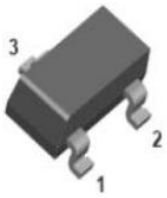
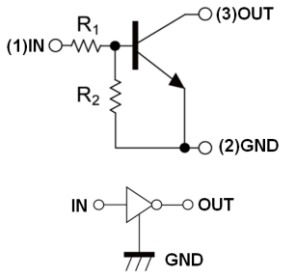
NPN Digital Transistors (Built-in Resistors)



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				24
Collector-base voltage	V_{CC}	V		50
Collector-emitter voltage	V_{IN}	V		-10 to +40
Collector current	I_O	mA		100
Power dissipation	P_D	mW		200
Junction temperature	T_J	℃		-55 to +150
Storage temperature	T_{STG}	℃		-55 to +150

Item	Symbol	Unit	Conditions	Min	Typ	Max
Input voltage	$VI_{(off)}$	V	Vcc=5V,Ic=100uA	0.5		
	$VI_{(on)}$	V	V_O=0.3V,Ic=10mA			3
Output voltage	$Vo_{(on)}$	V	Io /I_I =10mA/0.5 mA			0.3
Input current	I_I	mA	V_I=5V			0.88
Output current	$I_{O(off)}$	uA	V_{CC}=50V, V_I=0			0.1
DC current gain	G_I		Vo=5V, Io =5mA	33		
Input resistance	R_1	kΩ		7	10	13
Resistance ratio	R_2/R_1			0.8	1	1.2
Transition frequency	f_T	MHz	Vo=10V,I_O=5mA,f=100MHz		250	

■ Thermal Characteristics

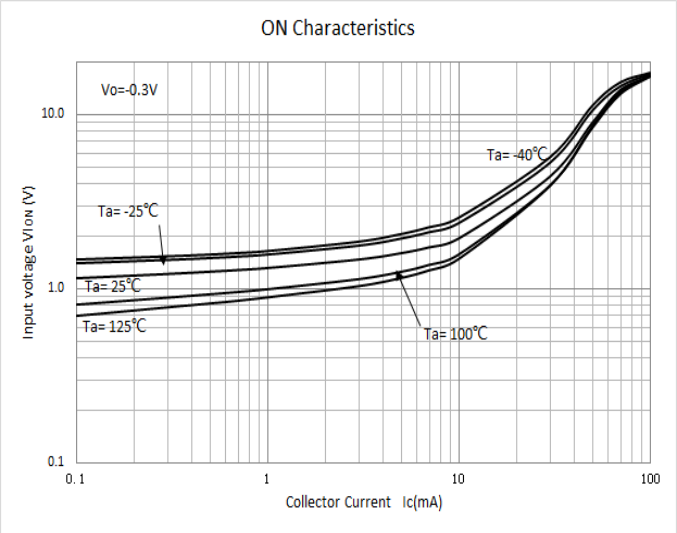
Parameter	Symbol	Unit	Value
Thermal resistance, junction-to-ambient	RθJ-A(1)	℃/W	625
Thermal resistance, junction-to-case	RθJ-C(1)	℃/W	500

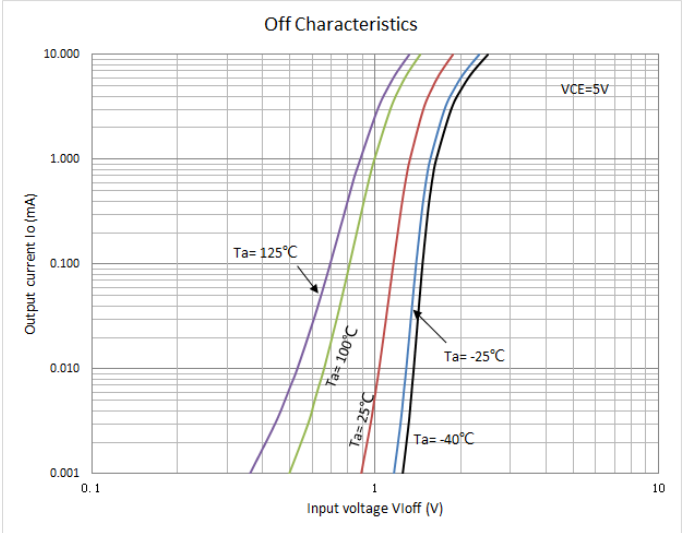
Note:

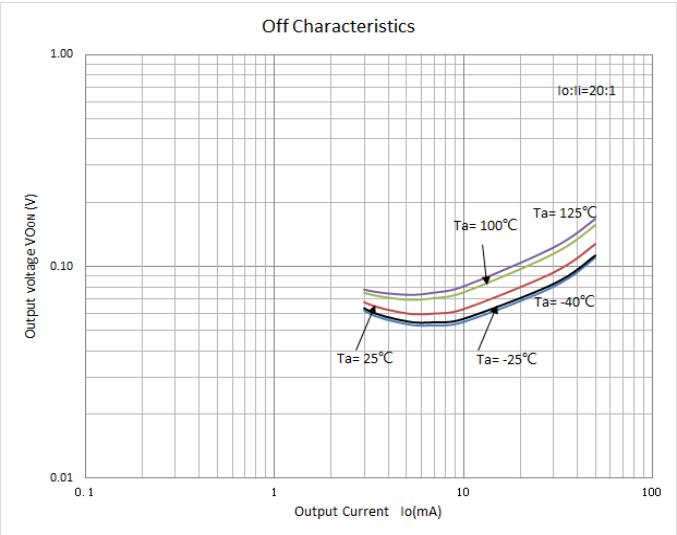
（1）Device mounted on PCB, single-sided copper，with standard footprint

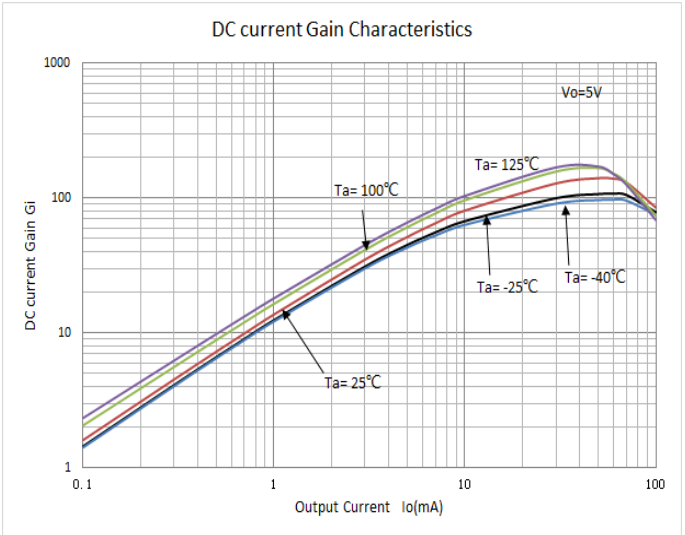
■Ordering Information

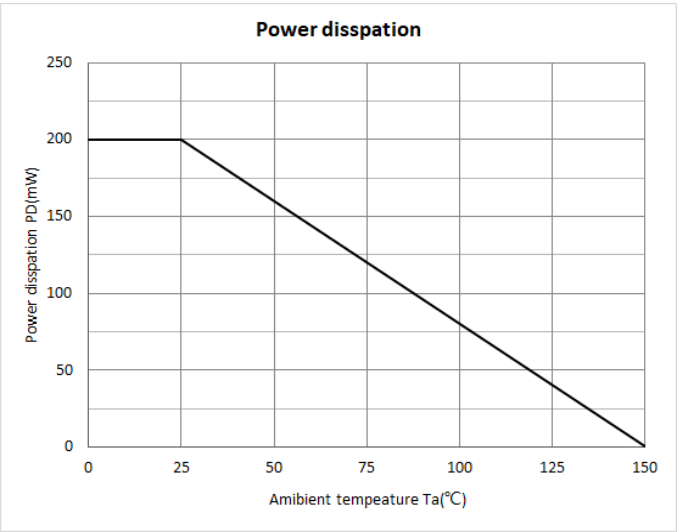
Preferred P/N	Packing code	Unit weight(g)	Minimum package(pcs)	Inner box quantity(pcs)	Outer carton quantity(pcs)	Delivery mode
DTC114EUA	F2	Approximate 0.005	3000	30000	120000	7” reel

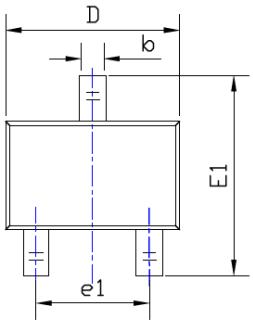

ON Characteristics
Vo=-0.3V
Ta= -40℃
Ta= -25℃
Ta= 25℃
Ta= 125℃
Ta= 100℃
Input voltage VIon (V)
Collector Current Ic(mA)
10.0
1.0
0.1
0.1
1
10
100


Off Characteristics
VCE=5V
Ta= 125℃
Ta= 100℃
Ta= 25℃
Ta= -25℃
Ta= -40℃
Output current Io (mA)
Input voltage VIoff (V)
10.000
1.000
0.100
0.010
0.001
0.1
1
10

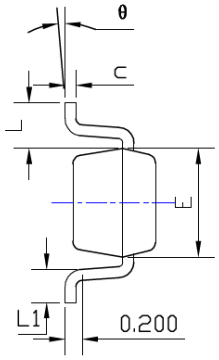

Off Characteristics
Io:Ii=20:1
Ta= 125℃
Ta= 100℃
Ta= -40℃
Ta= 25℃
Ta= -25℃
Output voltage VOon (V)
Output Current Io(mA)
1.00
0.10
0.01
0.1
1
10
100


DC current Gain Characteristics
Vo=5V
Ta= 125℃
Ta= 100℃
Ta= -25℃
Ta= -40℃
Ta= 25℃
DC current Gain Gi
Output Current Io(mA)
1000
100
10
1
0.1
1
10
100

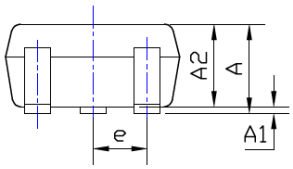

Power disspation
Power disspation PD(mW)
Amibient tempeature Ta(℃)
250
200
150
100
50
0
0
25
50
75
100
125
150



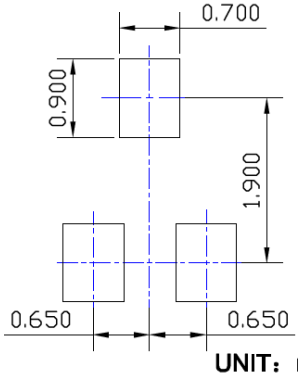
TOP VIEW



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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