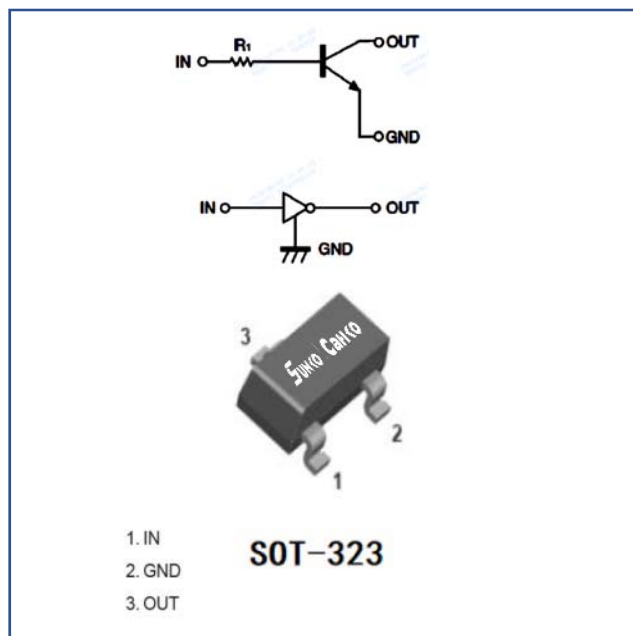


DTC144TUA

NPN Digital Transistors (Built-in Resistors)



Features

- Moisture sensitivity level 1
- Halogen free and
- 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 ($T_a=25^{\circ}\text{C}$ Unless otherwise specified)

Item	Symbol	Unit	Conditions	Value
Device marking code				06
Collector-base voltage	V_{CBO}	V		50
Collector-emitter voltage	V_{CEO}	V		50
Emitter-base voltage	V_{EBO}	V		5
Collector current	I_C	mA		100
Power dissipation	P_D	mW		200
Junction temperature	T_J	$^{\circ}\text{C}$		-55 to +150
Storage temperature	T_{STG}	$^{\circ}\text{C}$		-55 to +150

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

Item	Symbol	Unit	Conditions	Min	Typ	Max
Collector-base breakdown voltage	V _{(BR)CBO}	V	I _C =50μA	50		
Collector-emitter breakdown voltage	V _{(BR)CEO}	V	I _C =1mA	50		
Emitter-base breakdown voltage	V _{(BR)EBO}	V	I _E =50μA	5		
Collector-base cut-off current	I _{CBO}	μA	V _{CB} =50V			0.5
Emitter-base cut-off current	I _{EBO}	μA	V _{EB} =4V			0.5
DC current gain	h _{FE}		V _{CE} =5V, I _C =1mA	100		600
Input resistance	R _i	kΩ		32.9	47	61.1
Collector-emitter saturation voltage	V _{CE(sat)}	V	I _C =10mA, I _B =1mA			0.3
Transition frequency	f _T	MHz	V _{CE} =10V, I _E =-5mA, f=100MHz		250	

■ Thermal Characteristics

Parameter	Symbol	Unit	Value
Thermal resistance, junction-to-ambient	R _{θJ-A} ⁽¹⁾	°C/W	625
Thermal resistance, junction-to-case	R _{θJ-C} ⁽¹⁾	°C/W	500

Note:

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

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■ Characteristics

Fig 1: Static Characteristics

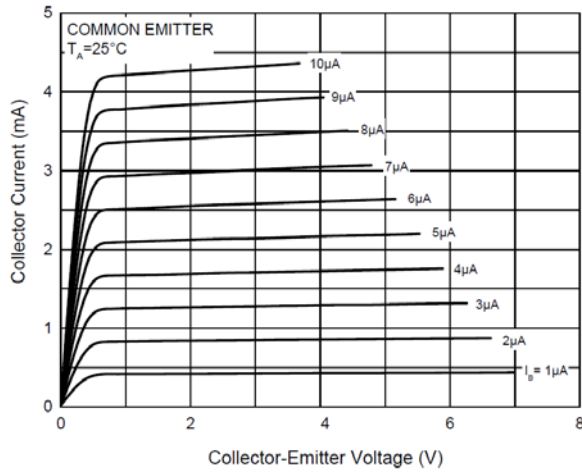


Fig 2: DC Current Gain Characteristics

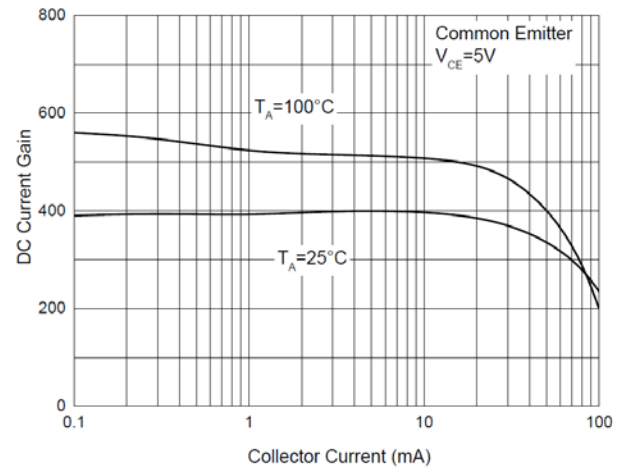


Fig 3: Collector-emitter saturation voltage

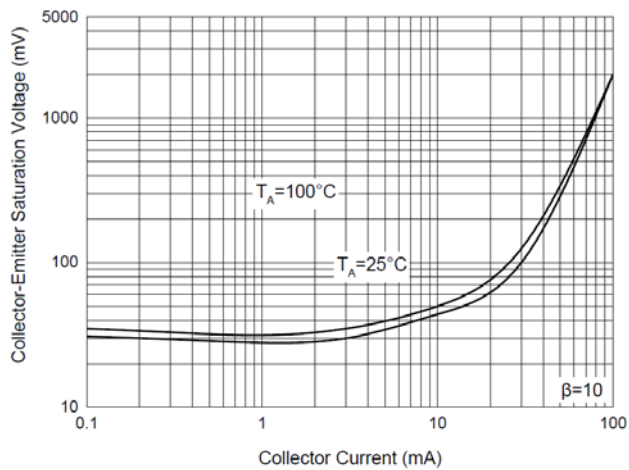
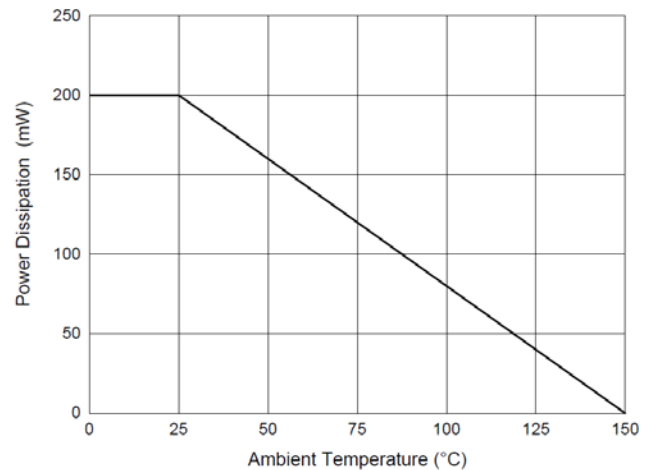


Fig4: P_D-T_a Curve

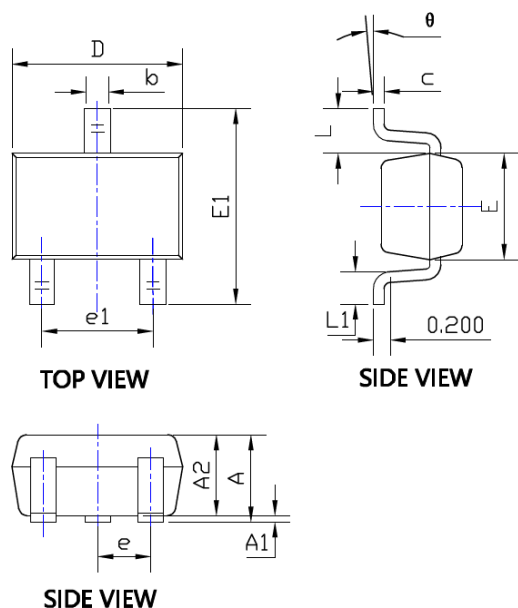


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■ Ordering Information

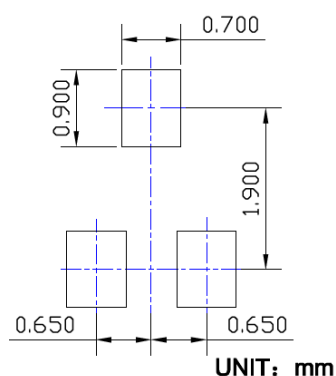
Preferred P/N	Packing code	Unit weight(g)	Minimum package(pcs)	Inner box quantity(pcs)	Outer carton quantity(pcs)	Delivery mode
DTC144TUA	F2	Approximate 0.005	3000	30000	120000	7" reel

■ Outline Dimensions



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°

■ Suggested Pad Layout



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