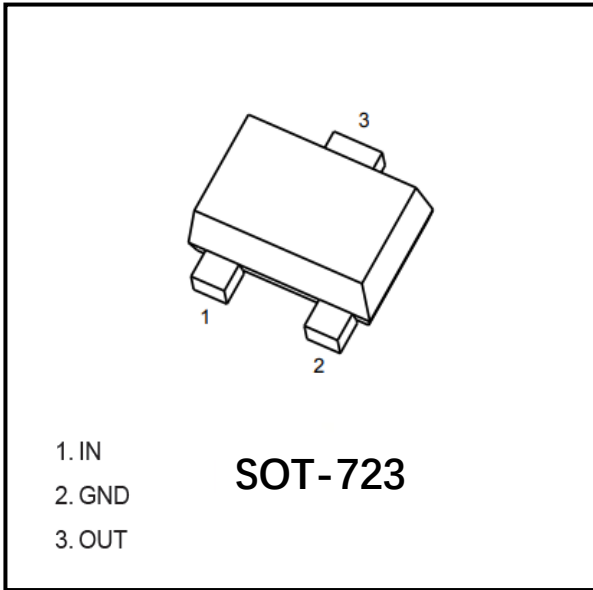


## Digital Transistors (Built-in Resistors)



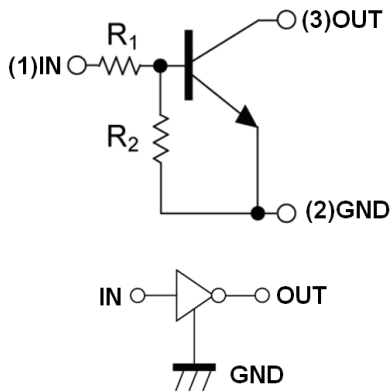
### Features

- 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-723
- **Terminals:** Tin plated leads, solderable per J-STD-002 and JESD22-B102
- **Marking:** 24

### ■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 +30
Output Current	$I_o$	mA		100
Power Dissipation	$P_D$	mW		100
Junction Temperature	$T_J$	°C		-55 to +150
Storage Temperature	$T_{STG}$	°C		-55 to +150



# DTC114EM

**RoHS**  
COMPLIANT

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

ITEM	SYMBOL	UNIT	CONDITIONS	MIN	TYP	MAX
Input voltage	$V_{I(off)}$	V	$V_{CC}=5V, I_c=100\mu A$	0.5		
	$V_{I(on)}$	V	$V_O=0.3V, I_c=10mA$			3
Output voltage	$V_{O(on)}$	V	$I_o / I_i = 10mA / 0.5 mA$			0.3
Output current	$I_{O(off)}$	$\mu A$	$V_{CC}=5V, V_i=0$			0.1
DC current gain	GI		$V_O=5V, I_o=5mA$	30		
Input resistance	$R_1$	$k\Omega$		7	10	13
Resistance ratio	$R_2/R_1$			0.8	1	1.2
Transition frequency	fT	MHz	$V_o=10V, I_O=5mA, f=100MHz$		250	

## ■ Thermal Characteristics

Parameter	Symbol	Unit	Value
Thermal resistance, junction-to-ambient	$R_{\theta J-A}^{(1)}$	$^{\circ}C/W$	1250
Thermal resistance, junction-to-case	$R_{\theta J-C}^{(1)}$	$^{\circ}C/W$	1000

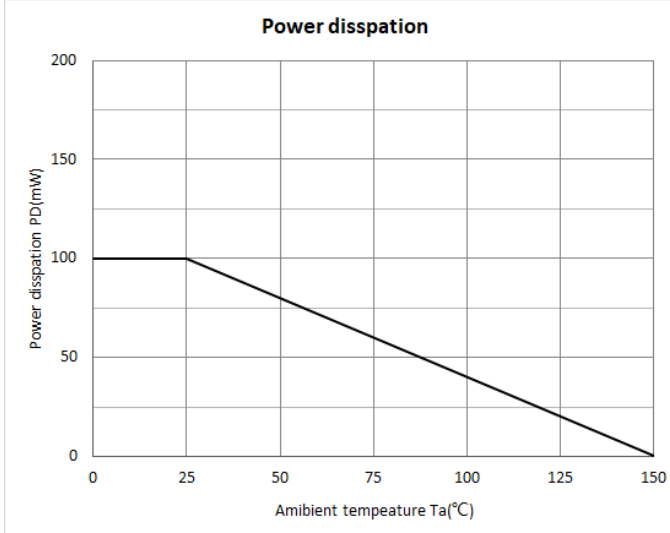
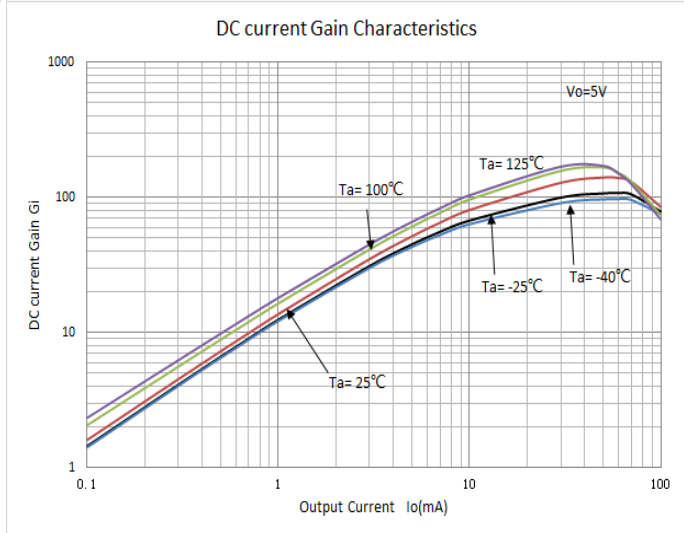
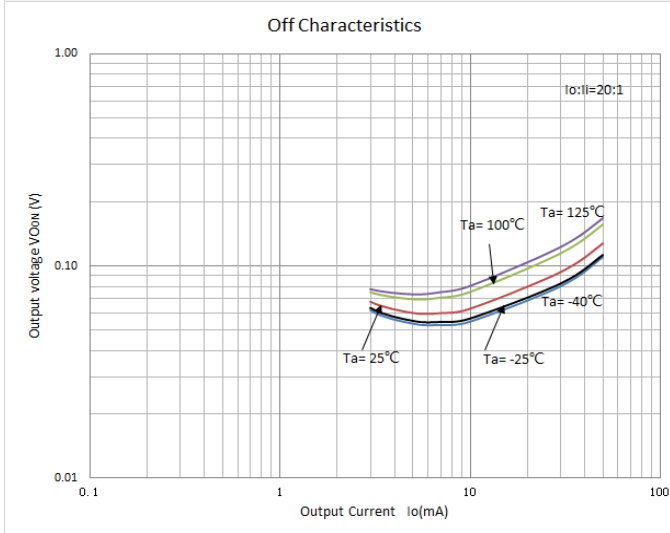
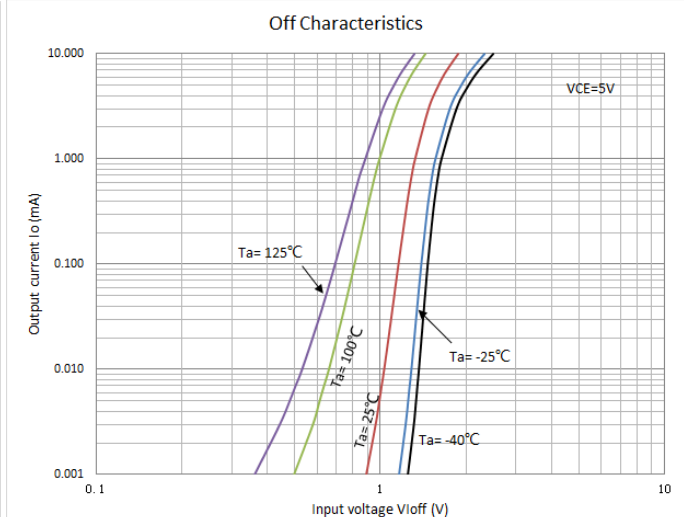
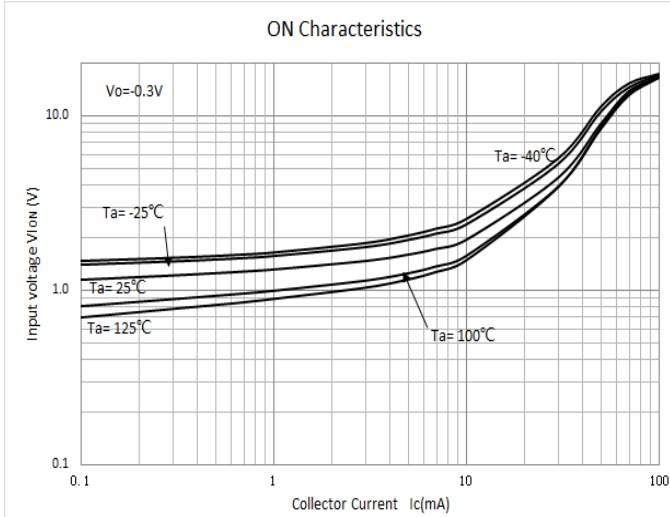
Note: Thermal resistance from junction to ambient and from junction to case mounted on P.C.B. with 25.4mm\*25.4mm copper pad areas.

## ■ Ordering Information (Example)

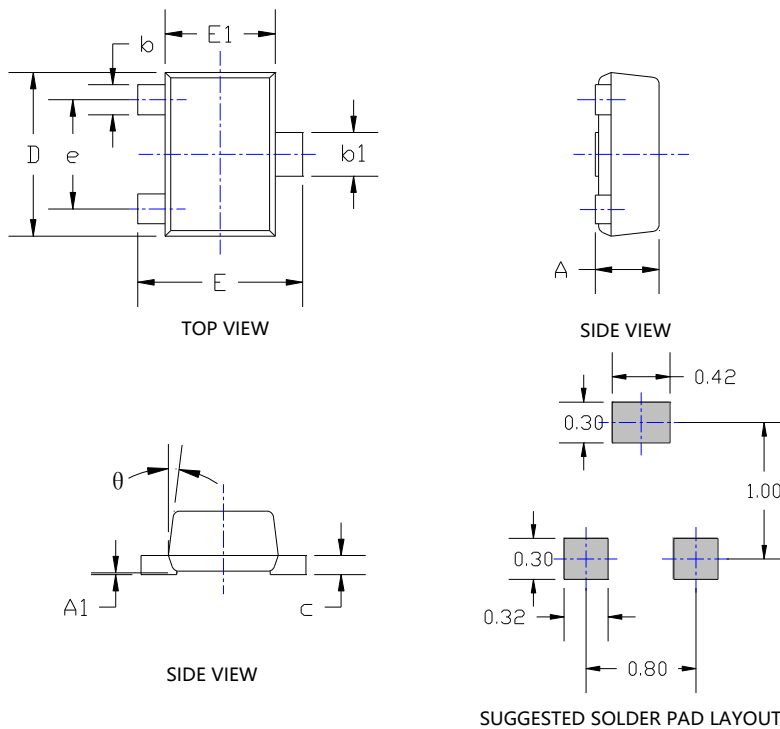
PREFERRED P/N	PACKING CODE	UNIT WEIGHT(g)	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
DTC114EM	F2	Approximate 0.0013	8000	80000	320000	7" reel



## ■ Characteristics (Typical)



## ■SOT-723 Package Outline Dimensions



SYMBOL	DIMENSIONS			
	INCHES		Millimeter	
	MIN.	MAX.	MIN.	MAX.
A	0.017	0.022	0.430	0.550
A1	0.000	0.002	0.000	0.050
b	0.007	0.011	0.170	0.270
b1	0.011	0.015	0.270	0.370
c	0.003	0.008	0.080	0.200
D	0.045	0.049	1.150	1.250
E	0.045	0.049	1.150	1.250
E1	0.030	0.033	0.750	0.850
e	0.031 TYP.		0.800 TYP.	
$\theta$	7° REF.		7° REF.	

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:

- 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]
- General tolerances:  $\pm 0.10$ mm unless otherwise specified.  
[通用公差为  $\pm 0.10$ mm, 除非另有说明]
- Dimensions and tolerances per ASME Y14.5M-2018.  
[尺寸和公差遵循 ASME Y14.5M-2018 标准]
- 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]
- 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]
- Dimensions  $D$  and  $E1$  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 $E1$ 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]
- 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]
- ★ It is the key size.  
[★ 标记为关键尺寸]



## Disclaimer

The information presented in this document is for reference only. Yangzhou Yangjie Electronic Technology Co., Ltd. reserves the right to make changes without notice for the specification of the products displayed herein to improve reliability, function or design or otherwise.

The product listed herein is designed to be used with ordinary electronic equipment or devices, and not designed to be used with equipment or devices which require high level of reliability and the malfunction of which would directly endanger human life (such as medical instruments, transportation equipment, aerospace machinery, nuclear-reactor controllers, fuel controllers and other safety devices), Yangjie or anyone on its behalf, assumes no responsibility or liability for any damages resulting from such improper use of sale.

This publication supersedes & replaces all information previously supplied. For additional information, please visit our website [http:// www.21yangjie.com](http://www.21yangjie.com) , or consult your nearest Yangjie's sales office for further assistance.