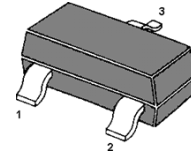


DTC124ECA DIGITAL TRANSISTOR (NPN)

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 positive 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

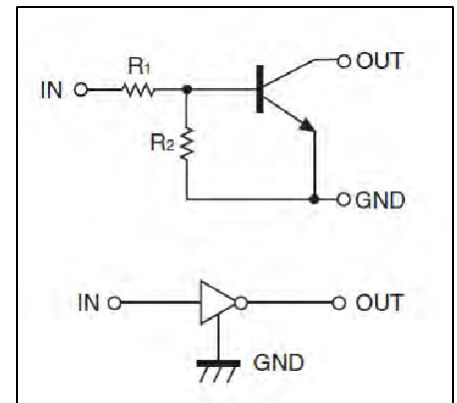


1.Base (IN) 2.Emitter (GND)
3.Collector (OUT)
SOT-23 Plastic Package

MARKING:E24

MAXIMUM RATINGS(Ta=25°C unless otherwise noted)

Symbol	Parameter	Limits	Unit
V_{CC}	Supply Voltage	50	V
V_{IN}	Input Voltage	-10~+40	V
I_O	Output Current	100	mA
P_D	Power Dissipation	200	mW
T_j	Junction Temperature	150	°C
T_{stg}	Storage Temperature	-40~+150	°C



Equivalent Circuit

ELECTRICAL CHARACTERISTICS (Ta=25°C unless otherwise specified)

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Input voltage	$V_{I(off)}$	$V_{CC}=5V, I_O=100\mu A$	0.5			V
	$V_{I(on)}$	$V_O=0.2V, I_O=5mA$			3.0	V
Output voltage	$V_{O(on)}$	$I_O/I_I=10mA/0.5mA$		0.1	0.3	V
Input current	I_I	$V_I=5V$			0.36	mA
Output current	$I_{O(off)}$	$V_{CC}=50V, V_I=0$			0.5	μA
DC current gain	G_I	$V_O=5V, I_O=5mA$	56			
Input resistance	R_I		15.4	22	28.6	k Ω
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

Typical Characteristics

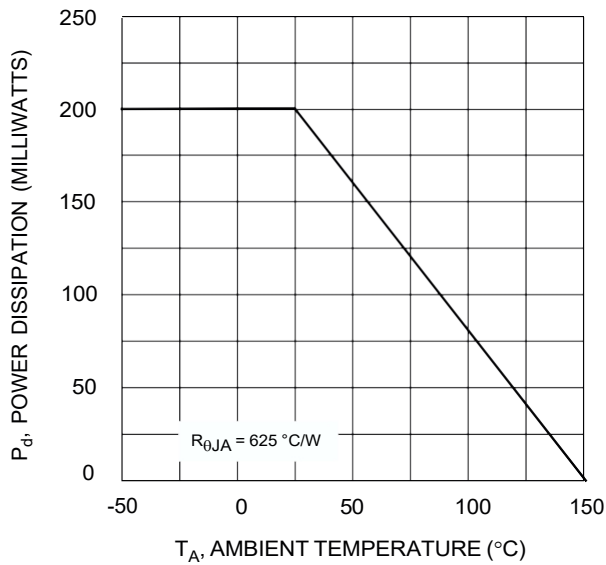


Fig. 1 Derating Curve

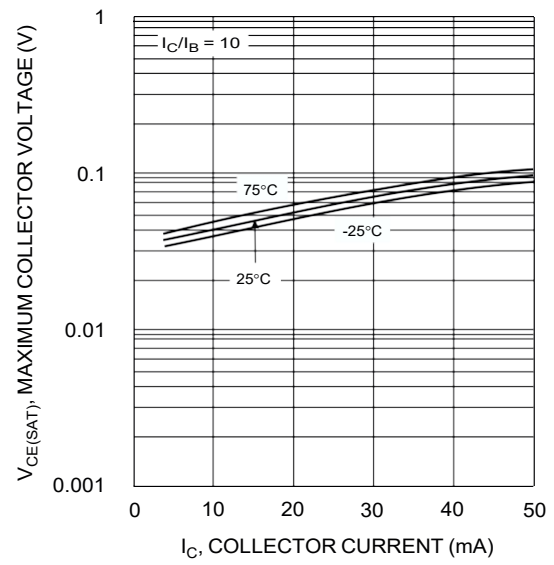
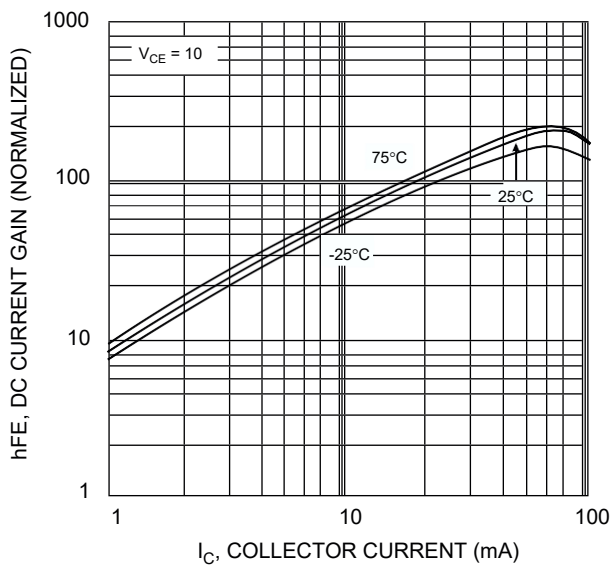
Fig. 2 $V_{CE(SAT)}$ vs. I_C 

Fig. 3 DC CURRENT GAIN

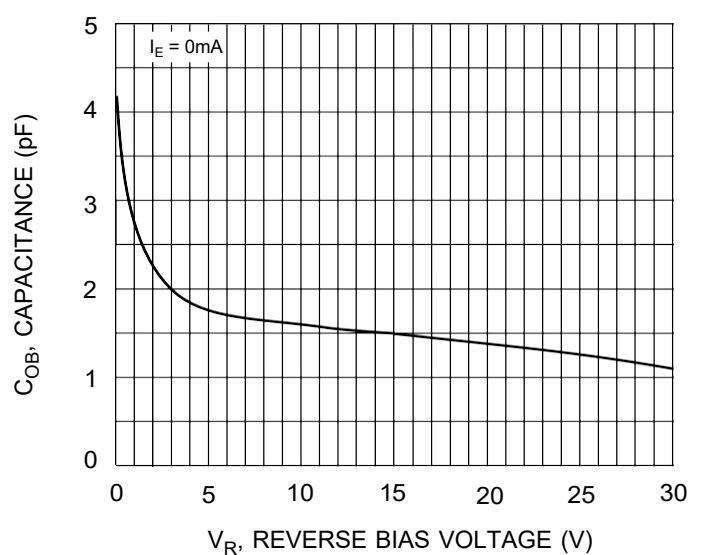


Fig. 4 Output Capacitance

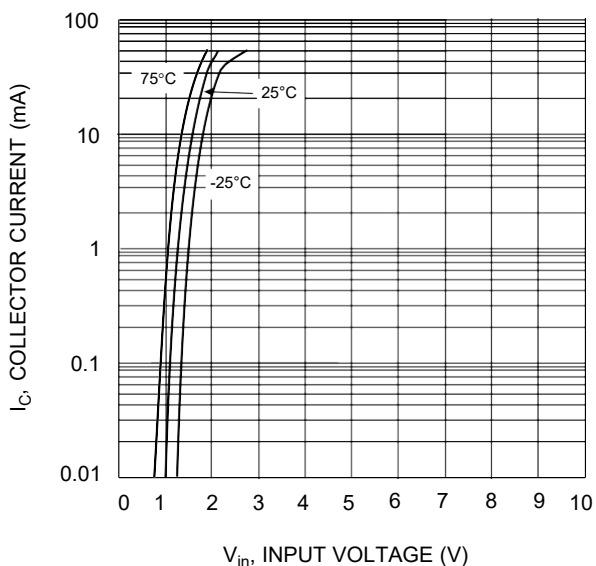


Fig. 5 Collector Current Vs. Input Voltage

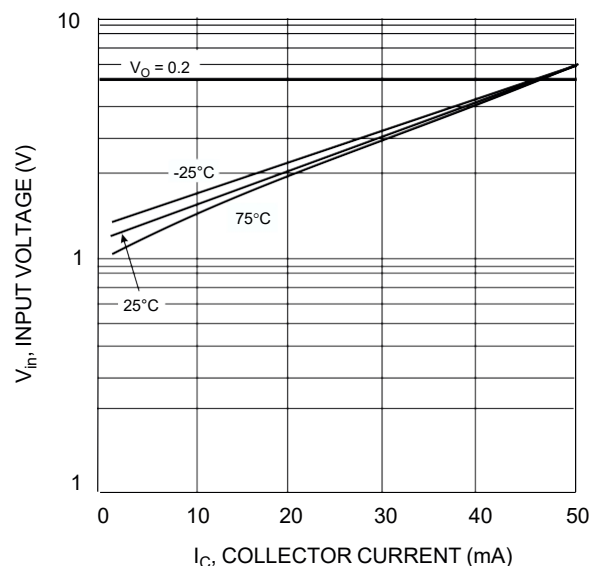
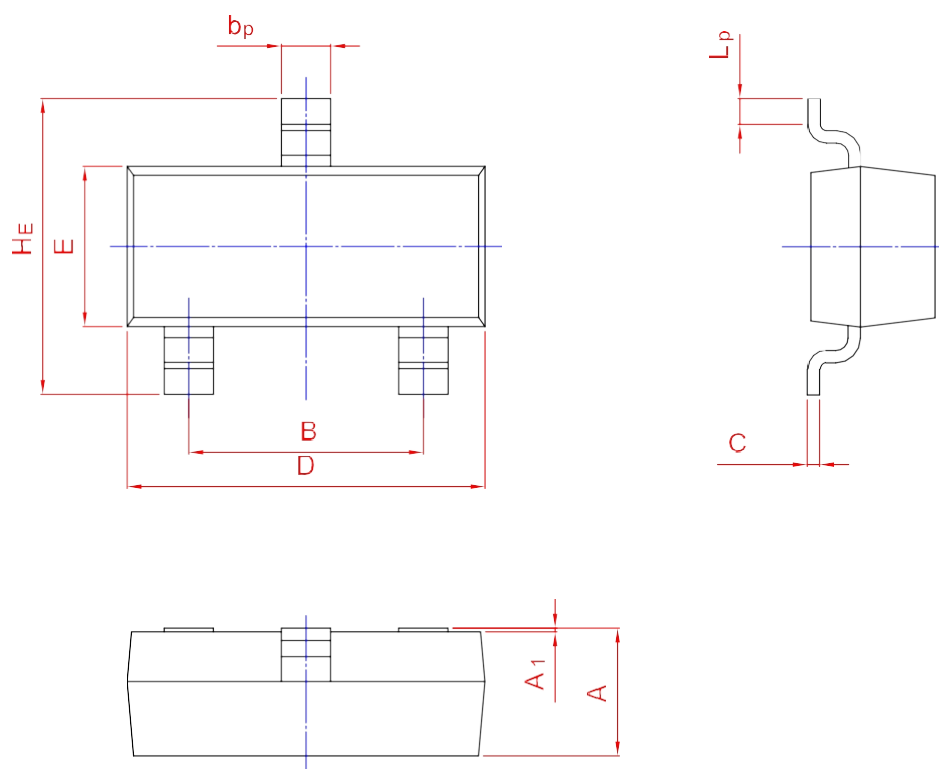
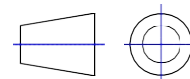


Fig. 6 Input Voltage vs. Collector Current

PACKAGE OUTLINE

Plastic surface mounted package; 3 leads

SOT-23



UNIT	A	B	b _p	C	D	E	H _E	A ₁	L _p
mm	1.40 0.95	2.04 1.78	0.50 0.35	0.19 0.08	3.10 2.70	1.65 1.20	3.00 2.20	0.100 0.013	0.50 0.20