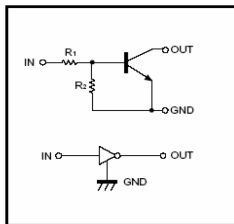


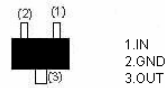
FEATURES

- 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 positive 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.

MAKING: E23



DTC143ZE (SOT-523)



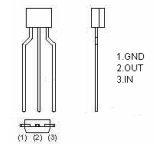
Abbreviated symbol : E23

DTC143ZM (SOT-723)

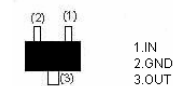


Abbreviated symbol : E23

DTA143ZSA (TO-92S)

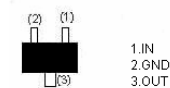


DTC143ZUA (SOT-323)



Abbreviated symbol : E23

DTC143ZCA (SOT-23)



Abbreviated symbol : E23

ABSOLUTE MAXIMUM RATINGS ($T_A=25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Limits (DTC143Z□)					Unit
		M	E	UA	CA	SA	
Collector-Base Voltage	V _{CC}	50					V
Input voltage	V _{IN}	-5~30					V
Output current	I _O	100					mA
	I _{C(MAX)}	100					
Power dissipation	P _D	100	150	200		300	mW
Junction & Storage temperature	T _J , T _{STG}	150, -55~150					℃

DTC143ZE / DTC143ZUA

DTC143ZCA / DTC143ZSA / DTC143ZM

ELECTRICAL CHARACTERISTICS (T_A=25°C unless otherwise noted)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Input voltage	V _{I(off)}	0.5	-	-	V	V _{CC} =5V, I _O =100μA
	V _{I(on)}	-	-	1.3		V _O =0.3V, I _O =5mA
Output voltage	V _{O(on)}	-	0.1	0.3	V	I _O /I _I =5mA/0.25mA
Input current	I _I	-	-	1.8	mA	V _I =5V
Output current	I _{O(off)}	-	-	0.5	μA	V _{CC} =50V, V _I =0
DC current gain	G _I	80	-	-		V _O =5V, I _O =10mA
Input resistance	R ₁	3.29	4.7	6.11	KΩ	
Resistance ratio	R ₂ /R ₁	8	10	12		
Transition frequency	f _T	-	250	-	MHz	V _{CE} =10V, I _E = -5mA, f=100MHz

RATING AND CHARACTERISTIC CURVES (DTC143ZXX)

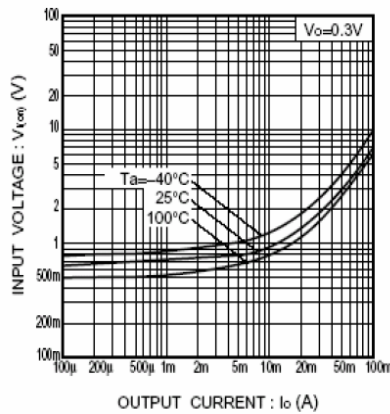


Fig.1 Input voltage vs. output current (ON characteristics)

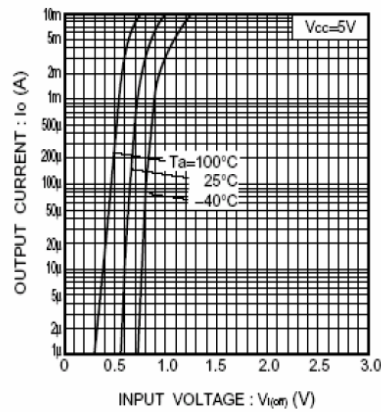


Fig.2 Output current vs. input voltage (OFF characteristics)

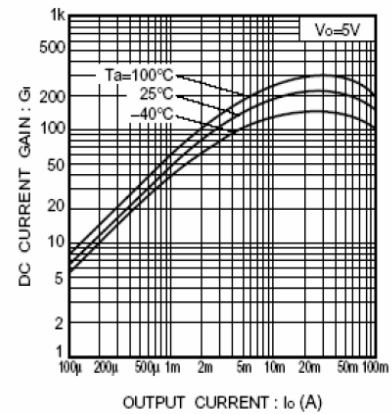


Fig.3 DC current gain vs. output current

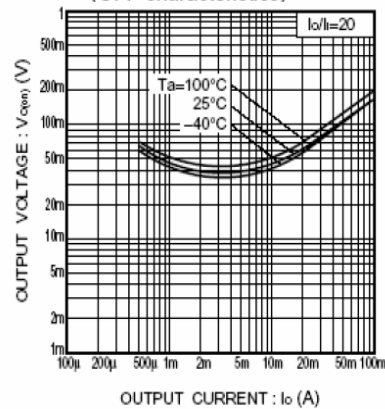
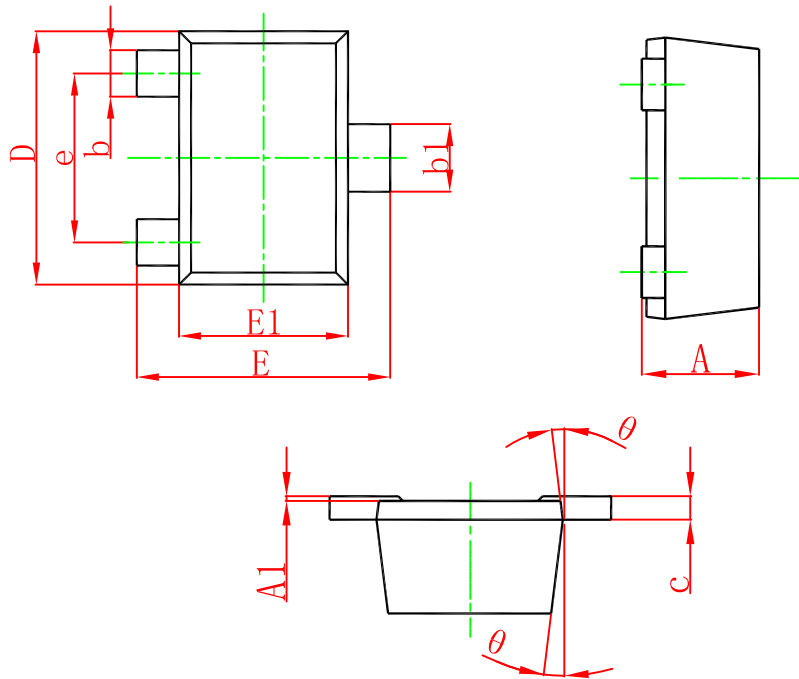


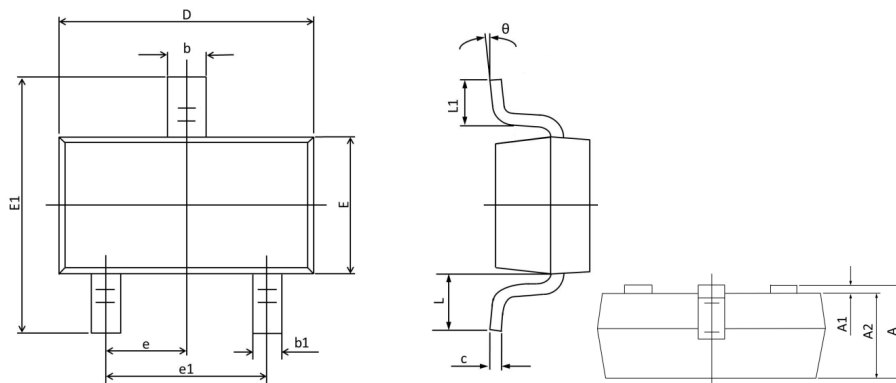
Fig.4 Output voltage vs. output current

SOT-723 Package Outline Dimensions



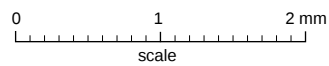
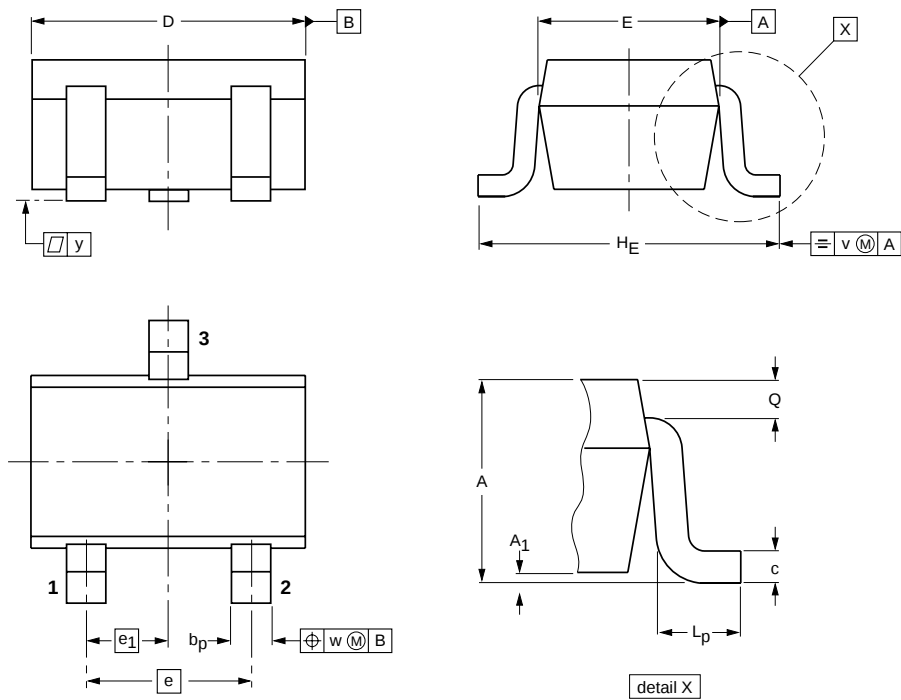
Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.430	0.500	0.017	0.020
A1	0.000	0.050	0.000	0.002
b	0.170	0.270	0.007	0.011
b1	0.270	0.370	0.011	0.015
c	0.080	0.150	0.003	0.006
D	1.150	1.250	0.045	0.049
E	1.150	1.250	0.045	0.049
E1	0.750	0.850	0.030	0.033
e	0.800TYP.		0.031TYP.	
θ	7° REF.		7° REF.	

SOT-523



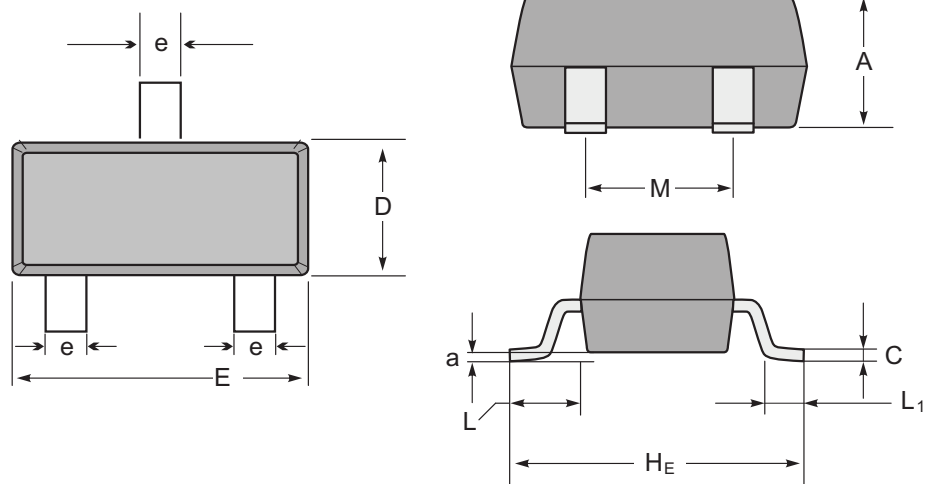
Symbol	Dimensions In Millimeters		Dimensions In Inches	
	MAX	MIN	MAX	MIN
A	0.900	0.700	0.035	0.028
A1	0.100	0.000	0.004	0.000
A2	0.800	0.700	0.031	0.028
b	0.350	0.250	0.014	0.010
b1	0.250	0.150	0.010	0.006
c	0.200	0.100	0.008	0.004
D	1.750	1.500	0.069	0.059
E	0.900	0.700	0.035	0.028
E1	1.750	1.400	0.069	0.055
e	0.5TYP.		0.02TYP.	
e1	1.100	0.900	0.043	0.035
L	0.460	0.300	0.018	0.012
L1	0.460	0.260	0.018	0.010
θ	8°	0°	8°	0°

SOT-323



DIMENSIONS (mm are the original dimensions)

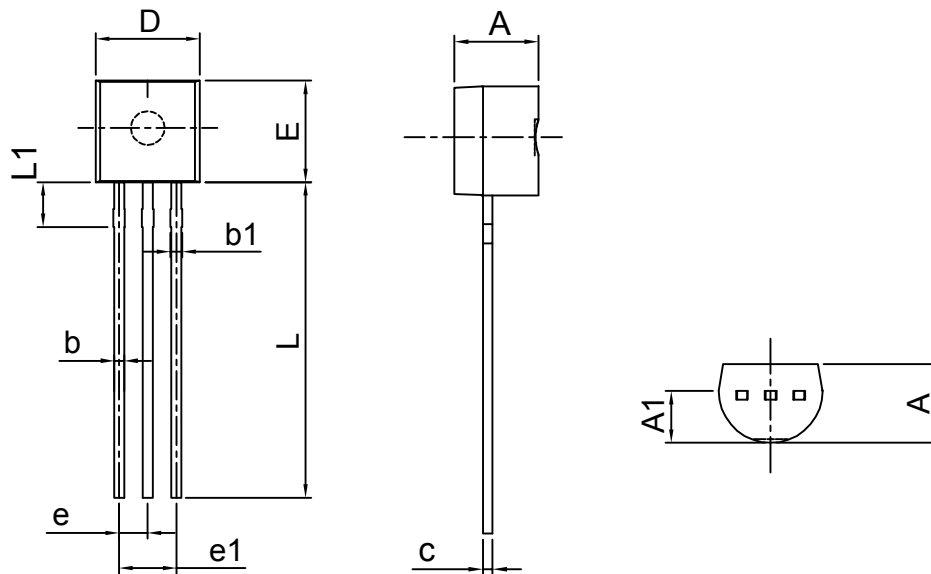
UNIT	A	A ₁ max	b _p	c	D	E	e	e ₁	H _E	L _p	Q	v	w
mm	1.1 0.8	0.1	0.4 0.3	0.25 0.10	2.2 1.8	1.35 1.15	1.3	0.65	2.2 2.0	0.45 0.15	0.23 0.13	0.2	0.2



SOT-23 mechanical data

UNIT		A	C	D	E	H _E	e	M	L	L ₁	a
mm	max	1.1	0.15	1.4	3.0	2.6	0.5	1.95	0.55 (ref)	0.36 (ref)	0.0
	min	0.9	0.08	1.2	2.8	2.2	0.3	1.7			0.15
mil	max	43	6	55	118	102	20	77	22 (ref)	14 (ref)	0.0
	min	35	3	47	110	87	12	67			6

TO-92



SYMBOL	MIN.	TYP	MAX.
A	3.30	3.50	3.70
A1	2.30	2.60	2.90
b	0.40	0.45	0.50
b1	0.50	0.60	0.70
c	0.28	0.38	0.48
D	4.50	4.60	4.70
E	4.40	4.60	4.80
e	1.24	1.27	1.30
e1	2.44	2.54	2.64
L	13.50	14.00	14.50
L1	1.80	2.00	2.20

Dimensions in inches and (millimeters)