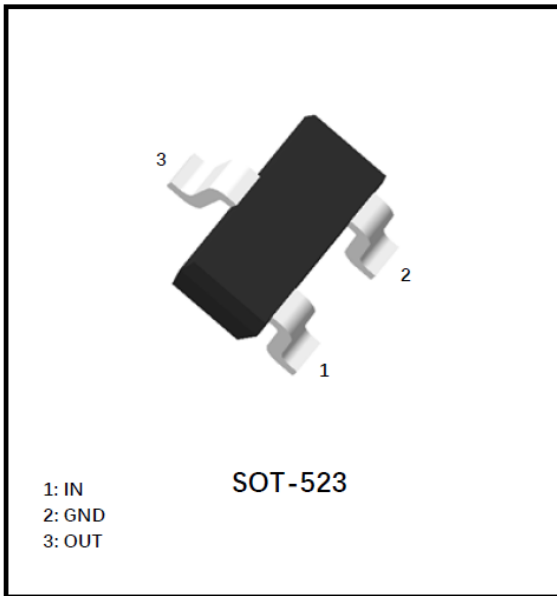


## NPN Digital Transistors (Built-in Resistors)



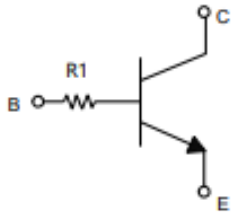
### Features

- Moisture Sensitivity Level 1
- Surface mount package ideally Suited for Automatic Insertion
- Epoxy meets UL-94 V-0 flammability rating, halogen-free

### Mechanical Data

- **Package:** SOT-523
- **Terminals:** Tin plated leads, solderable per J-STD-002 and JESD22-B102
- **Marking:** 06

### ■Equivalent circuit



### ■Maximum Ratings (Ta=25°C Unless otherwise specified)

Item	Symbol	Unit	Conditions	Value
Collector-Emitter Voltage	$V_{CEO}$	V	$I_C=1.0mA, I_B=0$	50
Collector-Base Voltage	$V_{CBO}$	V	$I_C=50\mu A, I_E=0$	50
Emitter-Base Voltage	$V_{EBO}$	V	$I_E=50\mu A, I_C=0$	5
Collector Current	$I_C$	mA		100
Collector Power Dissipation	$P_C$	mW		150
Operation Junction Temperature	$T_J$	°C		-55 to +150
Storage Temperature	$T_{STG}$	°C		-55 to +150



# DTC144TE

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

Item	Symbol	Unit	Conditions	Min	TYP	Max
Collector-Emitter Voltage	$V_{CE0}$	V	$I_C=1.0mA, I_B=0$	50		
Collector-Base Voltage	$V_{CBO}$	V	$I_C=50\mu A, I_E=0$	50		
Emitter-Base Voltage	$V_{EBO}$	V	$I_E=50\mu A, I_C=0$	5		
Collector-base Cut-off Current	$I_{CBO}$	$\mu A$	$V_{CB}=50V$			0.5
Emitter-base cut-off current	$I_{EBO}$	$\mu A$	$V_{EB}=4V$			0.5
DC Current Gain	$h_{FE}$		$I_C=1mA, V_{CE}=5V$	100		600
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	V	$I_C=10mA, I_B=1mA$			0.3
Input Resistance	R1	$k\Omega$		32.9	47	61.1

## ■ Ordering Information (Example)

Preferred P/N	Packing Code	Unit Weight(G)	Minimum Package(Pcs)	Inner Box Quantity(Pcs)	Outer Carton Quantity(Pcs)	Delivery Mode
DTC144TE	F2	Approximate 0.0027	3000	30000	120000	7" reel

## ■ Characteristics (Typical)

Fig. 1 - Static Characteristics

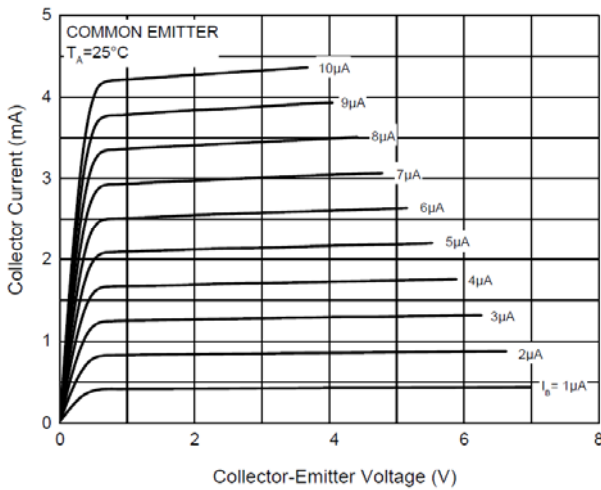


Fig. 2 - DC Current Gain Characteristics

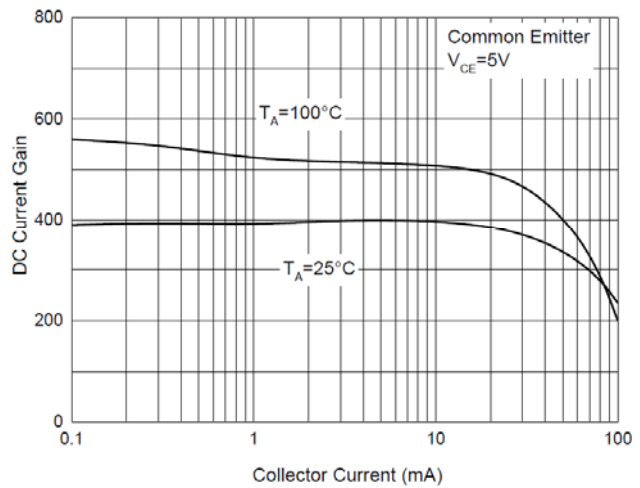


Fig. 3 - Collector-Emitter Saturation Voltage Characteristics

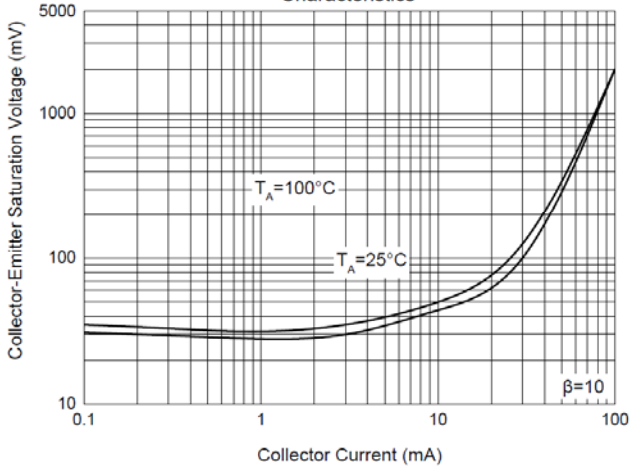
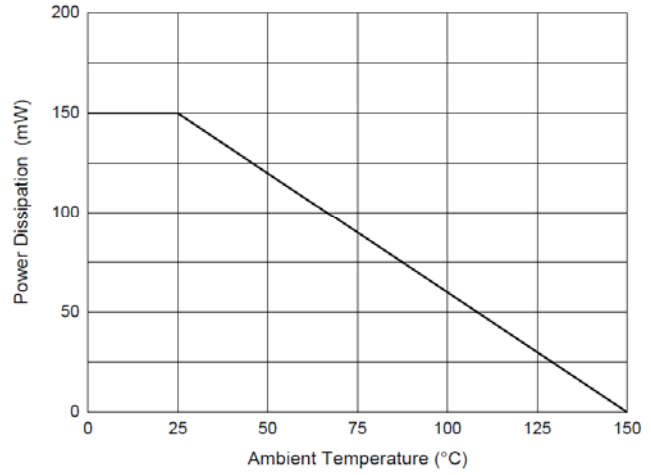
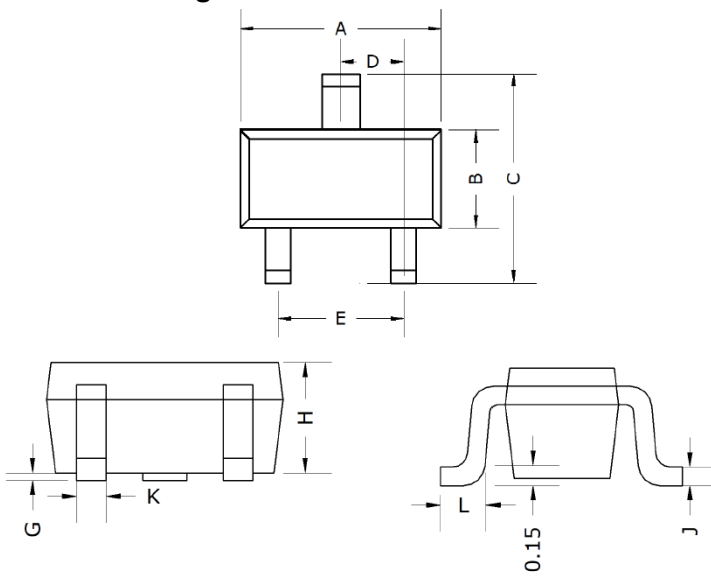


Fig. 3 - Power Derating Curve



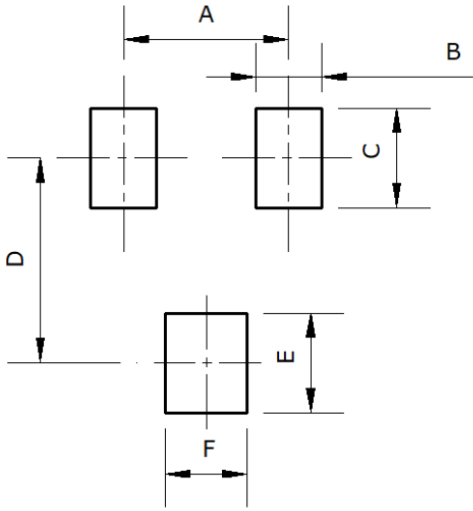
## ■ SOT-523 Package Outline Dimensions



DIMENSIONS				
DIM	INCHES		MM	
	MIN	MAX	MIN	MAX
A	0.059	0.067	1.50	1.70
B	0.030	0.033	0.75	0.85
C	0.057	0.069	1.45	1.75
D	0.020TYP		0.50TYP	
E	0.035	0.043	0.90	1.10
G	0.000	0.004	0.00	0.10
H	0.024	0.031	0.60	0.80
J	0.004	0.008	0.10	0.20
K	0.006	0.014	0.15	0.35
L	0.010	0.018	0.26	0.46



## ■ SOT-523 Suggested Pad Layout



DIMENSIONS	
DIM	MM (TYP)
A	1.00
B	0.40
C	0.60
D	1.24
E	0.60
F	0.50



## DTC144TE

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