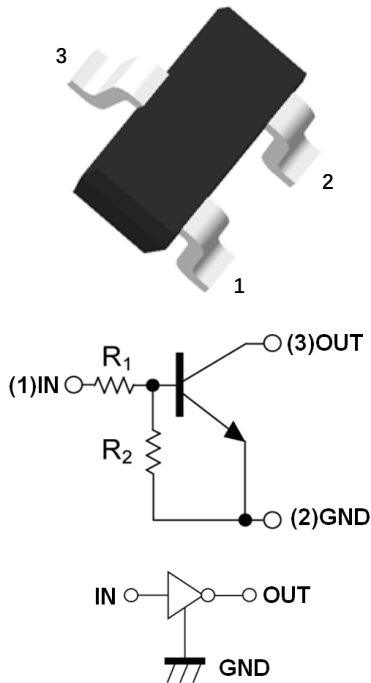


NPN Digital Transistors (Built-in Resistors)



Features

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

Application

- Signal amplification
- Switching circuit

Mechanical data

- **Package:** SOT-523
- **Terminals:** Tin plated leads, solderable per J-STD-002 and JESD22-B102

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

Item	Symbol	Unit	Conditions	Value
Device marking code				24
Supply voltage	V _{CC}	V		50
Input voltage	V _{IN}	V		-10 to +40
Output current	I _o	mA		100
Power dissipation	P _D	mW		150
Operation junction temperature	T _J	°C		-55 to +150
Storage temperature	T _{STG}	°C		-55 to +150



DTC114EE

RoHS
COMPLIANT

■ Electrical Characteristics (T_a=25°C Unless otherwise specified)

Item	Symbol	Unit	Conditions	Min	Typ	Max
Input voltage	V _{I(off)}	V	V _{CC} =5V, I _o =100uA	0.5		
	V _{I(on)}	V	V _O =0.3V, I _o =10mA			3
Output voltage	V _{O(on)}	V	I _o / 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			0.5
DC current gain	G _I		V _o =5V, I _o =5mA	30		
Input resistance	R ₁	kΩ		7	10	13
Resistance ratio	R ₂ /R ₁			0.8	1	1.2
Transition frequency	f _T	MHz	V _o =10V, I _o =5mA		250	

■ Thermal Characteristics

Parameter	Symbol	Unit	Value
Thermal resistance, junction-to-ambient	R _{θJ-A} ⁽¹⁾	°C/W	833
Thermal resistance, junction-to-case	R _{θJ-C} ⁽¹⁾	°C/W	666

Note:

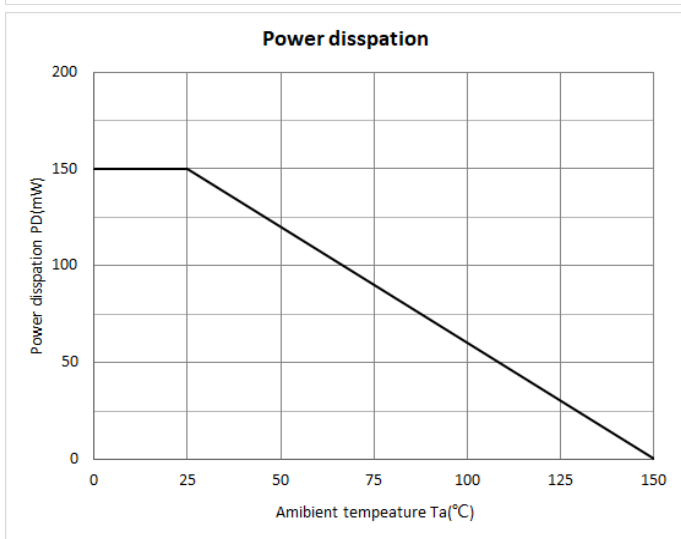
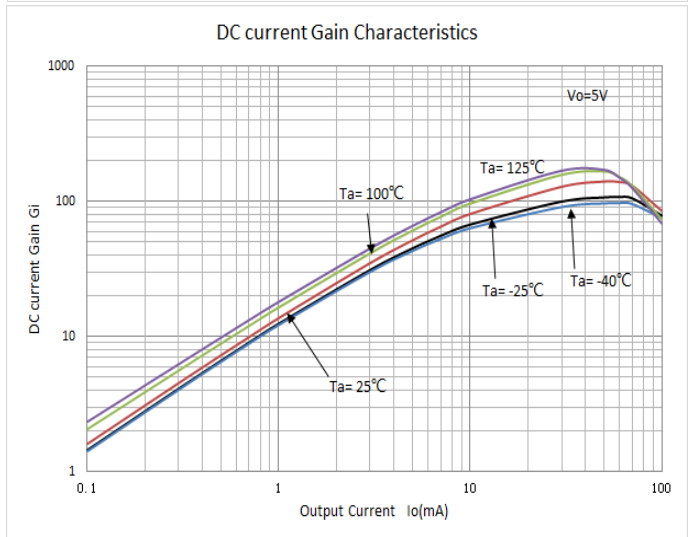
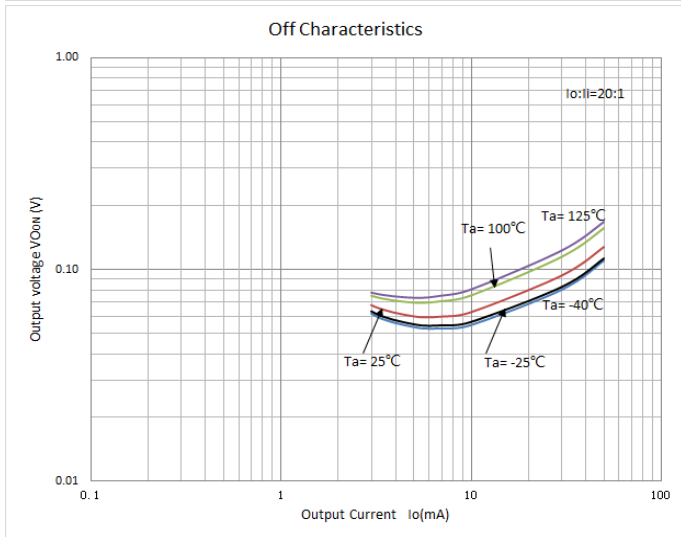
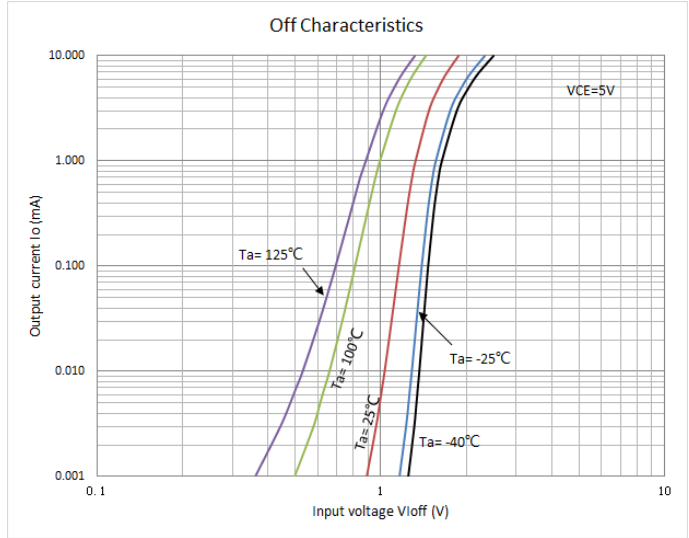
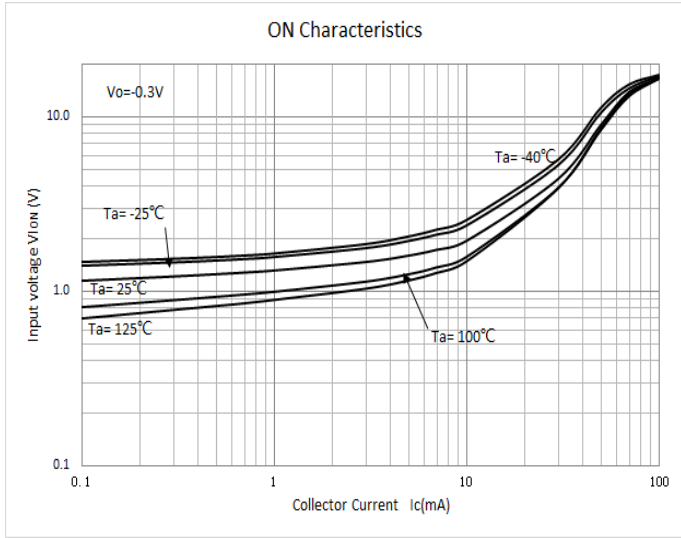
(1) Thermal resistance from junction to ambient and from junction to case mounted on P.C.B. with 25.4mm*25.4mm copper pad areas

■ Ordering Information

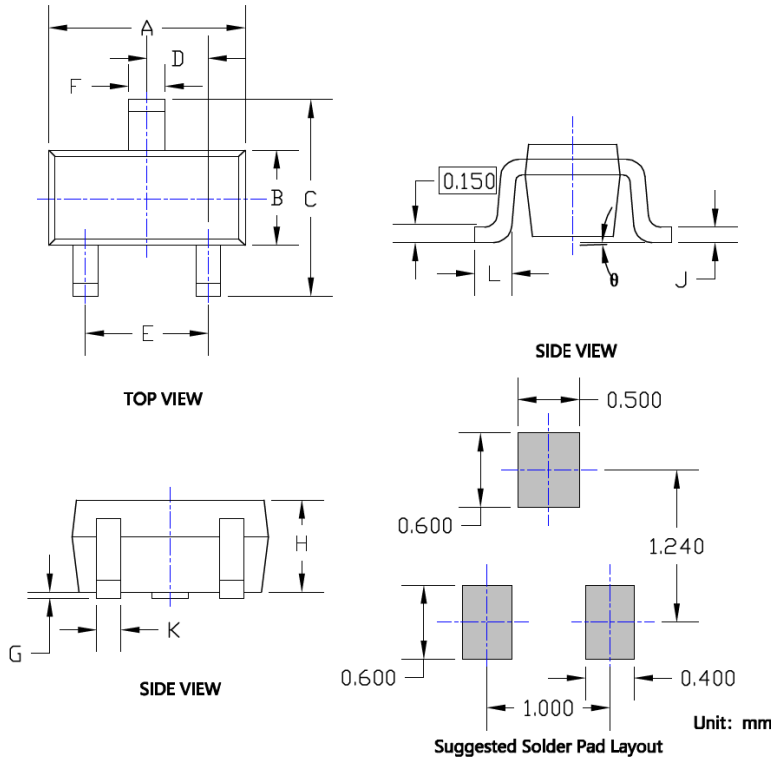
Preferred P/N	Packing code	Unit weight(g)	Minimum package(pcs)	Inner box quantity(pcs)	Outer carton quantity(pcs)	Delivery mode
DTC114EE	F2	Approximate 0.0027	3000	30000	120000	7" reel



■ Characteristics (Typical)



■ Outline Dimensions



SYMBOL	DIMENSIONS			
	INCHES		Millimeter	
	MIN.	MAX.	MIN.	MAX.
A	0.059	0.067	1.500	1.700
B	0.030	0.033	0.750	0.850
C	0.057	0.069	1.450	1.750
D	0.020TYP		0.500TYP	
E	0.035	0.043	0.900	1.100
F	0.010	0.018	0.250	0.450
G	0.000	0.004	0.000	0.100
H	0.024	0.031	0.600	0.800
J	0.004	0.008	0.100	0.200
K	0.006	0.014	0.150	0.350
L	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: $\pm 0.10\text{mm}$ unless otherwise specified.

[通用公差为 $\pm 0.10\text{mm}$ ，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 A and B 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.

[A和B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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