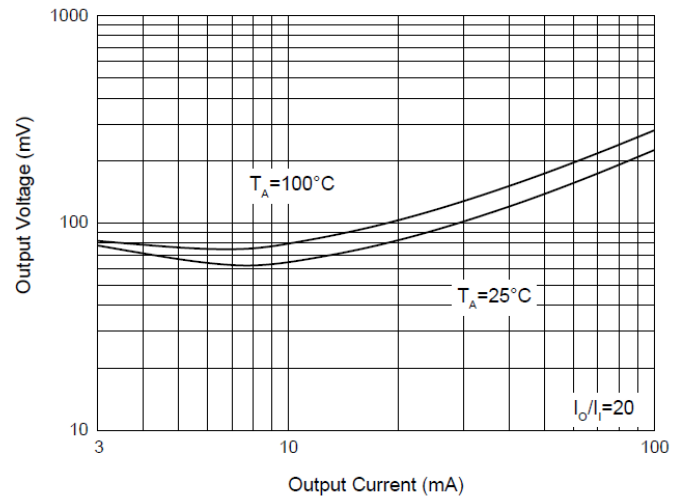
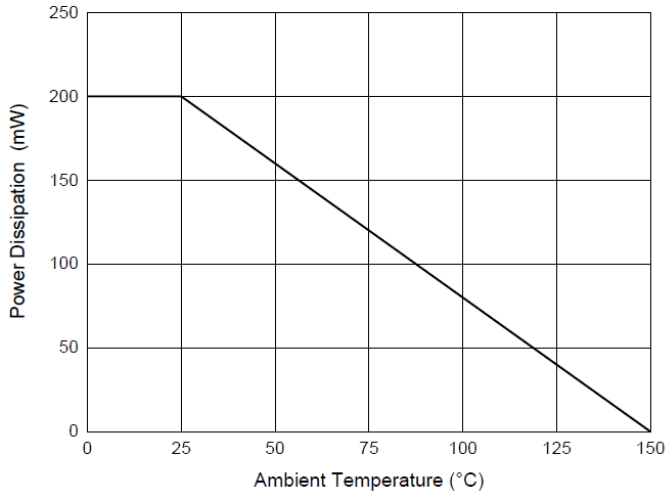


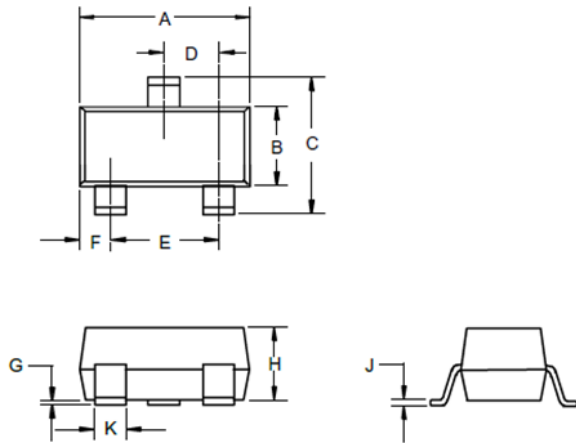
Fig. 5 - Power Derating Curve





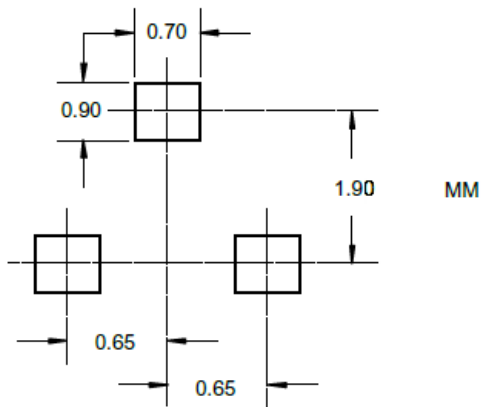
# DTC113ZUA

## ■SOT-323 Package Outline Dimensions



DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.071	0.087	1.80	2.20	
B	0.045	0.053	1.15	1.35	
C	0.083	0.096	2.10	2.45	
D	0.026Nominal		0.65Nominal		
E	0.047	0.055	1.20	1.40	
F	0.012	0.016	0.30	0.40	
G	0.000	0.004	0.00	0.10	
H	0.035	0.039	0.90	1.00	
J	0.004	0.010	0.10	0.250	
K	0.006	0.016	0.15	0.40	

## ■SOT-323 Soldering Footprint





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