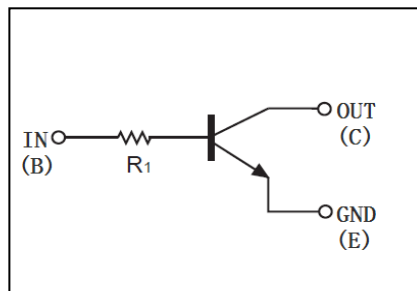


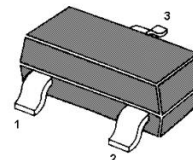
Digital Transistors (Built-in Resistors)

DIGITAL TRANSISTOR (NPN)

• Equivalent Circuit



SOT-23



Marking Code: 03

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

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

Symbol	Parameter	Limits(DTC143TCA)	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	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
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C=5mA, I_B=0.25mA$			0.3	V
DC current gain	h_{FE}	$V_{CE}=5V, I_C=1mA$	100		600	
Input resistor	R_1		3.29	4.7	6.11	k Ω
Transition frequency	f_T	$V_{CE}=10V, I_E=-5mA, f=100MHz$		250		MHz

Typical Characteristics

