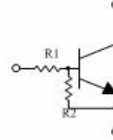


Small Signal Diode

Features

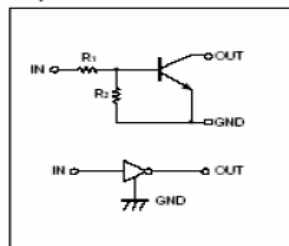
- ✧ Built-in bias resistors enable the configuration of an inverter circuit without connecting external input resistor (see equivalent circuit).
- ✧ The bias resistors consist of thin-film resistors with complete isolation to allow negative biasing of the input. They also have the advantage of almost completely eliminating parasitic effects.
- ✧ Only the on/off conditions need to be set for operation, marking device design easy.
- ✧ Green compound (Halogen free) with suffix "G" on packing code and prefix "G" on date code.



Ordering Information

Package	Part No.	Packing	Marking
SOT-723	DTC143 ZM	8K / 7" Reel	E23
SOT-523	DTC143 ZE	3K / 7" Reel	E23
SOT-323	DTC143 ZUA	3K / 7" Reel	E23
SOT-23	DTC143 ZCA	3K / 7" Reel	E23
TO-92S	DTC143 ZSA	3K / 7" Reel	

● Equivalent circuit



Maximum Ratings and Electrical Characteristics

Rating at 25°C ambient temperature unless otherwise specified.

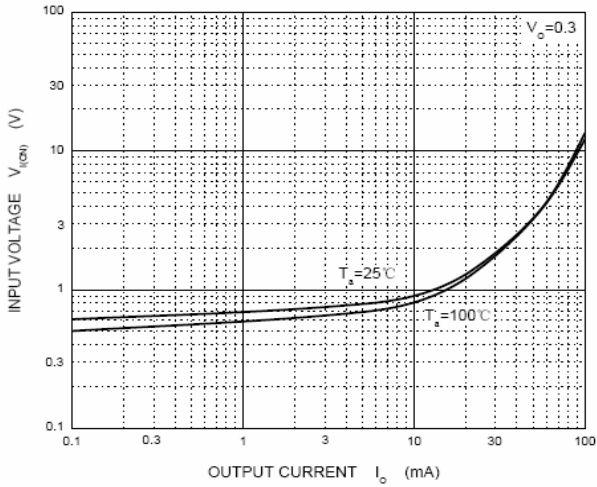
Type Number	Symbol	Value				Units
		ZM	ZE	ZUA ZCA	XSA	
Power Dissipation	PD	100	150	200	300	mW
Supply Voltage	V _{CC}	50				V
Input Voltage	V _{IN}	-5 ~ 30				V
Output Current	I _O	100				mA
	I _{C(MAX)}	100				mA
Junction and Storage Temperature Range	T _J , T _{STG}	-55 to + 150				°C

Notes: 1. Valid provided that electrodes are kept at ambient temperature

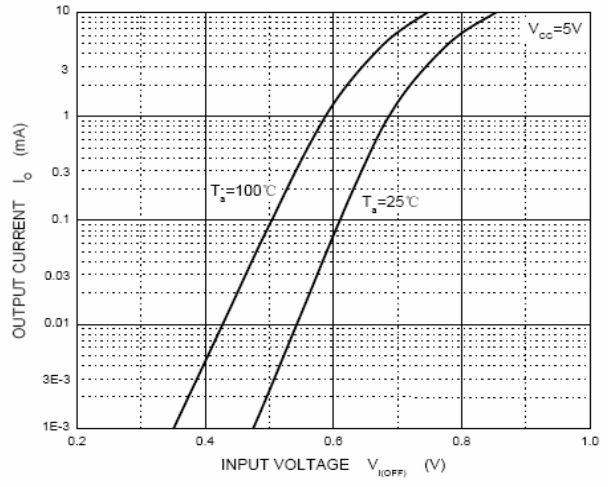
Parameter	Symbol	Min	Typ	Max	Condition	Unit
Input Voltage	V _{I(off)}	0.5			V _{CC} =5V, I _O =100μA	V
	V _{I(on)}			1.3	V _O =0.3V, I _O =5mA	V
Output Voltage	V _{O(on)}		0.1	0.3	I _O /I _I =5mA/0.25mA	V
Input Current	I _I			1.8	V _I =5V	mA
Output Current	I _{O(off)}			0.5	V _{CC} =50V, V _I =0	μA
DC 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		V _{CE} =10V, I _E =-5mA, f=100MHz	MHz

Typical Characteristics

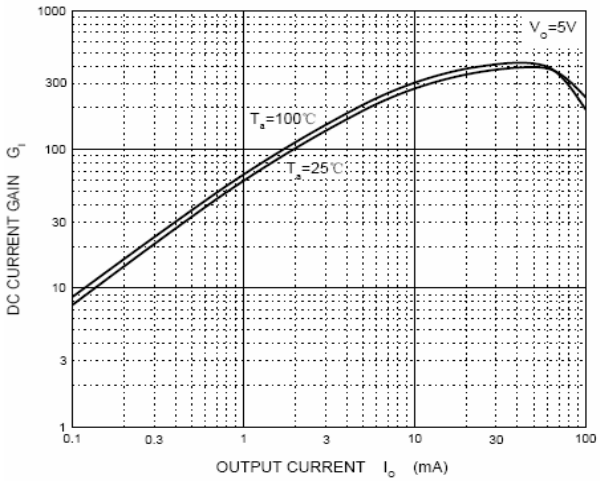
ON Characteristics



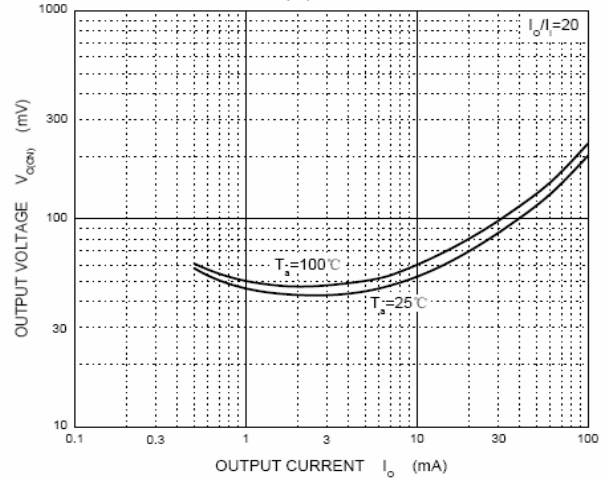
OFF Characteristics



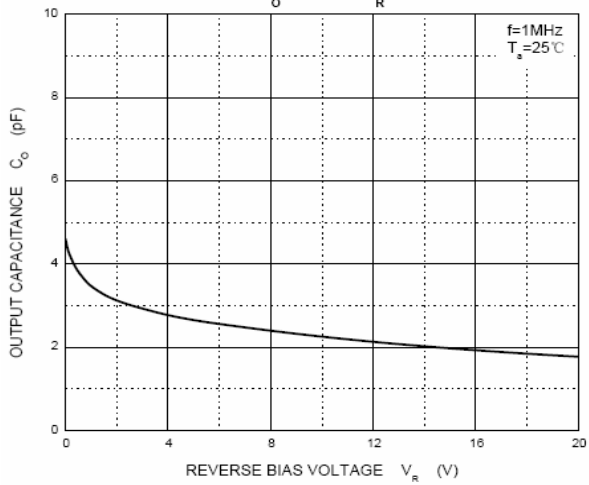
G_I — I_O



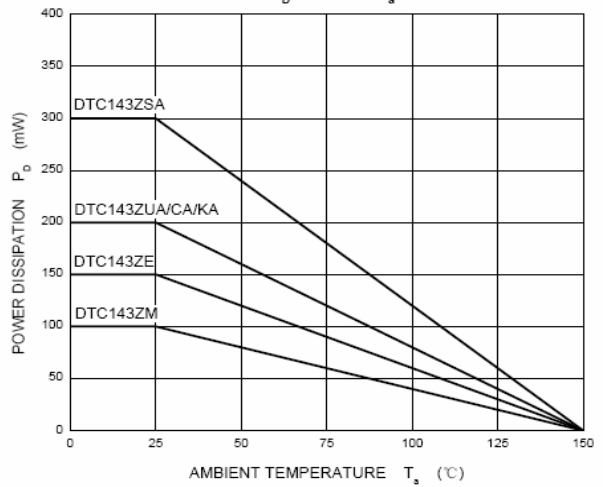
$V_{O(ON)}$ — I_O



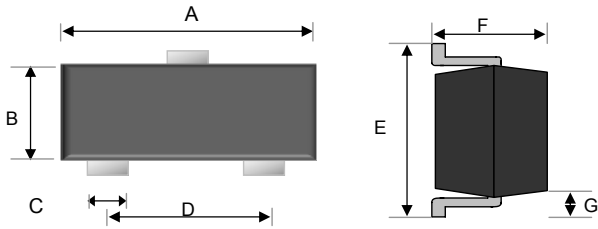
C_O — V_R



P_D — T_a

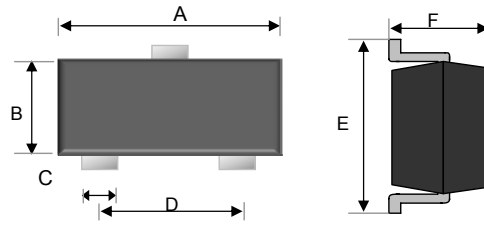


SOT-23



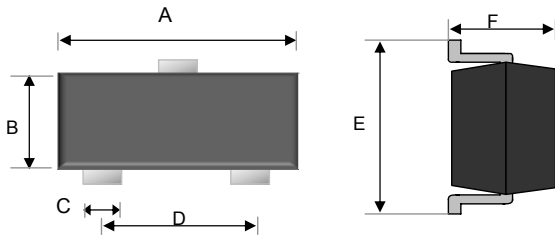
Dimensions	Unit (mm)		Unit (inch)	
	Min	Max	Min	Max
A	2.80	3.00	0.11	0.12
B	1.20	1.40	0.05	0.06
C	0.30	0.50	0.01	0.02
D	1.80	2.00	0.07	0.08
E	2.25	2.55	0.09	0.10
F	0.90	1.20	0.04	0.04
G	0.550 REF		0.022 REF	

SOT-323



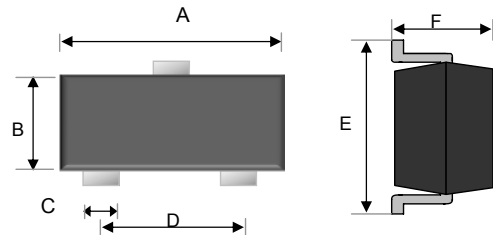
Dimensions	Unit (mm)		Unit (inch)	
	Min	Max	Min	Max
A	1.90	2.10	0.07	0.08
B	1.15	1.35	0.05	0.05
C	0.25	0.35	0.01	0.01
D	1.20	1.40	0.05	0.06
E	2.00	2.20	0.08	0.09
F	0.80	1.00	0.03	0.04

SOT-523



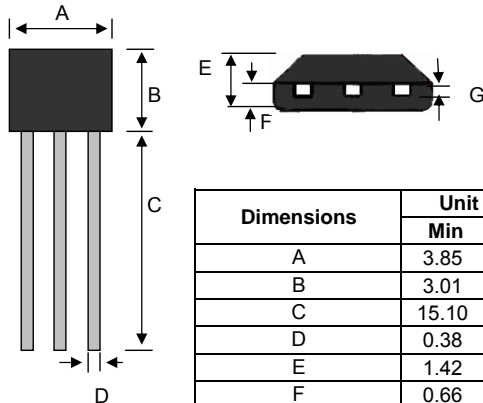
Dimensions	Unit (mm)		Unit (inch)	
	Min	Max	Min	Max
A	1.50	1.70	0.06	0.07
B	0.70	0.80	0.03	0.03
C	0.25	0.35	0.01	0.01
D	0.90	1.10	0.04	0.04
E	1.50	1.70	0.06	0.07
F	0.70	0.90	0.03	0.04

SOT-723



Dimensions	Unit (mm)		Unit (inch)	
	Min	Max	Min	Max
A	1.15	1.25	0.05	0.05
B	0.75	0.85	0.03	0.03
C	0.17	0.27	0.01	0.01
D	0.8 TYP		0.31TYP	
E	1.15	1.25	0.05	0.05
F	0.50		0.02	

TO-92S



Dimensions	Unit (mm)		Unit (inch)	
	Min	Max	Min	Max
A	3.85	4.15	0.15	0.16
B	3.01	3.31	0.12	0.13
C	15.10	15.50	0.59	0.61
D	0.38	0.55	0.01	0.02
E	1.42	1.62	0.06	0.06
F	0.66	0.86	0.03	0.03
G	0.36	0.51	0.01	0.02