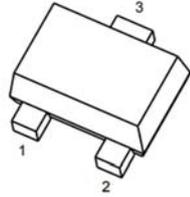
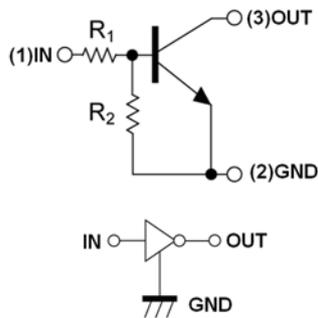


## NPN Digital Transistors (Built-in Resistors)



1. IN  
2. GND  
3. OUT

SOT-723



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

### ■ Maximum Ratings (T<sub>a</sub>=25°C Unless otherwise specified)

Item	Symbol	Unit	Conditions	Value
Device marking code				26
Supply voltage	V <sub>CC</sub>	V		50
Input voltage	V <sub>IN</sub>	V		-10 to +40
Output current	I <sub>o</sub>	mA		100
Power dissipation	P <sub>D</sub>	mW		100
Junction temperature	T <sub>J</sub>	°C		-55 to +150
Storage temperature	T <sub>STG</sub>	°C		-55 to +150



# DTC144EM

RoHS  
COMPLIANT

## ■ Electrical Characteristics (T<sub>a</sub>=25°C Unless otherwise specified)

Item	Symbol	Unit	Conditions	Min	Typ	Max
Input voltage	V <sub>I(off)</sub>	V	V <sub>CC</sub> =5V, I <sub>O</sub> =100uA	0.3		
	V <sub>I(on)</sub>	V	V <sub>O</sub> =0.3V, I <sub>O</sub> =2mA			2.5
Output voltage	V <sub>O(on)</sub>	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			0.18
Output current	I <sub>O(off)</sub>	uA	V <sub>CC</sub> =50V, V <sub>I</sub> =0			0.1
DC current gain	G <sub>I</sub>		V <sub>O</sub> =5V, I <sub>O</sub> =5mA	68		
Input resistance	R <sub>1</sub>	kΩ		33	47	61
Resistance ratio	R <sub>2</sub> /R <sub>1</sub>			0.8	1	1.2
Transition frequency	f <sub>T</sub>	MHz	V <sub>O</sub> =10V, I <sub>O</sub> =5mA, f=100MHz		250	

## ■ Thermal Characteristics

Parameter	Symbol	Unit	Value
Thermal resistance, junction-to-ambient	R <sub>θJ-A</sub> <sup>(1)</sup>	°C/W	1250
Thermal resistance, junction-to-case	R <sub>θJ-C</sub> <sup>(1)</sup>	°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

Preferred P/N	Packing Code	Unit weight(g)	Minimum package(pcs)	Inner box quantity(pcs)	Outer carton quantity(pcs)	Delivery mode
DTC144EM	F2	Approximate 0.0013	8000	80000	320000	7" reel



■ Characteristics

Fig 1: DC Current Gain Characteristics

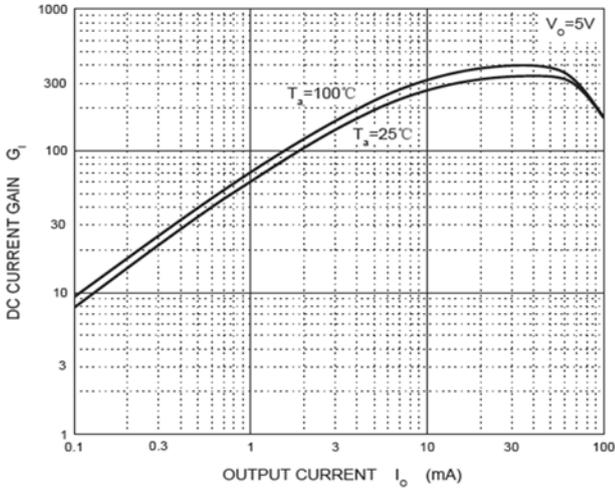


Fig 2: Input Voltage (On) Characteristics

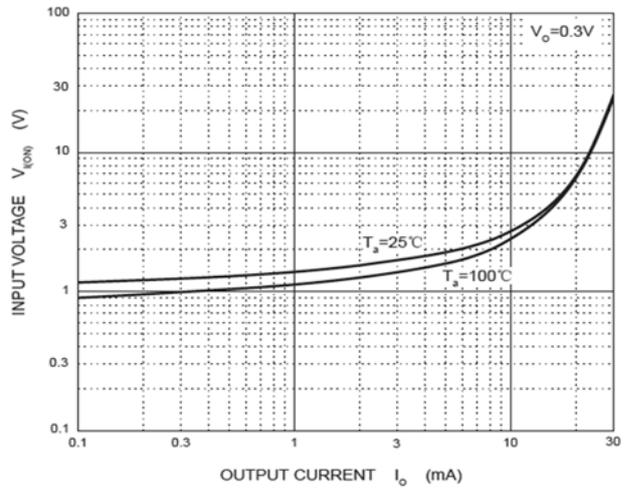


Fig 3: Input Voltage (Off) Characteristic

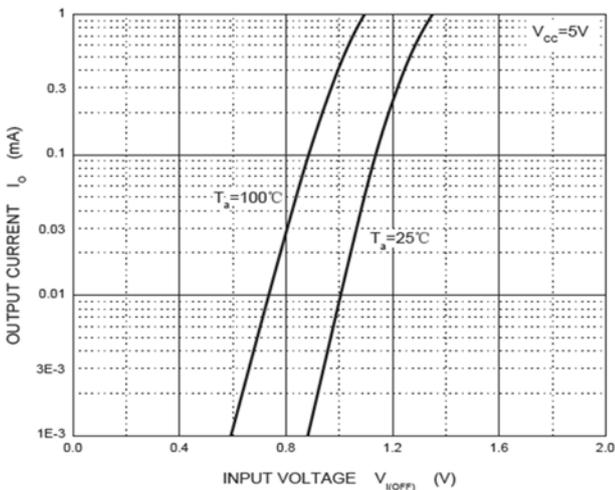


Fig 4: Output Voltage Characteristics

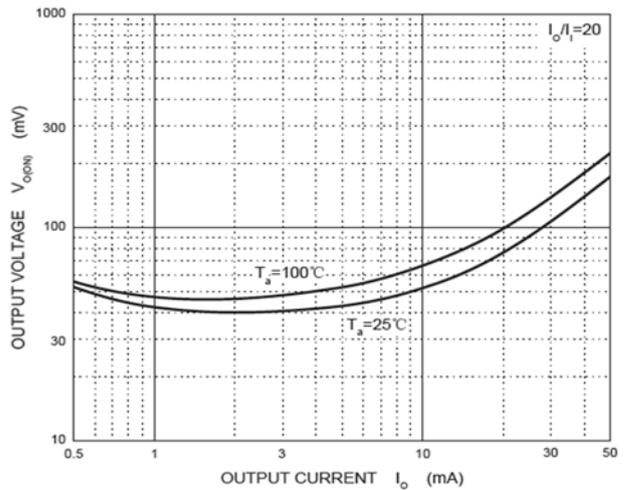


Fig 5: Capacitance Capability

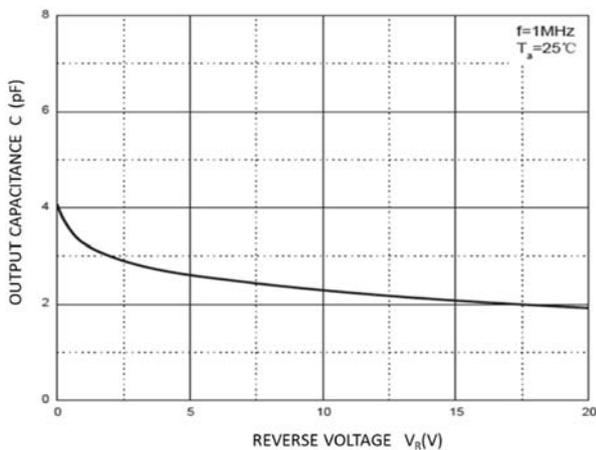
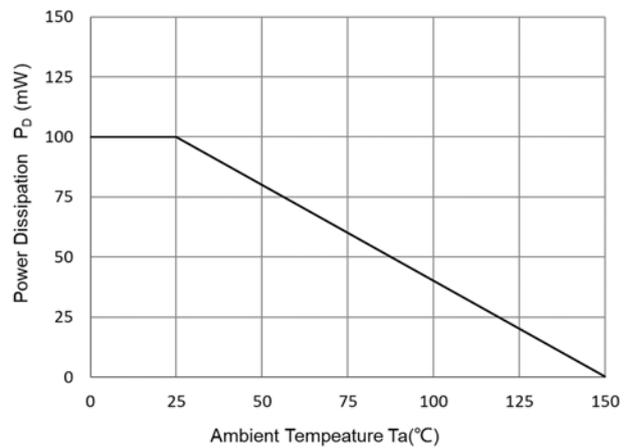
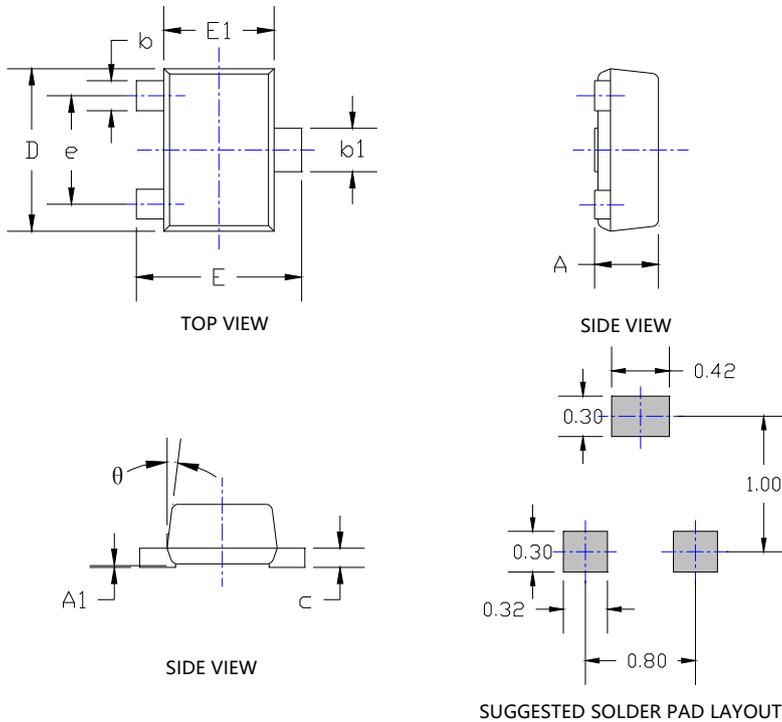


Fig 6: P<sub>D</sub>-T<sub>a</sub> Curve



## ■ 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.	
θ	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:  $\pm 0.10\text{mm}$  unless otherwise specified.  
[通用公差为 $\pm 0.10\text{mm}$ , 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]



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