JIANGSU CHANGJING ELECTRONICS TECHNOLOGY CO., LTD

# Digital Transistors (Built-in Resistors)

DTC115EM   DIGITAL TRANSISTOR (NPN)

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 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, making device design easy

PIN CONNENCTIONS, MARKING and EQUIVALENT CIRCUIT

DTC115EM   SOT-723   **Equivalent Circuit**

1. IN
2. GND
3. OUT
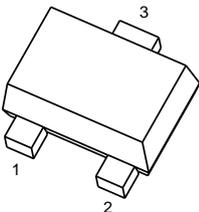
MARKING:29

MAXIMUM RATINGS(Ta=25℃ unless otherwise noted)

Symbol	Parameter	Limit	Unit
V_{CC}	Supply Voltage	50	V
V_{IN}	Input Voltage	-10～+40	V
I_O	Output Current	100	mA
P_D	Power Dissipation	100	mW
T_J,T_{stg}	Operation Junction and Storage Temperature Range	-55～+150	℃

### ELECTRICAL CHARACTERISTICS (Ta=25℃ unless otherwise specified)

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Input voltage	$V_{I(off)}$	V_{CC}=5V,I_O=100μA	0.5			V
	$V_{I(on)}$	V_O=0.3V,I_O=1mA			3	V
Output voltage	$V_{O(on)}$	I_O/I_I=5mA/0.25mA		0.1	0.3	V
Input current	I_I	V_I=5V			0.15	mA
Output current	$I_{O(off)}$	V_{CC}=50V,V_I=0V			0.5	μA
DC current gain	G_I	V_O=5V,I_O=5mA	82			
Input resistance	R_1		70	100	130	kΩ
Resistance ratio	R_2/R_1		0.8	1	1.2	
Transition frequency	f_T	V_O=10V ,I_O=5mA,f=100MHz		250		MHz

SOT-723 Package Outline Dimensions
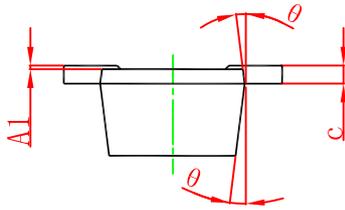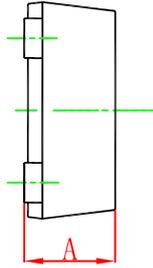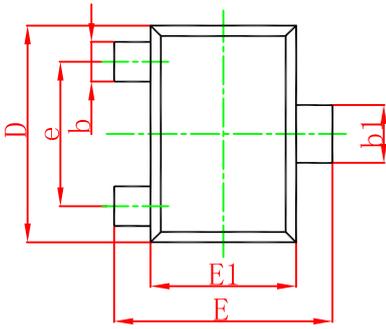
| Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.430	0.500	0.017	0.020
A1	0.000	0.050	0.000	0.002
b	0.170	0.270	0.007	0.011
b1	0.270	0.370	0.011	0.015
c	0.080	0.150	0.003	0.006
D	1.150	1.250	0.045	0.049
E	1.150	1.250	0.045	0.049
E1	0.750	0.850	0.030	0.033
e	0.800TYP.		0.031TYP.	
θ	7° REF.		7° REF.	

SOT-723 Suggested Pad Layout
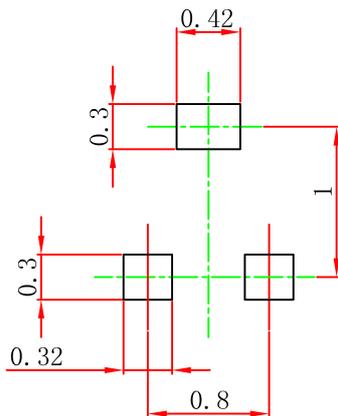
Note:
1.Controlling dimension:in millimeters.
2.General tolerance:± 0.05mm.
3.The pad layout is for reference purposes only.

SOT-723 Embossed Carrier Tape
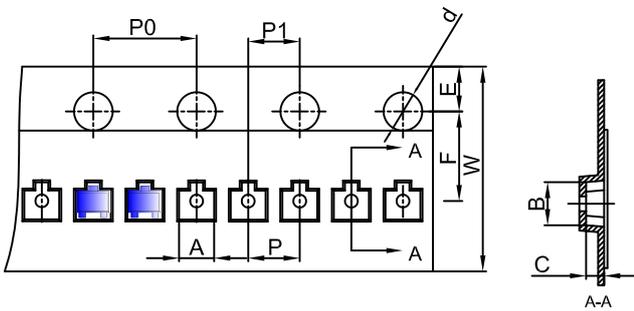

Packaging Description:
SOT-723 parts are shipped in tape. The carrier tape is made from a dissipative (carbon filled) polycarbonate resin. The cover tape is a multilayer film (Heat Activated Adhesive in nature) primarily composed of polyester film, adhesive layer, sealant, and anti-static sprayed agent. These reeled parts in standard option are shipped with 8,000 units per 7" or 17.8cm diameter reel. The reels are clear in color and is made of polystyrene plastic (anti-static coated).

Dimensions are in millimeter										
Pkg type	A	B	C	d	E	F	P0	P	P1	W
SOT-723	1.33	1.45	0.61	Ø1.50	1.75	3.50	4.00	2.00	2.00	8.00

SOT-723 Tape Leader and Trailer

Trailer Tape
100±4 Empty Pockets

Components

Leader Tape
200±4 Empty Pockets
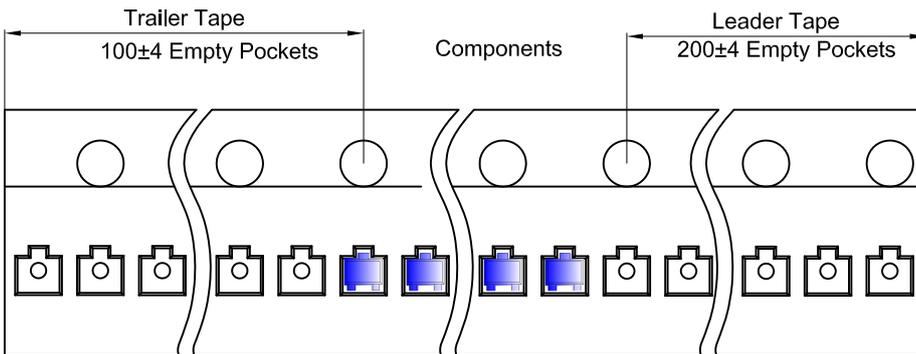
SOT-723 Reel
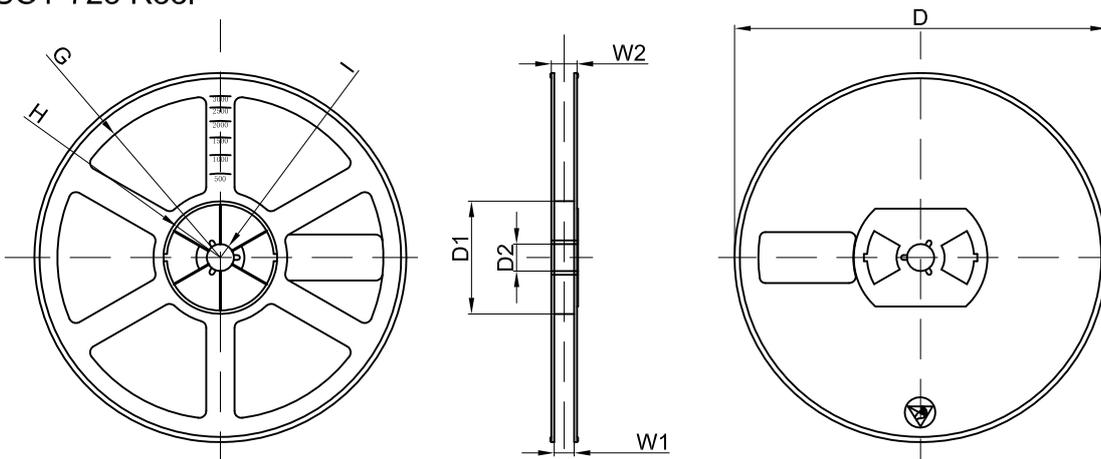
Dimensions are in millimeter								
Reel Option	D	D1	D2	G	H	I	W1	W2
7"Dia	Ø178.00	54.40	13.00	R78.00	R25.60	R6.50	9.50	12.30

REEL	Reel Size	Box	Box Size(mm)	Carton	Carton Size(mm)	G.W.(kg)
8000 pcs	7 inch	120,000 pcs	203×203×195	480,000 pcs	438×438×220	

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DRC9A14E0L DTA124GKAT146 DTA144WETL DTA144WKAT146 DTC113EET1G DTC115TETL DTC115TKAT146
DTC144VUAT106 MUN5241T1G BCR158WH6327XTSA1 SMUN5330DW1T1G RN1306(TE85L,F) EMH15T2R NSBC143ZPDP6T5G
DTC114EUA-TP SMUN5237DW1T1G SMUN5213DW1T1G SMUN5114DW1T1G DTC124ECA-TP DTA114ECA-TP DTC113EM3T5G
NSVMUN5135DW1T1G NSVMUN2237T1G NSVDTC143ZM3T5G SMUN5335DW1T2G SMUN5216DW1T1G NSVMUN5316DW1T1G
NSVMUN5215DW1T1G NSVMUN5213DW1T3G NSVIMD10AMT1G NSVEMC2DXV5T1G NSVDTC144WET1G NSVDTC123JET1G
NSVDTA143EM3T5G NSVB1706DMW5T1G NSBC143EDP6T5G NSBA144WDXV6T1G DTA115TET1G NSBC115TDP6T5G
NSBA113EF3T5G MUN2235T1G NSBC143ZDXV6T5G NSVDTA114EM3T5G MUN2138T1G DCX124EUQ-7-F MUN2141T1G
DTC144TET1G MUN2238T1G SMUN5112DW1T1G NSVMUN5131T1G