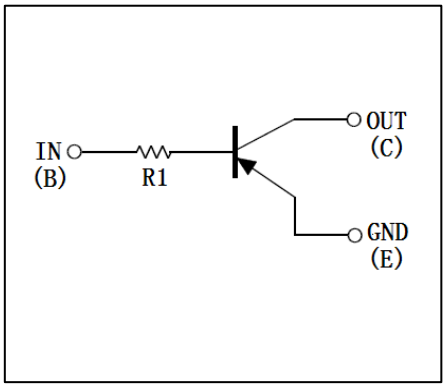
Digital Transistors (Built-in Resistors)

DIGITAL TRANSISTOR (PNP)

• **Equivalent Circuit**

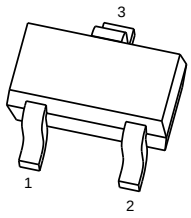


FEATURES

- 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

PIN CONNENCTIONS and MARKING

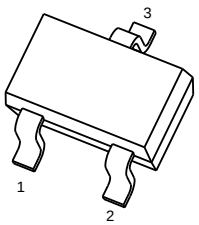
DTA143TE — **SOT-523**



1. IN
2. GND
3. OUT

MARKING:93

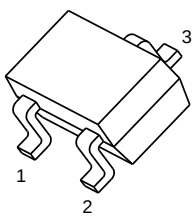
DTA143TUA — **SOT-323**



1. IN
2. GND
3. OUT

MARKING:93

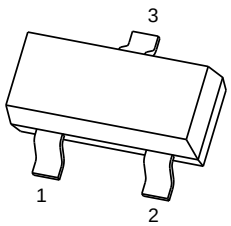
DTA143TKA — **SOT-23-3L**



1. IN
2. GND
3. OUT

MARKING:93

DTA143TCA — **SOT-23**



1.IN
2.GND
3.OUT

MARKING:93

MAXIMUM RATINGS(Ta=25℃ unless otherwise noted)

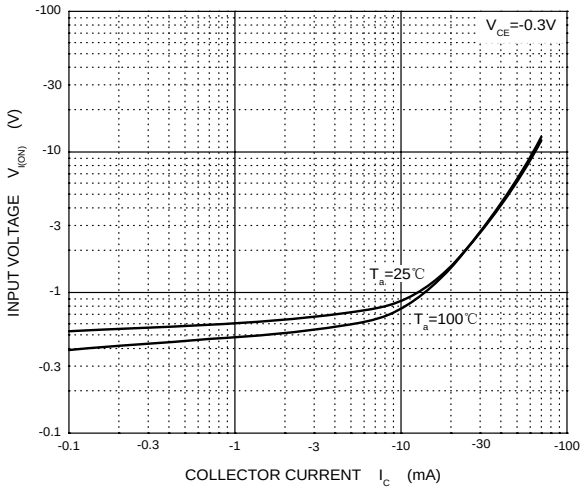
Symbol	Parameter	Limits(DTA143T□)				Unit
		E	UA	KA	CA	
V_{CBO}	Collector-Base Voltage	-50				V
V_{CEO}	Collector-Emitter Voltage	-50				V
V_{EBO}	Emitter-Base Voltage	-5				V
I_C	Collector Current	-100				mA
P_D	Power Dissipation	150	200	200	200	mW
T_j	Junction Temperature	150				℃
T_{stg}	Storage Temperature	-55～+150				℃

ELECTRICAL CHARACTERISTICS (Ta=25℃ unless otherwise specified)

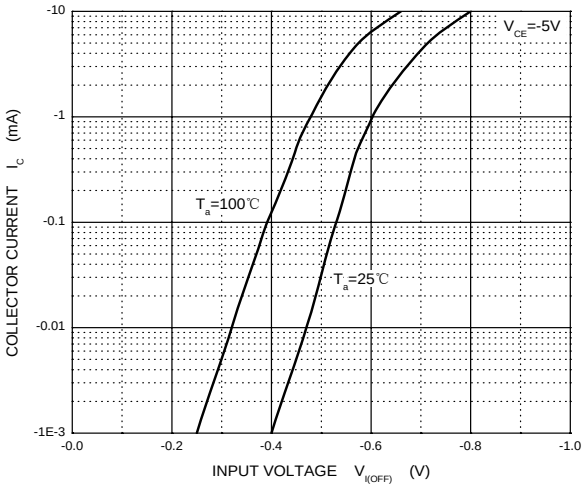
Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	$V_{(BR)CBO}$	Ic=-50μA,I_E=0	-50			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	Ic=-1mA,I_B=0	-50			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	I_E=-50μA,I_C=0	-5			V
Collector cut-off current	I_{CBO}	V_{CB}=-50V,I_E=0			-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	kΩ
Transition frequency	f_T	V_{CE}=-10V,I_E=5mA, f=100MHz		250		MHz

Typical Characteristics

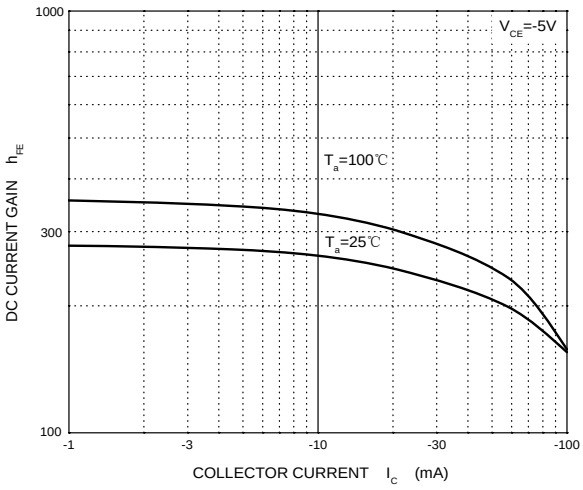
ON Characteristics



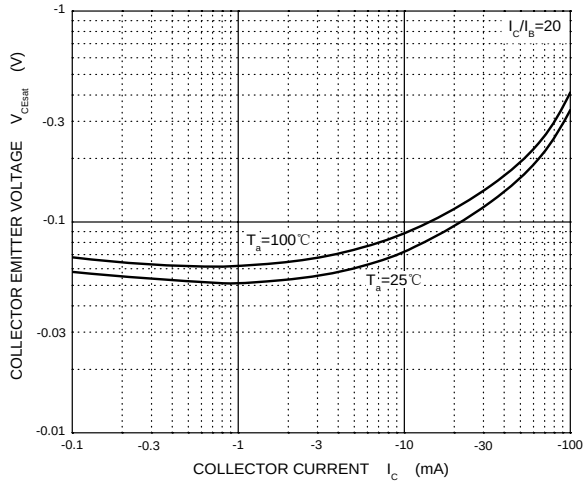
OFF Characteristics



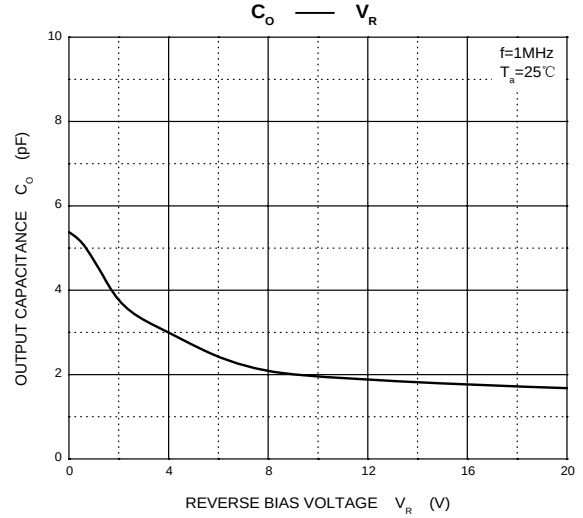
h_{FE} —— I_C



V_{CEsat} —— I_C



C_O —— V_R



P_D —— T_a