



# DTC144E

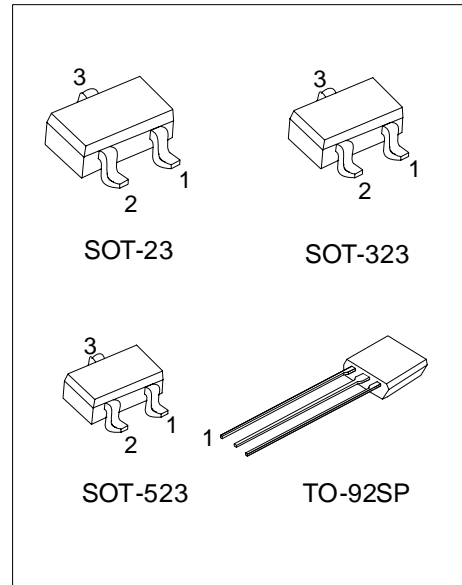
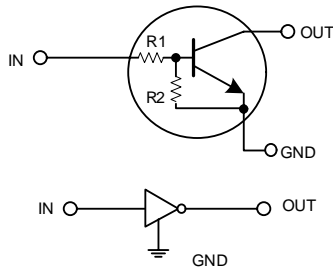
## NPN SILICON TRANSISTOR

### NPN DIGITAL TRANSISTOR (BUILT-IN BIAS RESISTORS)

#### FEATURES

- \* Built-in bias resistors that implies easy ON/OFF applications.
- \* The bias resistors are thin-film resistors with complete isolation to allow negative input.

#### EQUIVALENT CIRCUIT



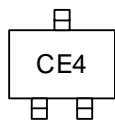
\*Pb-free plating product number:DTC144EL

#### ORDERING INFORMATION

Order Number		Package	Pin Assignment			Packing
Normal	Lead Free Plating		1	2	3	
DTC144E-AE3-R	DTC144EL-AE3-R	SOT-23	G	I	O	Tape Reel
DTC144E-AL3-R	DTC144EL-AL3-R	SOT-323	G	I	O	Tape Reel
DTC144E-AN3-R	DTC144EL-AN3-R	SOT-523	G	I	O	Tape Reel
DTC144E-T9S-R	DTC144EL-T9S-R	TO-92SP	G	O	I	Tape Reel

<p>DTC144EL-AE3-R</p> <p>(1)Packing Type (2)Package Type (3)Lead Plating</p>	<p>(1) R: Tape Reel (2) AE3: SOT-23, AL3: SOT-323, AN3: SOT-523 (3) L: Lead Free Plating, Blank: Pb/Sn</p>
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#### MARKING(For SOT Package)



■ ABSOLUTE MAXIMUM RATINGS (Ta = 25 )

PARAMETER		SYMBOL	RATINGS	UNIT
Supply Voltage		V <sub>CC</sub>	50	V
Input Voltage		V <sub>IN</sub>	-10 ~ +12	V
Output Current		I <sub>OUT</sub>	100	mA
		I <sub>OUT(MAX)</sub>	100	mA
Power Dissipation	TO-92SP	P <sub>C</sub>	300	mW
	SOT-523		150	mW
	SOT-23/SOT-323		200	mW
Junction Temperature		T <sub>J</sub>	+150	
Storage Temperature		T <sub>STG</sub>	-55~+150	

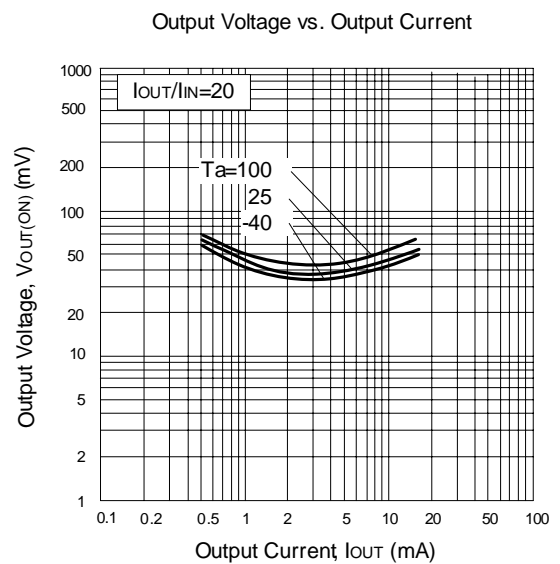
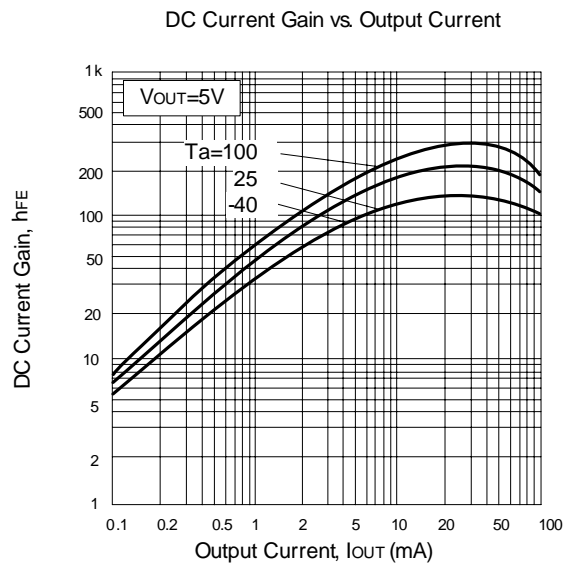
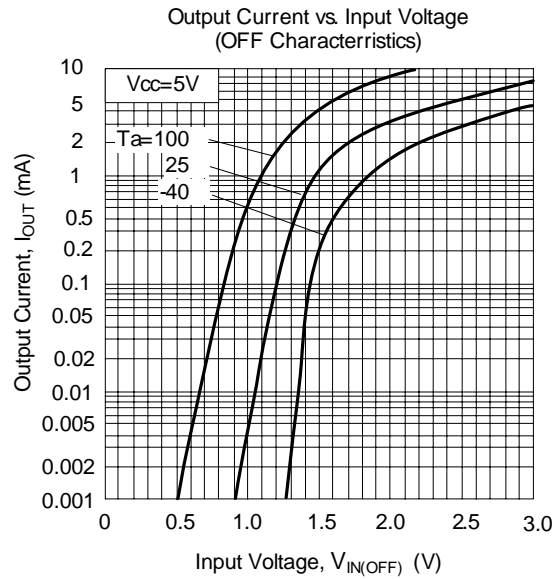
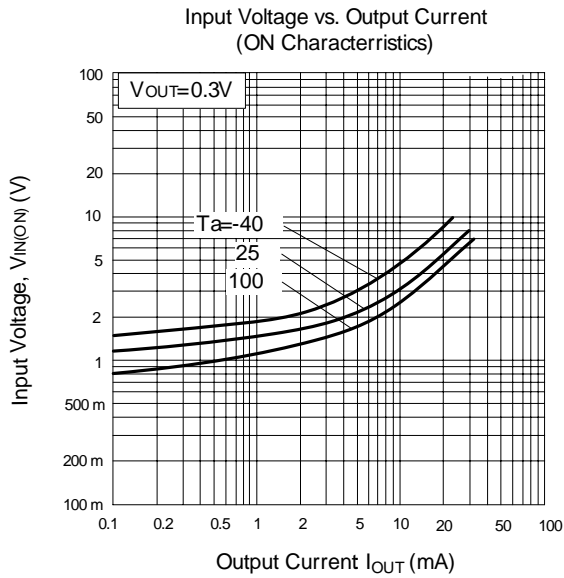
Note Absolute maximum ratings are those values beyond which the device could be permanently damaged.

Absolute maximum ratings are stress ratings only and functional device operation is not implied.

■ ELECTRICAL CHARACTERISTICS (Ta= 25 , unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Input Voltage	V <sub>IN(OFF)</sub>	V <sub>CC</sub> = 5V, I <sub>OUT</sub> =100 μ A			0.5	V
	V <sub>IN(ON)</sub>	V <sub>OUT</sub> = 0.3V, I <sub>OUT</sub> = 20mA	3			
Output Voltage	V <sub>OUT(ON)</sub>	I <sub>OUT</sub> /I <sub>IN</sub> = 10mA / 0.5 mA			0.3	V
Input Current	I <sub>IN</sub>	V <sub>IN</sub> = 5V			0.18	mA
Output Current	I <sub>OUT(OFF)</sub>	V <sub>CC</sub> = 50V , V <sub>IN</sub> =0V			0.5	μ A
DC Current Gain	h <sub>FE</sub>	V <sub>OUT</sub> = 5V, I <sub>OUT</sub> = 5mA	68			
Input Resistance	R1		32.9	47	61.1	k
Resistance Ratio	R2/R1		0.8	1	1.2	
Transition Frequency	f <sub>T</sub>	V <sub>CE</sub> = 10 V, I <sub>E</sub> = -5mA, f=100MHz		250		MHz

## TYPICAL CHARACTERISTICS



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