

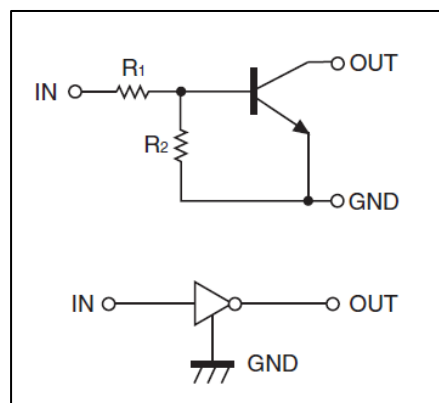
DTC123Y series

DTC123YE/DTC123YUA/ DTC123YCA/DTC123YKA

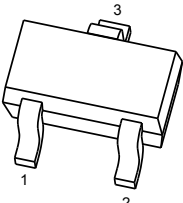
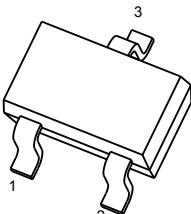
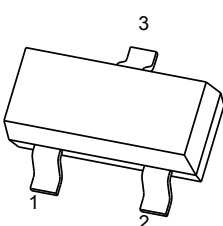
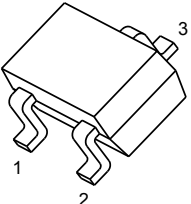
DIGITAL TRANSISTOR (NPN)

FEATURES

- Built-in bias resistors enable the configuration of an inverter circuit without connecting external input resistors(see equivalent circuit)
- The bias resistors consist of thin-film resistors with complete isolation to allow negative biasing of the input.They also have the advantage of almost completely eliminating parasitic effects
- Only the on/off conditions need to be set for operation, making device design easy



PIN CONNENCTIONS and MARKING

DTC123YE 	SOT-523 1. IN 2. GND 3. OUT	DTC123YUA 	SOT-323 1. IN 2. GND 3 . OUT
DTC123YCA 	SOT-23 1. IN 2. GND 3 . OUT	DTC123YKA 	SOT-23-3L 1. IN 2. GND 3. OUT

DTC123Y series

ORDERING INFORMATION

Part Number	MARKING ⁽¹⁾	Package	Packing Method	Pack Quantity
DTC123YE	62	SOT-523	Reel	3000pcs/Reel
DTC123YUA	62	SOT-323	Reel	3000pcs/Reel
DTC123YKA	62	SOT-23-3L	Reel	3000pcs/Reel
DTC123YCA	62	SOT-23	Reel	3000pcs/Reel

Notes: (1). Solid dot = Green molding compound device, if none, the normal device.

(2). XXX=Code

MAXIMUM RATINGS(Ta=25°C unless otherwise noted)

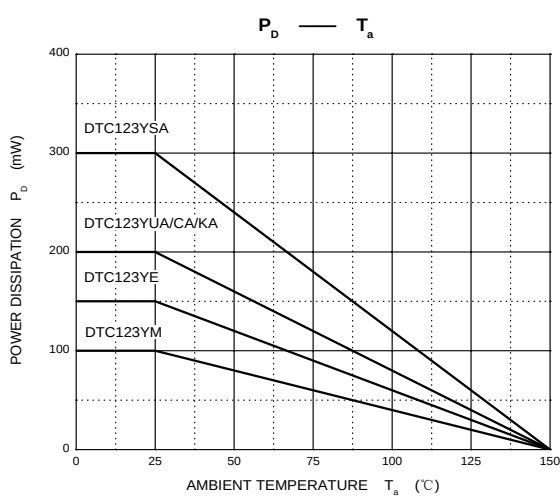
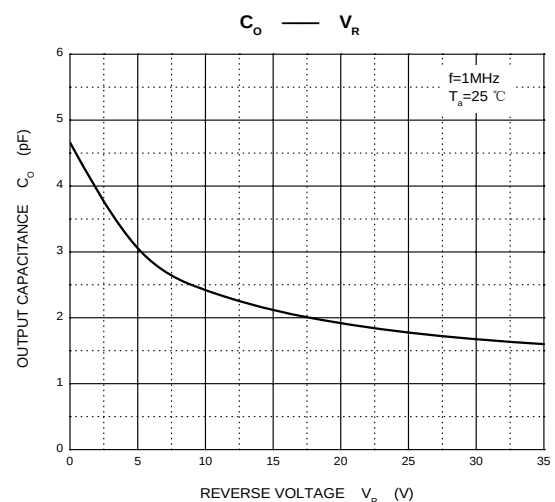
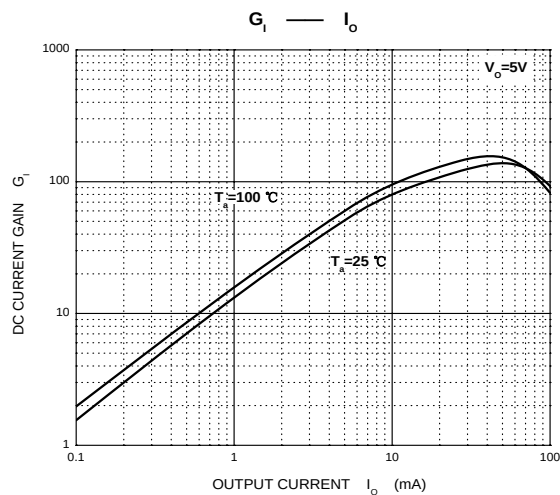
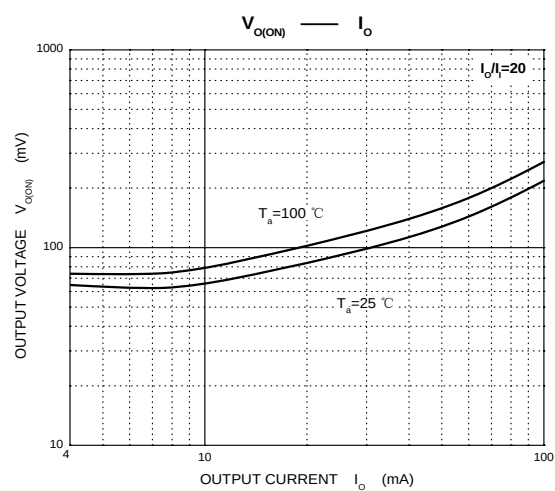
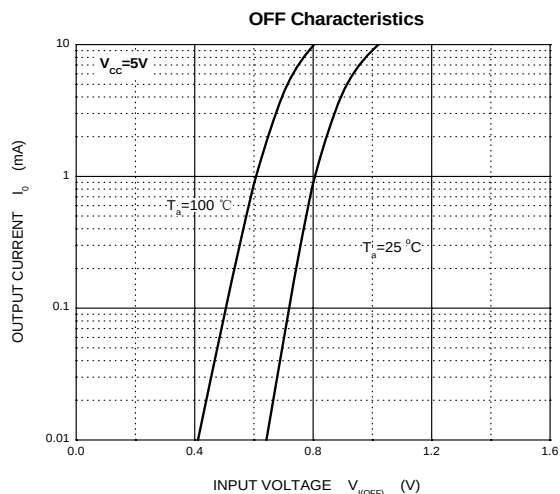
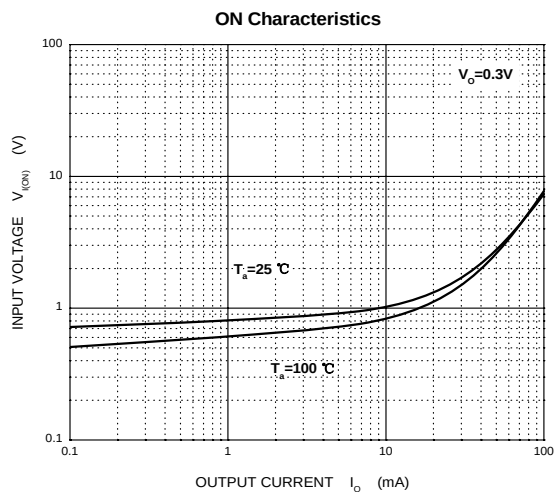
Symbol	Parameter	Limits(DTC123Y□)				Unit
		E	UA	KA	CA	
V _{CC}	Supply Voltage	50				V
V _{IN}	Input Voltage	-5~+12				V
I _O	Output Current	100				mA
P _D	Power Dissipation	150	200	200	200	mW
T _J , T _{stg}	Operation Junction and Storage Temperature Range	-55~+150				°C

ELECTRICAL CHARACTERISTICS (Ta=25°C unless otherwise specified)

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Input voltage	V _{I(off)}	V _{CC} =5V, I _O =100μA	0.3			V
	V _{I(on)}	V _O =0.3V, I _O =20mA			3	V
Output voltage	V _{O(on)}	I _O /I _I =10mA/0.5mA		0.1	0.3	V
Input current	I _I	V _I =5V			3.8	mA
Output current	I _{O(off)}	V _{CC} =50V, V _I =0			0.5	μA
DC current gain	G _I	V _O =5V, I _O =10mA	33			
Input resistance	R ₁		1.54	2.2	2.86	kΩ
Resistance ratio	R ₂ /R ₁		3.6	4.5	5.5	
Transition frequency	f _T	V _O =10V, I _O =5mA, f=100MHz		250		MHz

DTC123Y series

Typical Characteristics

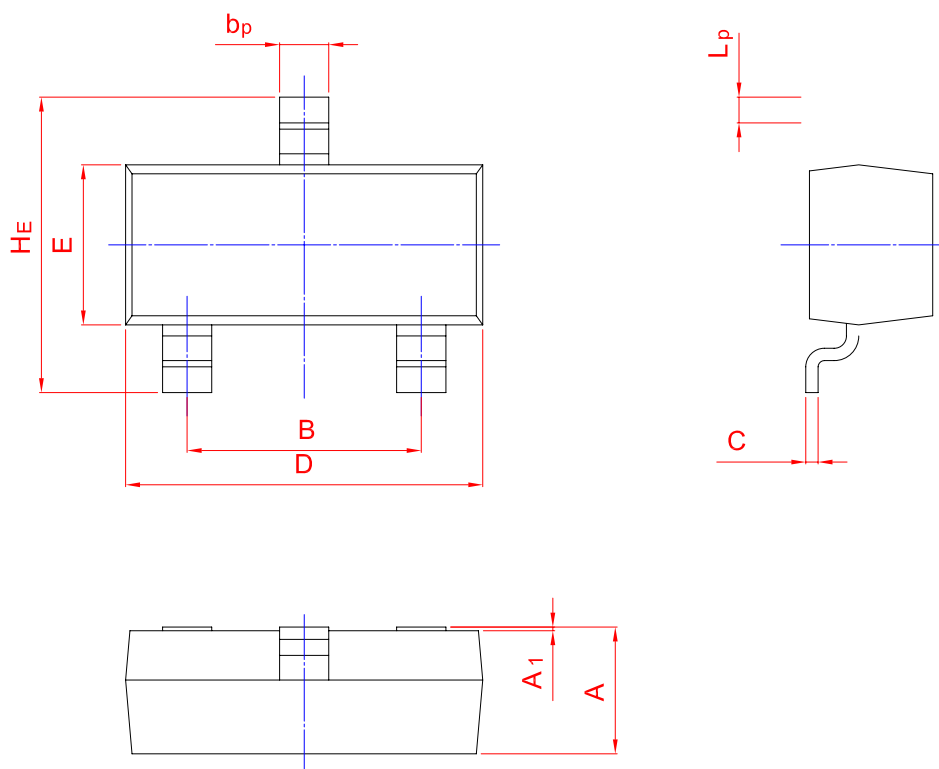
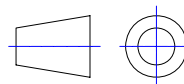


DTC123Y series

PACKAGE OUTLINE

Plastic surface mounted package; 3 leads

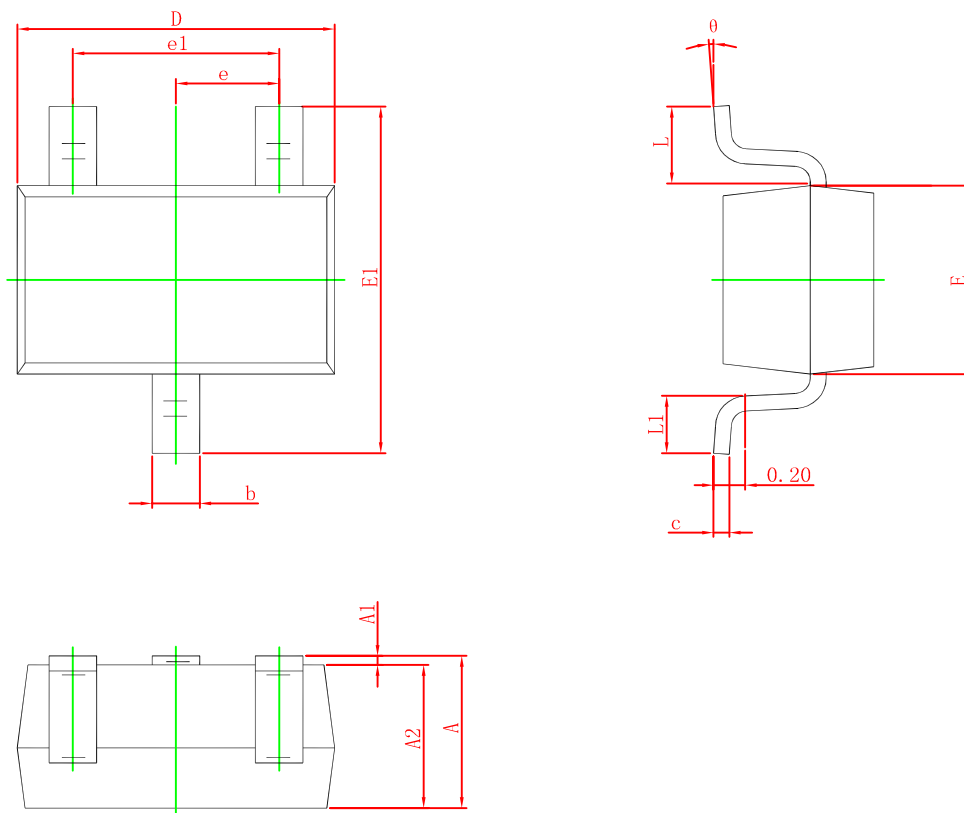
SOT-23



UNIT	A	B	bp	C	D	E	HE	A1	Lp
mm	1.40 0.95	2.04 1.78	0.50 0.35	0.19 0.08	3.10 2.70	1.65 1.20	3.00 2.20	0.100 0.013	0.50 0.20

DTC123Y series

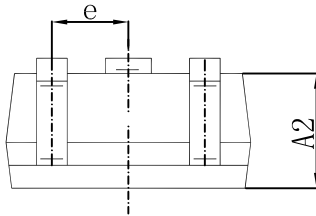
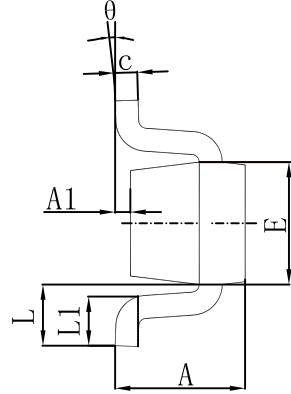
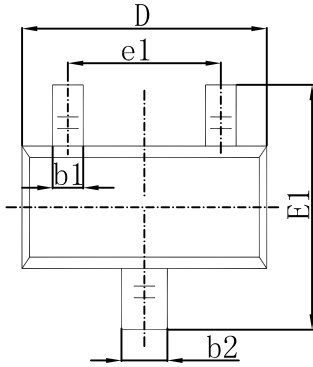
SOT-323 Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.900	1.100	0.035	0.043
A1	0.000	0.100	0.000	0.004
A2	0.900	1.000	0.035	0.039
b	0.200	0.400	0.008	0.016
c	0.080	0.150	0.003	0.006
D	2.000	2.200	0.079	0.087
E	1.150	1.350	0.045	0.053
E1	2.150	2.450	0.085	0.096
e	0.650 TYP.		0.026 TYP.	
e1	1.200	1.400	0.047	0.055
L	0.525 REF.		0.021 REF.	
L1	0.260	0.460	0.010	0.018
θ	0°	8°	0°	8°

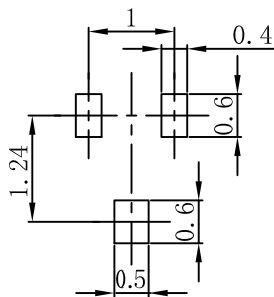
DTC123Y series

SOT-523 Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.700	0.900	0.028	0.035
A1	0.000	0.100	0.000	0.004
A2	0.700	0.800	0.028	0.031
b1	0.150	0.250	0.006	0.010
b2	0.250	0.350	0.010	0.014
c	0.100	0.200	0.004	0.008
D	1.500	1.700	0.059	0.067
E	0.700	0.900	0.028	0.035
E1	1.450	1.750	0.057	0.069
e	0.500 TYP.		0.020 TYP.	
e1	0.900	1.100	0.035	0.043
L	0.400 REF.		0.016 REF.	
L1	0.260	0.460	0.010	0.018
θ	0°	8°	0°	8°

SOT-523 Suggested Pad Layout

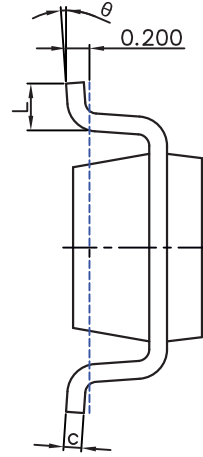
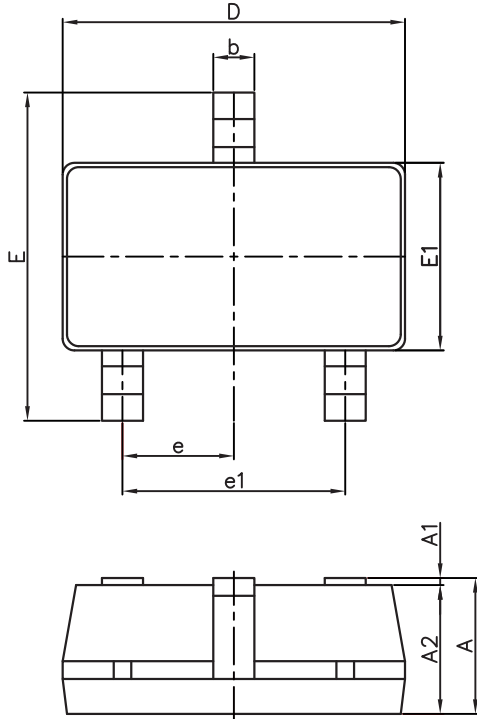


Note:

1. Controlling dimension: in millimeters.
2. General tolerance: $\pm 0.05\text{mm}$.
3. The pad layout is for reference purposes only.

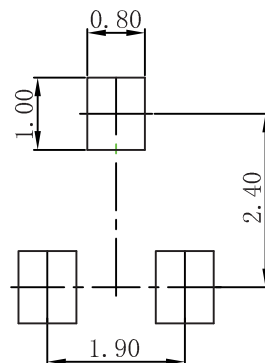
DTC123Y series

SOT23-3L Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	1.050	1.250	0.041	0.049
A1	0.000	0.100	0.000	0.
004A2	1.050	1.150	0.041	0.
				045
b	0.300	0.500	0.012	0.020
c	0.100	0.200	0.004	0.008
D	2.820	3.020	0.111	0.119
E1	1.500	1.700	0.059	0.067
E	2.650/0.950(BSC)	2.950	0.104/0.037(BSC)	0.116
e1	1.800	2.000	0.071	0.079
L	0.300	0.600	0.012	0.024
K	0°	8°	0°	8°

SOT23-3L Suggested Pad Lay out



Note:

1. Controlling dimension: in millimeters.
2. General tolerance: $\pm 0.05\text{mm}$.
3. The pad layout is for reference purposes only.