



Digital Transistors (Built-in Resistors)

DTC124TCA DIGITAL TRANSISTOR (NPN)

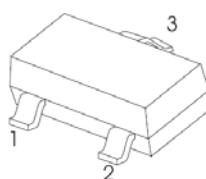
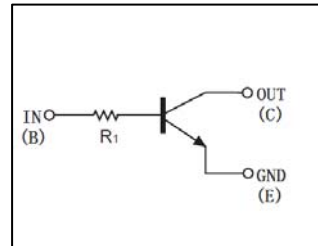
FEATURES

- 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

APPLICATIONS

- General purpose switching and amplification
- Inverter and interface circuits
- Circuit driver

PIN CONNENCTIONS, MARKING and EQUIVALENT CIRCUIT

<p>DTC124TCA</p>  <p>MARKING:05</p>	<p>SOT-23</p> <p>1.IN</p> <p>2.GND</p> <p>3.OUT</p>	<p>Equivalent Circuit</p> 
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MAXIMUM RATINGS(Ta=25°C unless otherwise noted)

Symbol	Parameter	Limit	Unit
V_{CBO}	Collector-Base Voltage	50	V
V_{CEO}	Collector-Emitter Voltage	50	V
V_{EBO}	Emitter-Base Voltage	5	V
I_c	Collector Current	100	mA
P_D	Power Dissipation	200	mW
T_j	Junction Temperature	150	°C
T_{stg}	Storage Temperature	-55~+150	°C

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C=50\mu A, I_E=0$	50			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C=1mA, I_B=0$	50			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E=50\mu A, I_C=0$	5			V
Collector cut-off current	I_{CBO}	$V_{CB}=50V, I_E=0$			0.5	μA
Emitter cut-off current	I_{EBO}	$V_{EB}=4V, I_C=0$			0.5	μA
DC current gain	h_{FE}	$V_{CE}=5V, I_C=1mA$	100		600	
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C=5mA, I_B=0.5mA$			0.3	V
Transition frequency	f_T	$V_{CE}=10V, I_C=5mA, f=100MHz$		250		MHz
Input resistor	R_1		15.4	22	28.6	k Ω