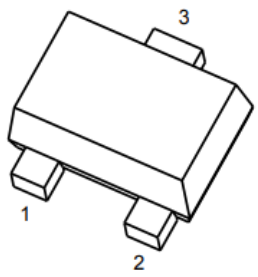
Digital Transistors (Built-in Resistors)



1. IN
2. GND
3. OUT

SOT-723

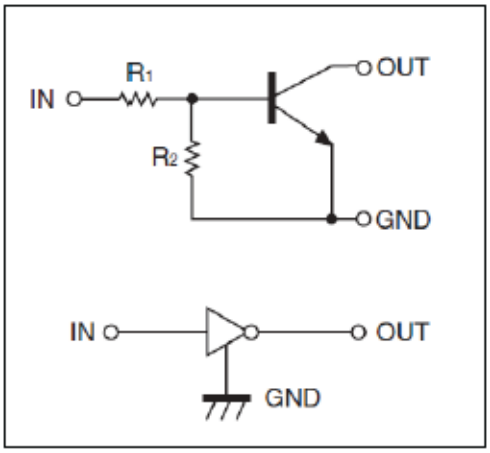
Features

●Epoxy meets UL-94 V-0 flammability rating
●Moisture Sensitivity Level 1
●Built-in bias resistors enable the configuration of an inverter circuit without connecting external input resistors
●Surface mount package ideally Suited for Automatic Insertion
●NPN

Mechanical Data

- **Package**: SOT-723
- **Terminals**: Tin plated leads, solderable per J-STD-002 and JESD22-B102
- **Marking:** 22

■Equivalent circuit



■Maximum Ratings (Ta=25℃ Unless otherwise specified)

ITEM	SYMBOL	UNIT	CONDITIONS	VALUE
Supply Voltage	VCC	V		50
Input Voltage	VIN	V		-10 to +12
Output Current	IO	mA		100
Power Dissipation	PD	mW		100
Junction Temperature	Tj	℃		150
Storage Temperature	TSTG	℃		-55 to +150

DTC123EM

■Electrical Characteristics (Ta=25℃ unless otherwise specified)

ITEM	SYMBOL	UNIT	CONDITIONS	MIN	TYP	MAX
Input voltage	$VI_{(off)}$	V	VCC=5V,Ic=100uA V0=0.3V,Ic=20mA	0.5		
	$VI_{(on)}$	V				3
Output voltage	$Vo_{(on)}$	V	Io /Ii =10mA/0.5mA			0.3
Input current	I_I	mA	V_I=5V			3.8
Output current	$I_{O(off)}$	uA	VCC=50V, Vi=0			0.1
DC current gain	G_I		Vo=5V, Io =10mA	20		
Input resistance	R_1	kΩ		1.54	2.2	2.86
Resistance ratio	R_2/R_1			0.8	1	1.2
Transition frequency	f_T	MHz	VCE=10V,IE=-5mA, f=100MHz		250	

■ Ordering Information (Example)

PREFERED P/N	PACKING CODE	UNIT WEIGHT(g)	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
DTC123EM	F2	Approximate 0.0013	8000	80000	320000	7” reel

■ **Characteristics** (Typical)

Fig. 1 - DC Current Gain Characteristics

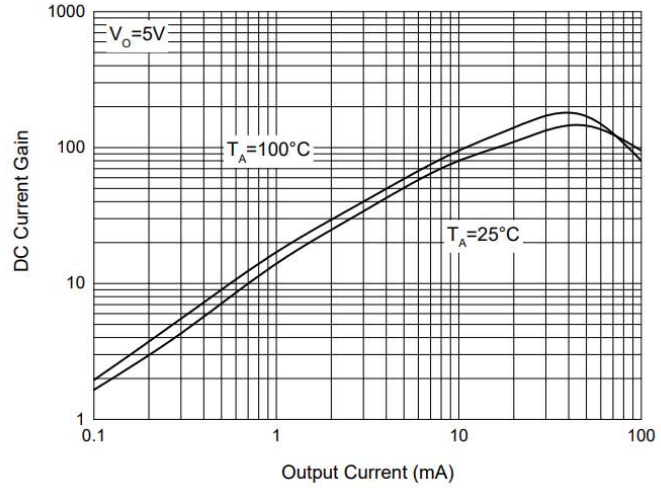


Fig. 2 - Input Voltage (on) Characteristics

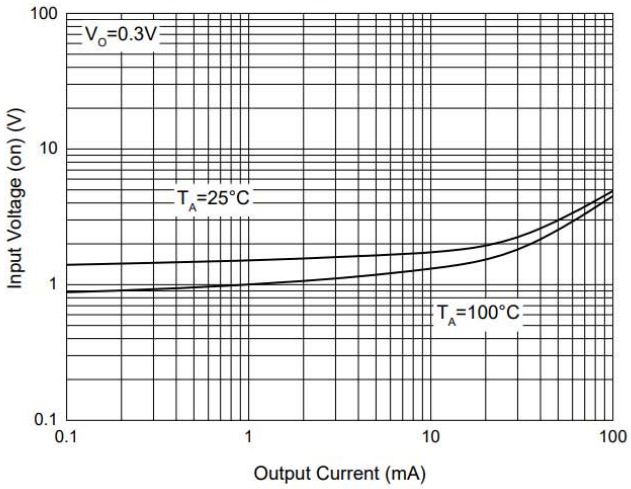


Fig. 3 - Input Voltage (off) Characteristics

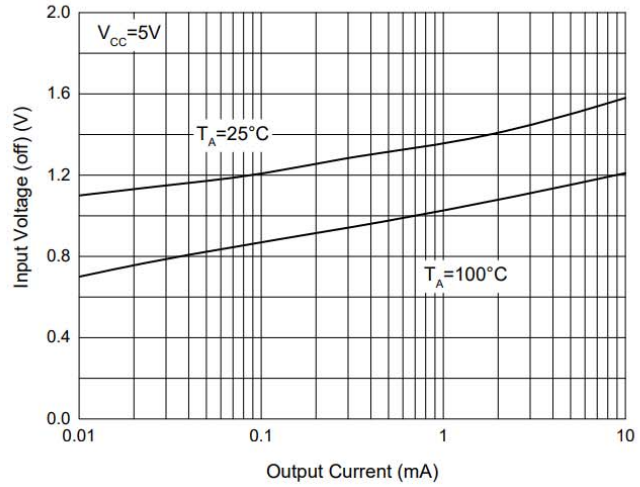
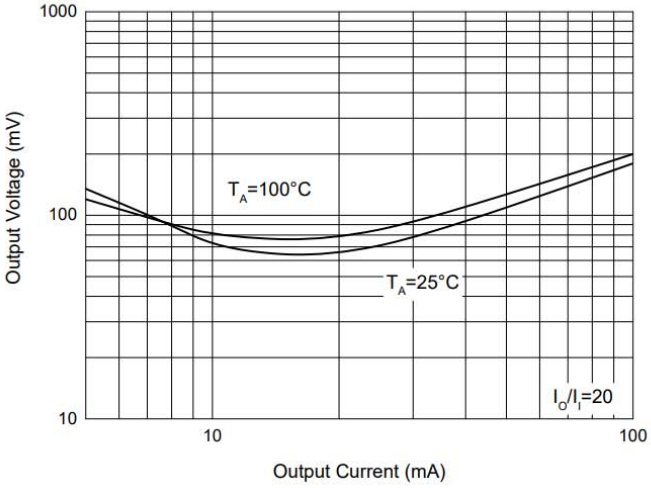
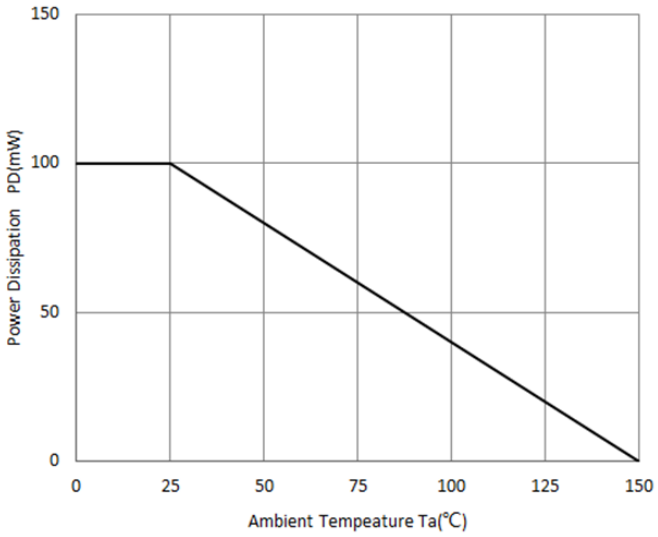


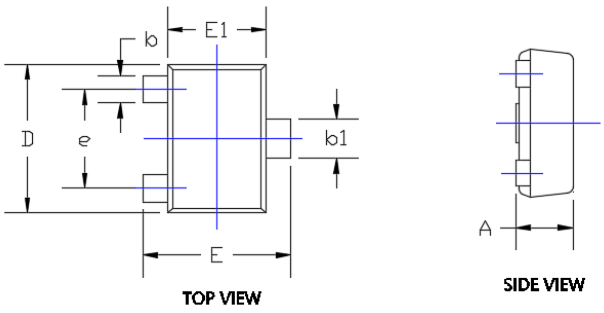
Fig. 4 - Output Voltage Characteristics

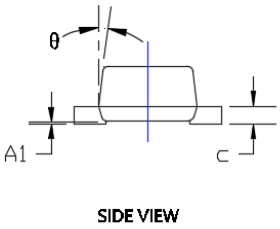


Power Derating Curve



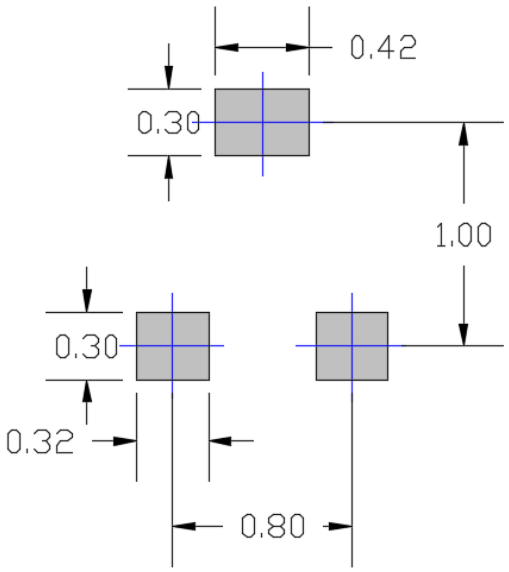
■SOT-723 Package Outline Dimensions





DIMENSIONS				
SYMBOL	INCHES		Millimeter	
	MIN.	MAX.	MIN.	MAX.
A	0.017	0.022	0.430	0.550
A1	0.000	0.002	0.000	0.050
b	0.007	0.011	0.170	0.270
b1	0.011	0.015	0.270	0.370
c	0.003	0.008	0.080	0.200
D	0.045	0.049	1.150	1.250
E	0.045	0.049	1.150	1.250
E1	0.030	0.033	0.750	0.850
e	0.031TYP.		0.800TYP.	
θ	7°REF.		7°REF.	

■SOT-723Suggested Pad Layout



NOTE:

1. PACKAGE BODY SIZES EXCLUDE MOLD FLASH AND GATE BURRS.
2. TOLERANCE 0.1mm UNLESS OTHERWISE SPECIFIED.
3. THE PAD LAYOUT IS FOR REFERENCE PURPOSES ONLY.

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