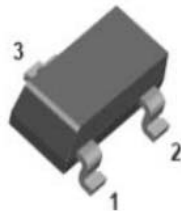
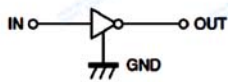
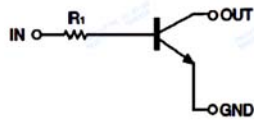


NPN Digital Transistors (Built-in Resistors)



1. IN
2. GND
3. OUT

SOT-23

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-23
- **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

■ **Electrical Characteristics** ($T_a=25^{\circ}\text{C}$ Unless otherwise specified)

Item	Symbol	Unit	Conditions	Min	Typ	Max
Collector-base breakdown voltage	$V_{(BR)CBO}$	V	$I_C=50\mu\text{A}$	50		
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	V	$I_C=1\text{mA}$	50		
Emitter-base breakdown voltage	$V_{(BR)EBO}$	V	$I_E=50\mu\text{A}$	5		
Collector-base cut-off current	I_{CBO}	μA	$V_{CB}=50\text{V}$			0.5
Emitter-base cut-off current	I_{EBO}	μA	$V_{EB}=4\text{V}$			0.5
DC current gain	h_{FE}		$V_{CE}=5\text{V}, I_C=1\text{mA}$	100		600
Input resistance	R_i	k Ω		32.9	47	61.1
Collector-emitter saturation voltage	$V_{CE(sat)}$	V	$I_C=10\text{mA}, I_B=1\text{mA}$			0.3
Transition frequency	f_T	MHz	$V_{CE}=10\text{V}, I_E=-5\text{mA}, f=100\text{MHz}$		250	

■ **Thermal Characteristics**

Parameter	Symbol	Unit	Value
Thermal resistance, junction-to-ambient	$R_{\theta J-A}^{(1)}$	$^{\circ}\text{C/W}$	625
Thermal resistance, junction-to-case	$R_{\theta J-C}^{(1)}$	$^{\circ}\text{C/W}$	500

Note:

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



■ Characteristics

Fig 1: Static Characteristics

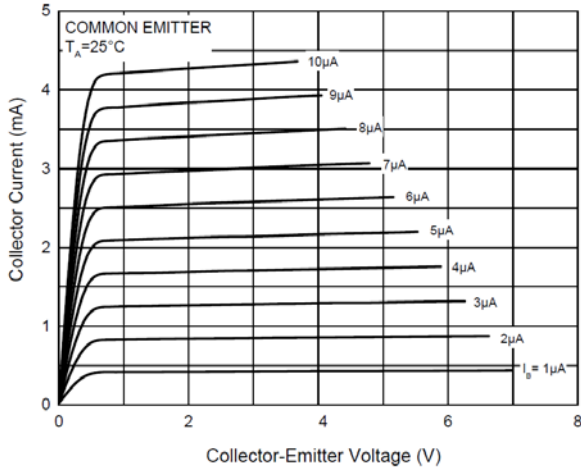


Fig 2: Collector-emitter saturation voltage

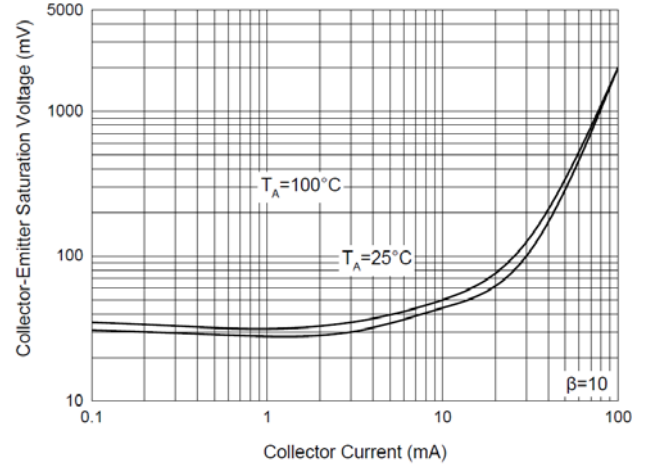


Fig 3: DC Current Gain Characteristics

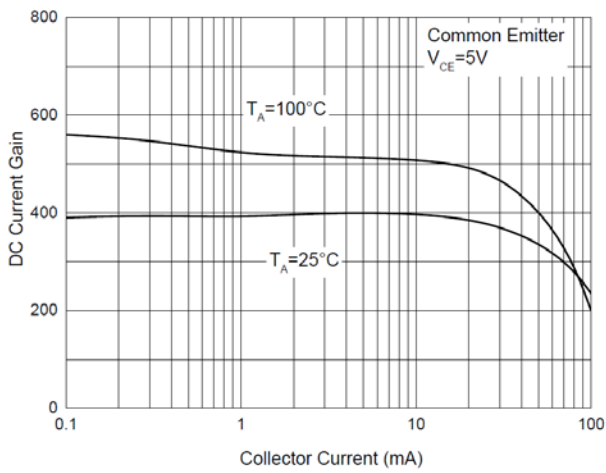
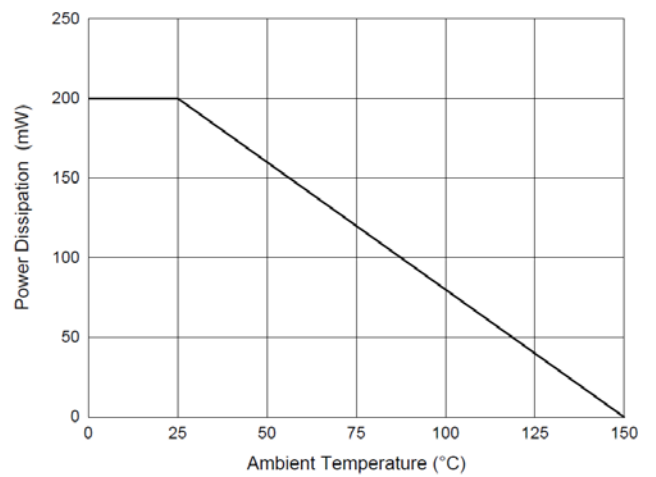


Fig 4: P_D - T_a Curve





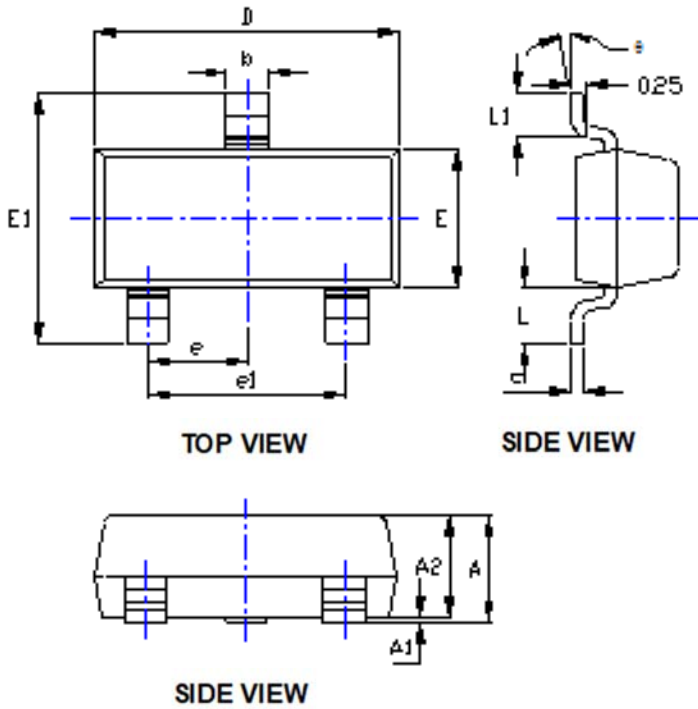
DTC144TCA

RoHS
COMPLIANT

Ordering Information

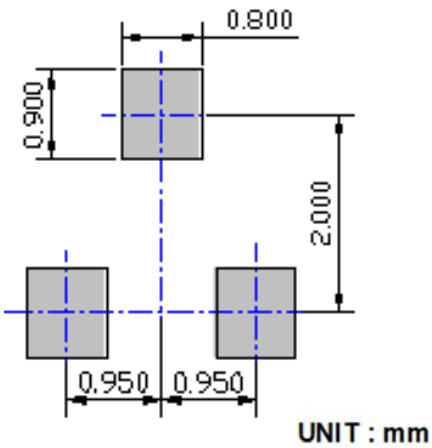
Preferred P/N	Packing code	Unit weight(g)	Minimum package(pcs)	Inner box quantity(pcs)	Outer carton quantity(pcs)	Delivery mode
DTC144TCA	F2	Approximate 0.009	3000	30000	120000	7" reel
DTC144TCA	F4	Approximate 0.009	10000	/	210000	13" reel

Outline Dimensions



SYMBOL	DIMENSIONS			
	INCHES		Millimeter	
	MIN.	MAX.	MIN.	MAX.
A	0.035	0.045	0.900	1.150
A1	0.000	0.004	0.000	0.100
A2	0.035	0.041	0.900	1.050
b	0.012	0.020	0.300	0.500
c	0.004	0.008	0.100	0.200
D	0.110	0.118	2.800	3.000
E	0.047	0.055	1.200	1.400
E1	0.089	0.100	2.250	2.550
e	0.037TYP		0.950TYP	
e1	0.071	0.079	1.800	2.000
L	0.022REF		0.550REF	
L1	0.012	0.020	0.300	0.500
θ	0°	8°	0°	8°

Suggested Pad Layout





Disclaimer

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