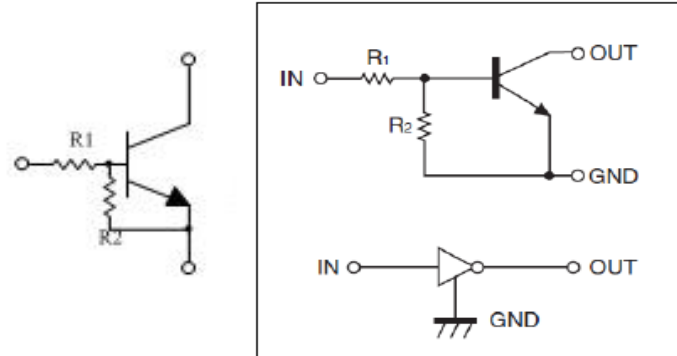


Small Signal Product

NPN Small Signal Transistor

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.
- Packing code with suffix "G" means green compound (halogen-free)



Equivalent Circuit

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS (T _A =25°C unless otherwise noted)						
PARAMETER	SYMBOL	VALUE				UNIT
		EM	EE	EUA / ECA	ESA	
Power Dissipation	P _D	100	150	200	300	mW
Supply Voltage	V _{CC}	50				V
Input Voltage	V _{IN}	-10 ~ +40				V
Output Current	I _O	30				mA
	I _{C(MAX)}	100				
Junction and Storage Temperature Range	T _J , T _{STG}	-55 to +150				°C

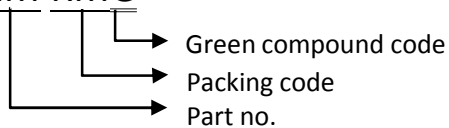
Notes: 1. Valid provided that electrodes are kept at ambient temperature

PARAMETER	SYMBOL	MIN	TYP	MAX	CONDITION	UNIT
Input Voltage	V _{I(on)}	-	-	3	V _O =0.3V, I _O =20mA	V
	V _{I(off)}	0.5	-	-	V _{CC} =5V, I _O =100μA	
Output Voltage	V _{O(on)}	-	-	0.3	I _O /I _I =10mA/0.5mA	V
Input Current	I _I	-	-	0.18	V _I =5V	mA
Output Current	I _{O (off)}	-	-	0.5	V _{CC} =50V, V _I =0	μA
DC Current Gain	G _I	68	-	-	V _O =5V, I _O =5mA	
Input Resistance	R ₁	32.9	47	61.1		KΩ
Resistance Ratio	R ₂ /R ₁	0.8	1	1.2		
Transition Frequency	f _T	-	250	-	V _O =10V, I _O =5mA, f=100MHz	MHz

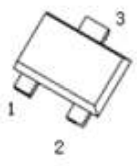
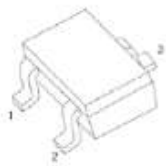
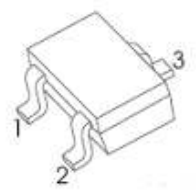
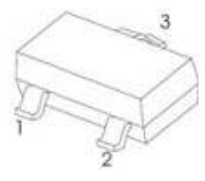

Small Signal Product

ORDER INFORMATION (EXAMPLE)

DTC144EM RMG



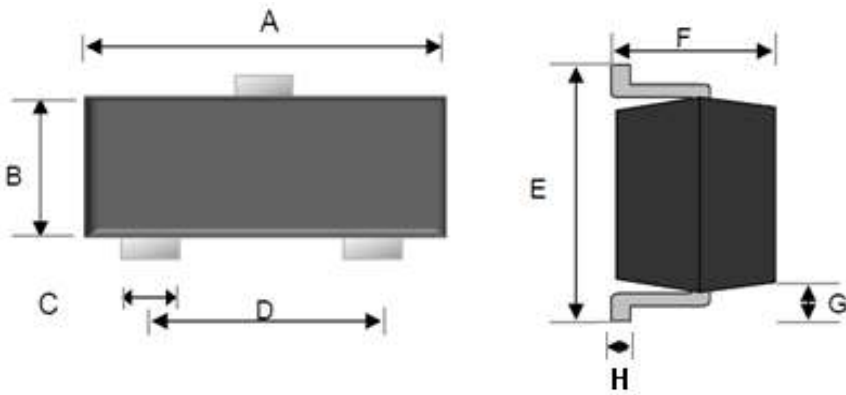
PIN CONNENCTIONS AND MARKING

<p>DTC144EM</p>  <p>SOT-723</p> <p>1. IN 2. GND 3. OUT</p> <p>MARKING: 26</p>	<p>DTC144EE</p>  <p>SOT-523</p> <p>1. IN 2. GND 3. OUT</p> <p>MARKING: 26</p>
<p>DTC144EUA</p>  <p>SOT-323</p> <p>1. IN 2. GND 3. OUT</p> <p>MARKING: 26</p>	
<p>DTC144ECA</p>  <p>SOT-23</p> <p>1. IN 2. GND 3. OUT</p> <p>MARKING: 26</p>	<p>DTC144ESA</p> <p>MARKING: C144 E041</p> <p>MARKING (HF): C144 E-041</p>  <p>TO-92S</p> <p>1. GND 2. OUT 3. IN</p>

Small Signal Product

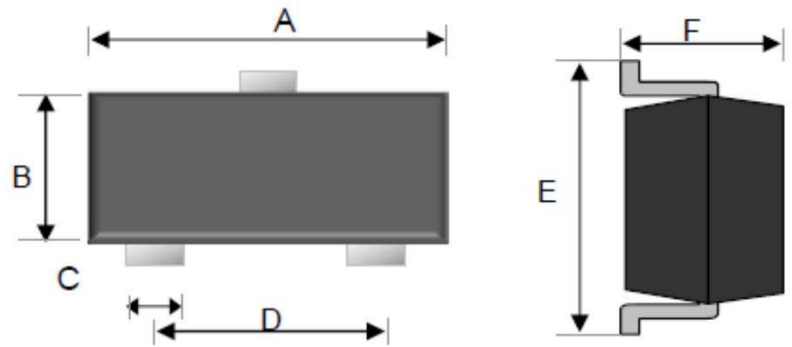
PACKAGE OUTLINE DIMENSION

SOT-23



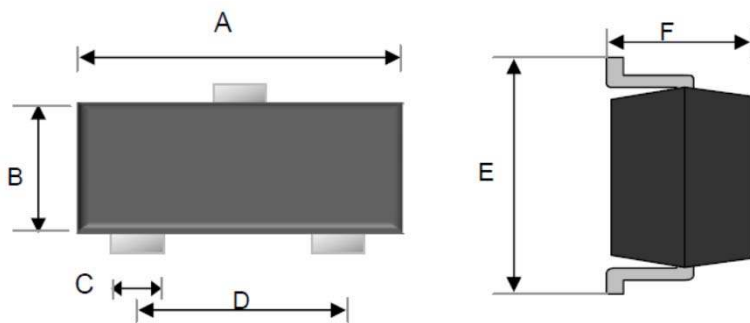
DIM.	Unit (mm)		Unit (inch)	
	Min	Max	Min	Max
A	2.70	3.10	0.106	0.122
B	1.10	1.50	0.043	0.059
C	0.30	0.51	0.012	0.020
D	1.78	2.04	0.070	0.080
E	2.10	2.64	0.083	0.104
F	0.89	1.30	0.035	0.051
G	0.55 REF		0.022 REF	
H	0.10 REF		0.004 REF	

SOT-323



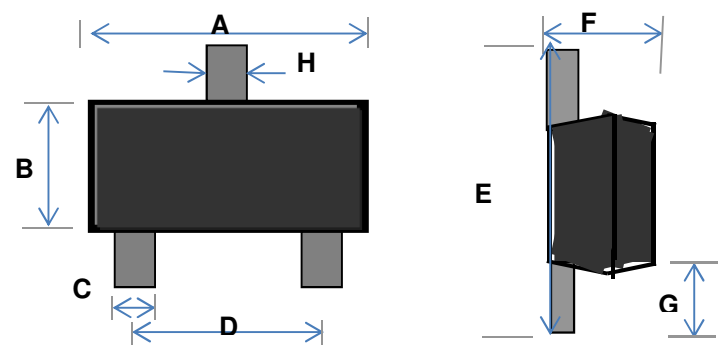
DIM.	Unit (mm)		Unit (inch)	
	Min	Max	Min	Max
A	1.80	2.20	0.071	0.087
B	1.15	1.35	0.045	0.053
C	0.15	0.40	0.006	0.016
D	1.20	1.40	0.047	0.055
E	2.00	2.45	0.079	0.096
F	0.80	1.10	0.031	0.043

SOT-523



DIM.	Unit (mm)		Unit (inch)	
	Min	Max	Min	Max
A	1.50	1.70	0.059	0.067
B	0.70	0.90	0.028	0.035
C	0.15	0.35	0.006	0.014
D	0.90	1.10	0.035	0.043
E	1.45	1.75	0.057	0.069
F	0.62	0.95	0.024	0.037

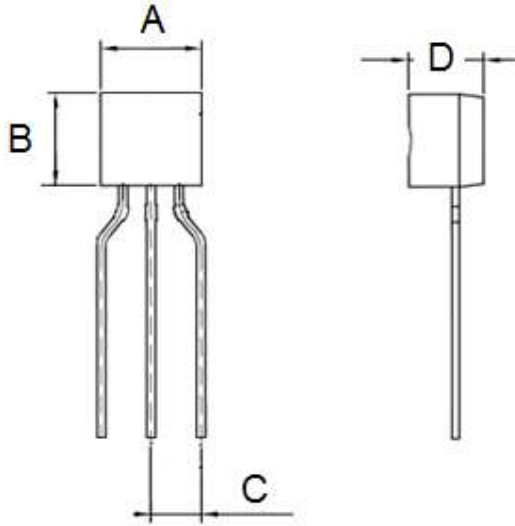
SOT-723



DIM.	Unit (mm)		Unit (inch)	
	Min	Max	Min	Max
A	1.15	1.25	0.045	0.049
B	0.75	0.85	0.030	0.033
C	0.15	0.27	0.006	0.011
D	0.80 TYP.		0.031 TYP.	
E	1.15	1.25	0.045	0.049
F	0.43	0.55	0.017	0.022
G	0.15	0.25	0.006	0.010
H	0.25	0.37	0.010	0.015

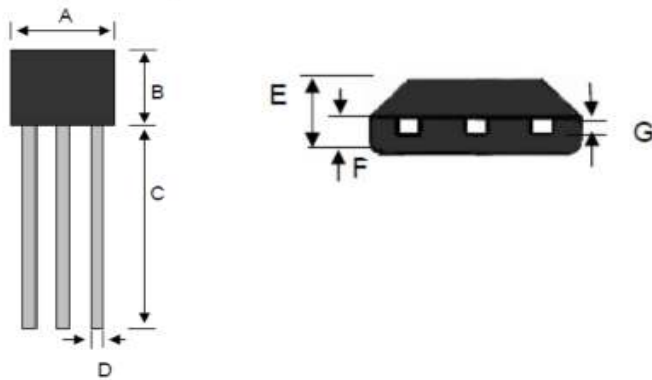
Small Signal Product

TO-92S (Ammo)



DIM.	Unit (mm)		Unit (inch)	
	Min	Max	Min	Max
A	3.90	4.10	0.154	0.161
B	3.05	3.25	0.120	0.128
C	2.20	2.80	0.087	0.110
D	1.42	1.62	0.056	0.064

TO-92S (Bulk)



DIM.	Unit (mm)		Unit (inch)	
	Min	Max	Min	Max
A	3.90	4.10	0.154	0.161
B	3.05	3.25	0.120	0.128
C	15.10	15.50	0.594	0.610
D	0.35	0.48	0.014	0.019
E	1.42	1.62	0.056	0.064
F	0.66	0.86	0.026	0.034
G	0.36	0.51	0.014	0.020

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