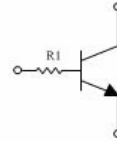


**Small Signal Diode**

**Features**

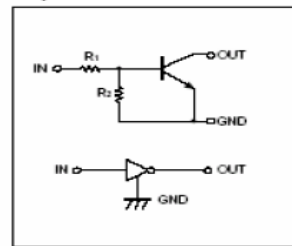
- ✧ Built-in bias resistors enable the configuration of an inverter circuit without connecting external input resistor (see equivalent circuit).
- ✧ The bias resistors consist of thin-film resistors with complete isolation to allow negative biasing of the input. They also have the advantage of almost 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	DTC113 ZM	8K / 7" Reel	E21
SOT-523	DTC113 ZE	3K / 7" Reel	E21
SOT-323	DTC113 ZUA	3K / 7" Reel	E21
SOT-23	DTC113 ZCA	3K / 7" Reel	E21
TO-92S	DTC113 ZSA	3K / 7" Reel	

●Equivalent circuit



**Maximum Ratings and Electrical Characteristics**

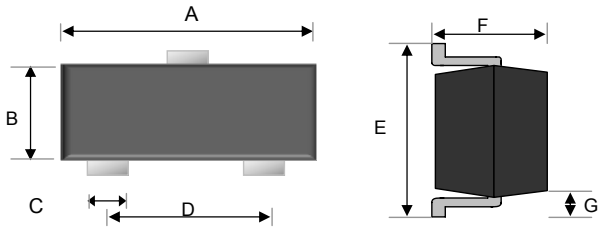
Rating at 25°C ambient temperature unless otherwise specified.

Type Number	Symbol	Value				Units
		ZM	ZE	ZUA ZCA	ZSA	
Power Dissipation	PD	100	150	200	300	mW
Supply Voltage	V <sub>CC</sub>	50				V
Input Voltage	V <sub>IN</sub>	-5 ~ +10				V
Output Current	I <sub>O</sub>	50				mA
	I <sub>C(MAX)</sub>	100				
Junction and Storage Temperature Range	T <sub>J</sub> , T <sub>STG</sub>	-55 to + 150				°C

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

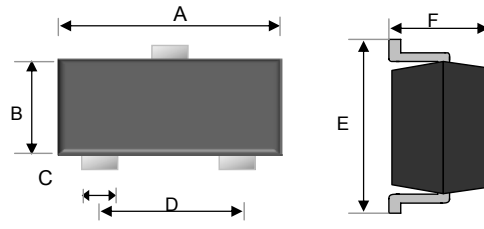
Parameter	Symbol	Min	Typ	Max	Condition	Unit
Input Voltage	V <sub>I(on)</sub>			3	V <sub>O</sub> =0.3V, I <sub>O</sub> =20mA	V
	V <sub>I(off)</sub>	0.3			V <sub>CC</sub> =5V, I <sub>O</sub> =100μA	
Output Voltage	V <sub>O(on)</sub>			0.3	I <sub>O</sub> /I <sub>I</sub> =10mA/0.5mA	V
Input Current	I <sub>I</sub>			7.2	V <sub>I</sub> =5V	mA
Output Current	I <sub>O(off)</sub>			0.5	V <sub>CC</sub> =50V, V <sub>I</sub> =0	μA
DC Current Gain	G <sub>I</sub>	33			V <sub>O</sub> =5V, I <sub>O</sub> =5mA	
Input Resistance	R <sub>1</sub>	0.7	1	1.3		KΩ
Resistance Ratio	R <sub>2</sub> /R <sub>1</sub>	8	10	12		
Transition Frequency	f <sub>T</sub>		250		V <sub>O</sub> =10V, I <sub>O</sub> =5mA, f=100MHz	MHz

**SOT-23**



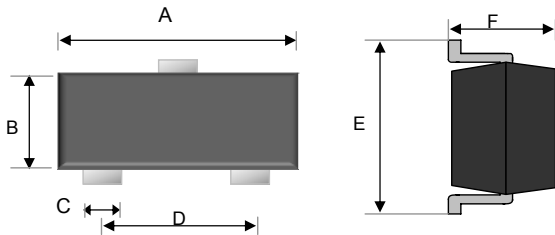
Dimensions	Unit (mm)		Unit (inch)	
	Min	Max	Min	Max
A	2.80	3.00	0.11	0.12
B	1.20	1.40	0.05	0.06
C	0.30	0.50	0.01	0.02
D	1.80	2.00	0.07	0.08
E	2.25	2.55	0.09	0.10
F	0.90	1.20	0.04	0.04
G	0.550 REF		0.022 REF	

**SOT-323**



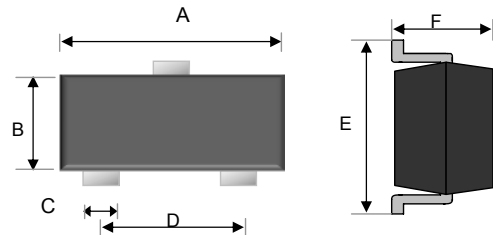
Dimensions	Unit (mm)		Unit (inch)	
	Min	Max	Min	Max
A	1.90	2.10	0.07	0.08
B	1.15	1.35	0.05	0.05
C	0.25	0.35	0.01	0.01
D	1.20	1.40	0.05	0.06
E	2.00	2.20	0.08	0.09
F	0.80	1.00	0.03	0.04

**SOT-523**



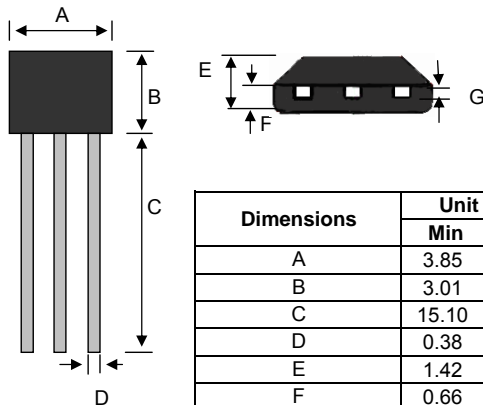
Dimensions	Unit (mm)		Unit (inch)	
	Min	Max	Min	Max
A	1.50	1.70	0.06	0.07
B	0.70	0.80	0.03	0.03
C	0.25	0.35	0.01	0.01
D	0.90	1.10	0.04	0.04
E	1.50	1.70	0.06	0.07
F	0.70	0.90	0.03	0.04

**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