

DTC144E

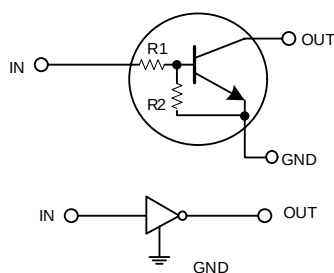
NPN SILICON TRANSISTOR

NPN DIGITAL TRANSISTOR (BUILT- IN BIAS RESISTORS)

■ FEATURES

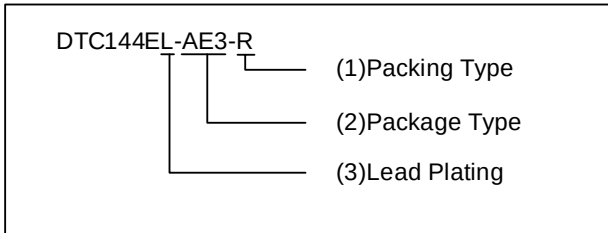
- * Built-in bias resistors that implies easy ON/OFF applications.
- * The bias resistors are thin-film resistors with complete isolation to allow negative input.

■ EQUIVALENT CIRCUIT

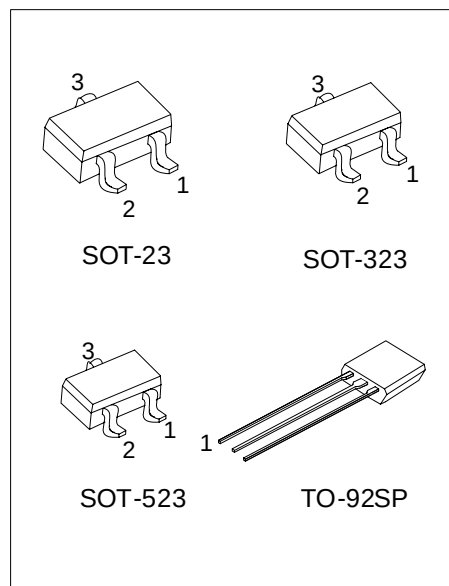
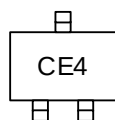


■ ORDERING INFORMATION

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

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



*Pb-free plating product number:DTC144EL

■ ABSOLUTE MAXIMUM RATINGS (Ta = 25°C)

PARAMETER		SYMBOL	RATINGS	UNIT
Supply Voltage		V_{CC}	50	V
Input Voltage		V_{IN}	-10 ~ +12	V
Output Current		I_{OUT}	100	mA
		$I_{OUT(MAX)}$	100	mA
Power Dissipation	TO-92SP	P_C	300	mW
	SOT-523		150	mW
	SOT-23/SOT-323		200	mW
Junction Temperature		T_J	+150	°C
Storage Temperature		T_{STG}	-55~+150	°C

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

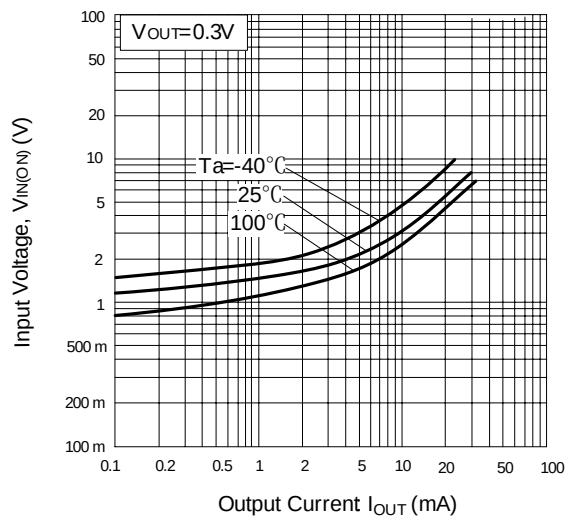
Absolute maximum ratings are stress ratings only and functional device operation is not implied.

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

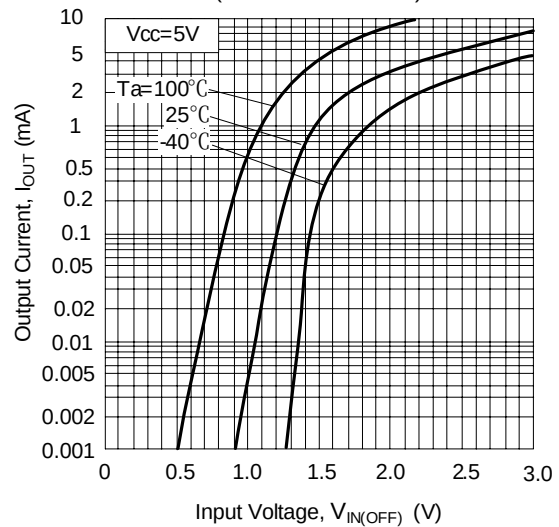
PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Input Voltage	$V_{IN(OFF)}$	$V_{CC} = 5V, I_{OUT} = 100 \mu A$			0.5	V
	$V_{IN(ON)}$	$V_{OUT} = 0.3V, I_{OUT} = 20mA$	3			
Output Voltage	$V_{OUT(ON)}$	$I_{OUT}/I_{IN} = 10mA / 0.5 mA$			0.3	V
Input Current	I_{IN}	$V_{IN} = 5V$			0.18	mA
Output Current	$I_{OUT(OFF)}$	$V_{CC} = 50V, V_{IN} = 0V$			0.5	μA
DC Current Gain	h_{FE}	$V_{OUT} = 5V, I_{OUT} = 5mA$	68			
Input Resistance	R_1		32.9	47	61.1	$k\Omega$
Resistance Ratio	R_2/R_1		0.8	1	1.2	
Transition Frequency	f_T	$V_{CE} = 10 V, I_E = -5mA, f = 100MHz$		250		MHz

■ TYPICAL CHARACTERISTICS

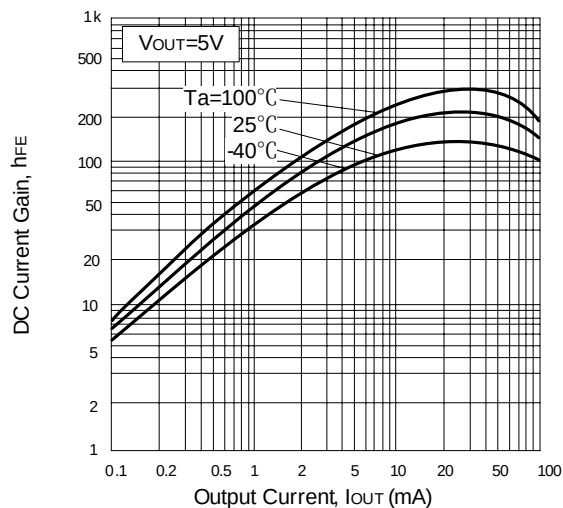
Input Voltage vs. Output Current
(ON Characteristics)



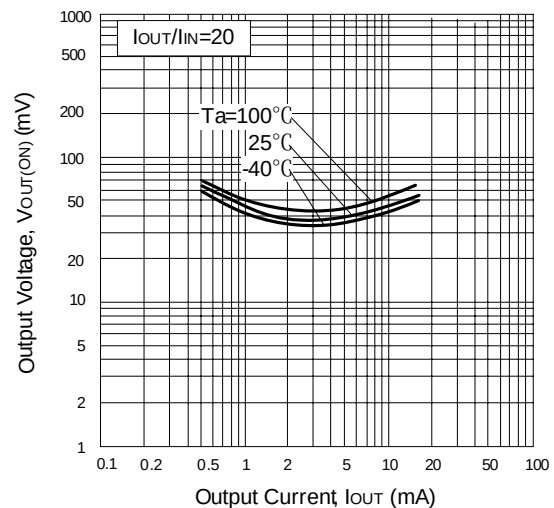
Output Current vs. Input Voltage
(OFF Characteristics)



DC Current Gain vs. Output Current



Output Voltage vs. Output Current



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