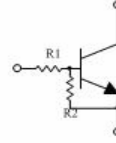


Small Signal Diode

Features

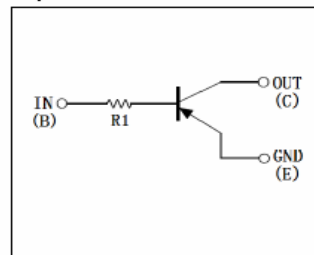
- ◇ Built-in bias resistors enable the configuration of an inverter circuit without connecting external input resistor (see equivalent circuit).
- ◇ The bias resistors consist of thin-film resistors with complete isolation to allow negative biasing of the input. They also have the advantage of almost 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	DTC144 TM	8K / 7" Reel	96
SOT-523	DTC144 TE	3K / 7" Reel	96
SOT-323	DTC144 TUA	3K / 7" Reel	96
SOT-23	DTC144 TCA	3K / 7" Reel	96
TO-92S	DTC144 TSA	3K / 7" Reel	

• Equivalent Circuit



Maximum Ratings and Electrical Characteristics

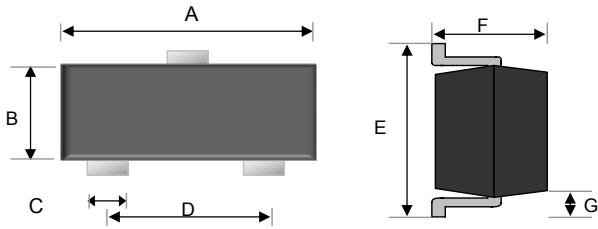
Rating at 25°C ambient temperature unless otherwise specified.

Type Number	Symbol	Value				Units
		TM	TE	TUA TCA	TSA	
Power Dissipation	PD	100	150	200	300	mW
Collector-Base Voltage	V_{CBO}	-50				V
Collector-Emitter Voltage	V_{CEO}	-50				V
Emitter-Base Voltage	V_{EBO}	-5				V
Collector Current	I_C	-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

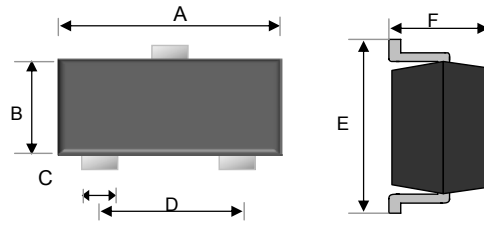
Parameter	Symbol	Min	Typ	Max	Condition	Unit
Collector-base breakdown voltage	$V_{(BR)CBO}$	-50			$I_C = -50\mu A, I_E = 0$	V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	-50			$I_C = -1mA, I_B = 0$	V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	-5			$I_E = -50\mu A, I_C = 0$	V
Collector cut-off current	I_{CBO}			-0.5	$V_{CB} = -50V, I_E = 0$	μA
Emitter cut-off current	I_{EBO}			-0.5	$V_{EB} = -4V, I_C = 0$	μA
Collector-emitter saturation voltage	$V_{CE(sat)}$			-0.3	$I_C = -5mA, I_B = -0.5mA$	V
DC Current Gain	h_{FE}	100	300	600	$V_{CE} = -5V, I_C = -1mA$	
Input Resistor	R_1	32.9	47	61.1		K Ω
Transition Frequency	f_T		250		$V_{CE} = -10V, I_E = 5mA, f = 100MHz$	MHz

SOT-23



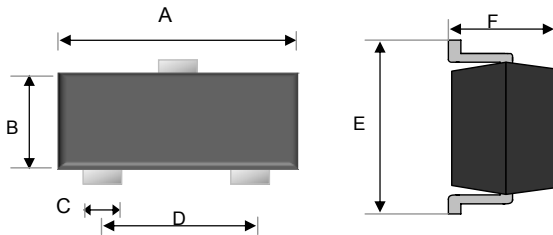
Dimensions	Unit (mm)		Unit (inch)	
	Min	Max	Min	Max
A	2.80	3.00	0.11	0.12
B	1.20	1.40	0.05	0.06
C	0.30	0.50	0.01	0.02
D	1.80	2.00	0.07	0.08
E	2.25	2.55	0.09	0.10
F	0.90	1.20	0.04	0.04
G	0.550 REF		0.022 REF	

SOT-323



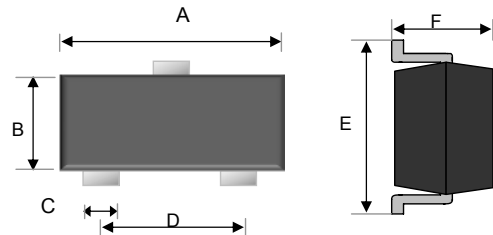
Dimensions	Unit (mm)		Unit (inch)	
	Min	Max	Min	Max
A	1.90	2.10	0.07	0.08
B	1.15	1.35	0.05	0.05
C	0.25	0.35	0.01	0.01
D	1.20	1.40	0.05	0.06
E	2.00	2.20	0.08	0.09
F	0.80	1.00	0.03	0.04

SOT-523



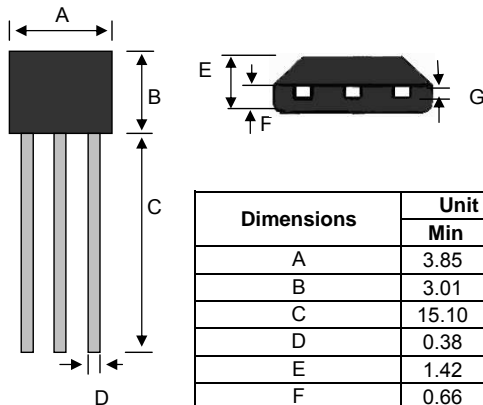
Dimensions	Unit (mm)		Unit (inch)	
	Min	Max	Min	Max
A	1.50	1.70	0.06	0.07
B	0.70	0.80	0.03	0.03
C	0.25	0.35	0.01	0.01
D	0.90	1.10	0.04	0.04
E	1.50	1.70	0.06	0.07
F	0.70	0.90	0.03	0.04

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		0.31 TYP	
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