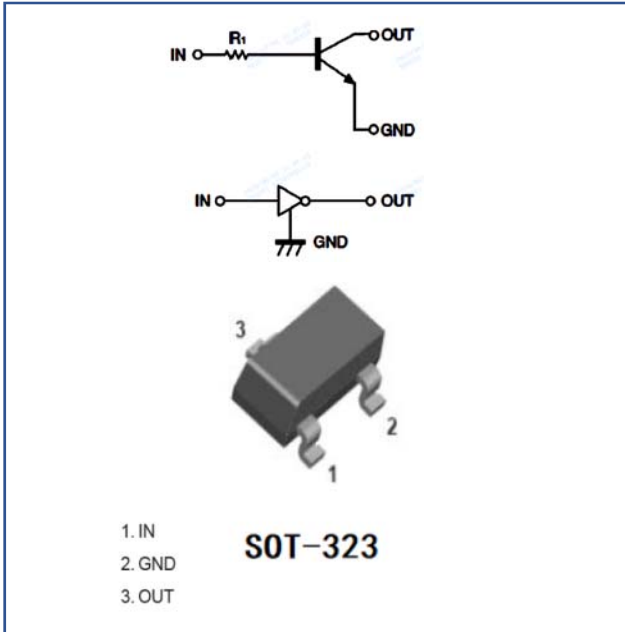


NPN Digital Transistors (Built-in Resistors)



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°C Unless otherwise specified)

Item	Symbol	Unit	Conditions	Value
Device marking code				06
Collector-base voltage	V _{CB0}	V		50
Collector-emitter voltage	V _{CE0}	V		50
Emitter-base voltage	V _{EB0}	V		5
Collector current	I _C	mA		100
Power dissipation	P _D	mW		200
Junction temperature	T _J	°C		-55 to +150
Storage temperature	T _{STG}	°C		-55 to +150



DTC144TUA

RoHS
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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 _{CB0}	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 ₁	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



■ Characteristics

Fig 1: Static Characteristics

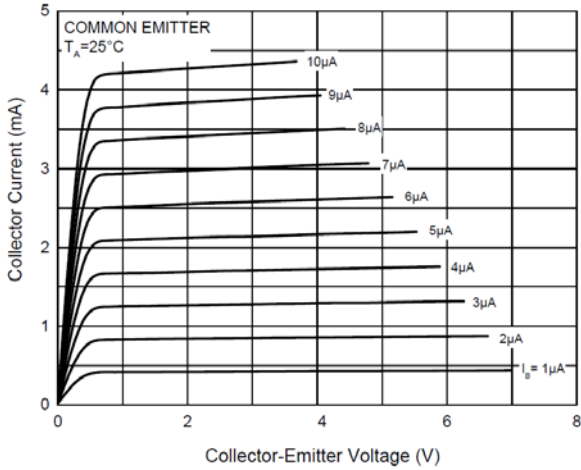


Fig 2: DC Current Gain Characteristics

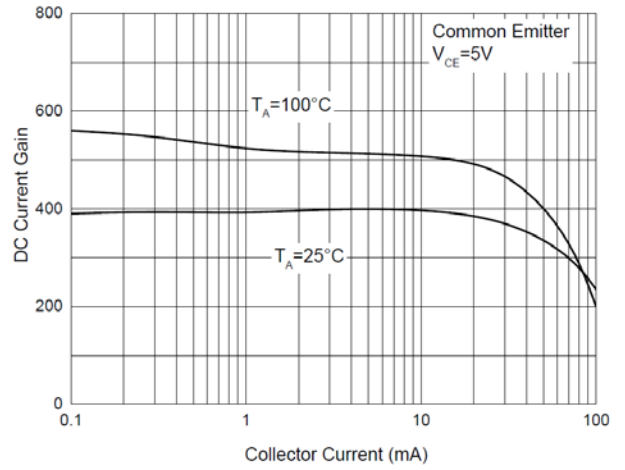


Fig 3: Collector-emitter saturation voltage

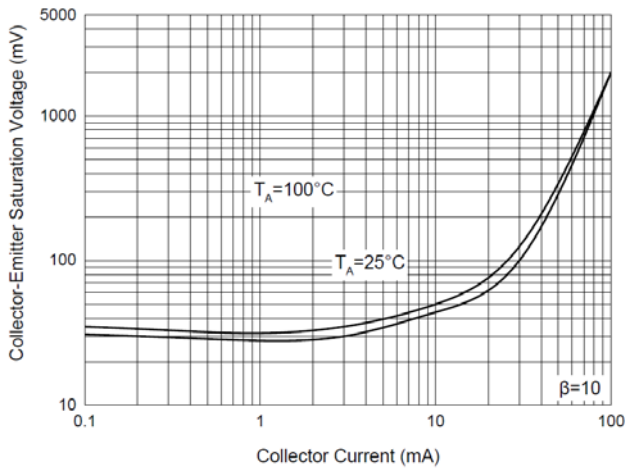
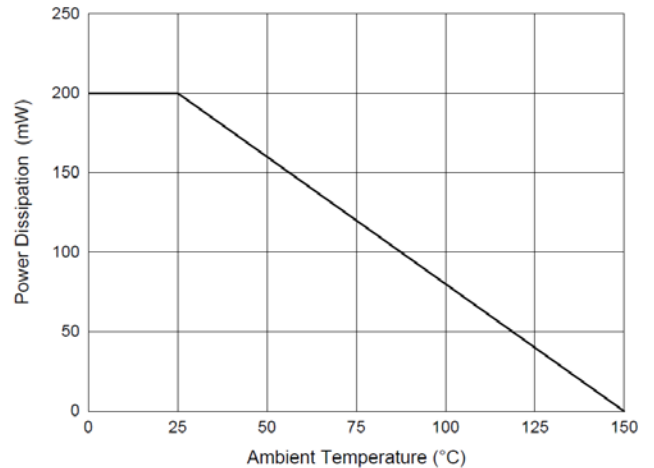


Fig 4: P_D - T_a Curve





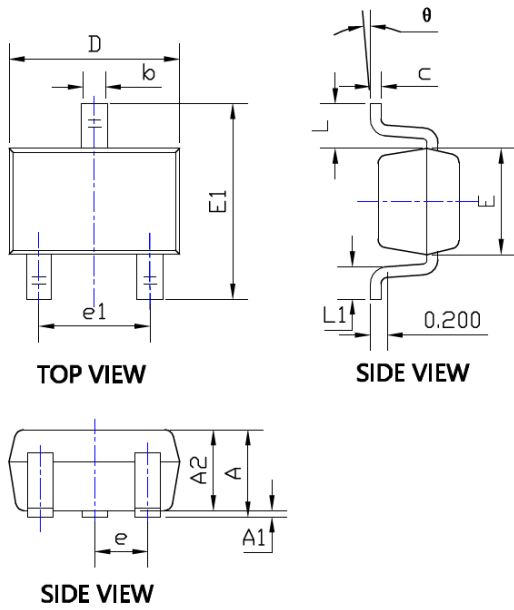
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Ordering Information

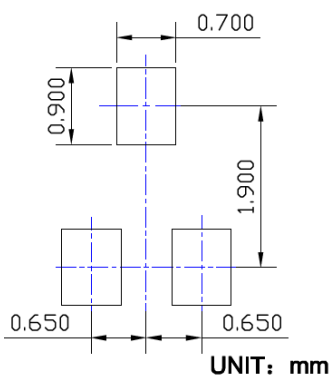
Preferred P/N	Packing code	Unit weight(g)	Minimum package(pcs)	Inner box quantity(pcs)	Outer carton quantity(pcs)	Delivery mode
DTC144TUA	F2	Approximate 0.005	3000	30000	120000	7" reel

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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