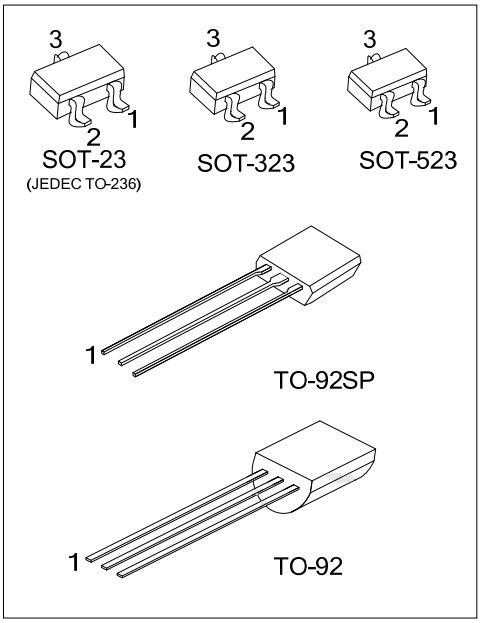
DTC114E

NPN SILICON TRANSISTOR

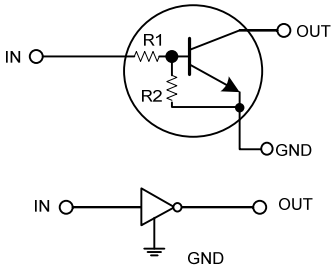
NPN DIGITAL TRANSISTOR (BUILT- IN BIAS RESISTORS)



■ 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

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
DTC114EL-AE3-R	DTC114EG-AE3-R	SOT-23	G	I	O	Tape Reel
DTC114EL-AL3-R	DTC114EG-AL3-R	SOT-323	G	I	O	Tape Reel
DTC114EL-AN3-R	DTC114EG-AN3-R	SOT-523	G	I	O	Tape Reel
DTC114EL-T92-B	DTC114EG-T92-B	TO-92	G	O	I	Tape Box
DTC114EL-T92-K	DTC114EG-T92-K	TO-92	G	O	I	Bulk
DTC114EL-T92-R	DTC114EG-T92-R	TO-92	G	O	I	Tape Reel
DTC114EL-T9S-K	DTC114EG-T9S-K	TO-92SP	G	O	I	Bulk

DTC114EL-AE3-R

(1)Packing Type

(2)Package Type

(3)Lead Free

(1) B: Tape Box, K: Bulk, R: Tape Reel

(2) AE3: SOT-23, AL3: SOT-323, AN3: SOT-523
T92: TO-92, T9S: TO-92SP

(3) G: Halogen Free, L: Lead Free

■ MARKING (FOR SOT-23/SOT-323/SOT-523 PACKAGE)

Product Code	Lead Free	Halogen Free
CB4E	CB4E	CB4E

■ ABSOLUTE MAXIMUM RATINGS (T_A=25°C, unless others specified)

PARAMETER		SYMBOL	RATINGS	UNIT
Supply Voltage		V_{CC}	50	V
Input Voltage		V_{IN}	-10 ~ +40	V
Output Current		I_{OUT}	100	mA
Power Dissipation	SOT-23/SOT-323	P_D	200	mW
	SOT-523		150	
	TO-92		625	
	TO-92SP		550	
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.

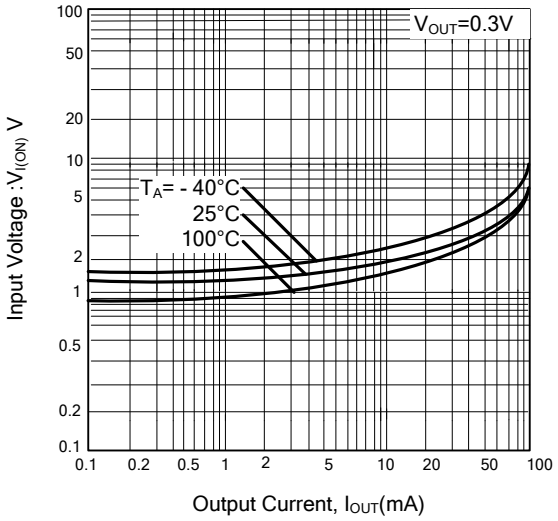
■ ELECTRICAL CHARACTERISTICS (T_A=25°C, unless others specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Input Voltage	$V_{IN(OFF)}$	V_{CC} =5V, I_{OUT} =100μA			0.5	V
	$V_{IN(ON)}$	V_{OUT} =0.3V, I_{OUT} =10mA	3			V
Output Voltage	$V_{OUT(ON)}$	I_{OUT}/I_{IN} =10mA/0.5mA		0.1	0.3	V
Input Current	I_{IN}	V_{IN}=5V			0.88	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	30			
Input Resistance	R_1		7	10	13	KΩ
Resistor Ratio	R_2/R_1		0.8	1	1.2	
Transition Frequency	f_T	V_{CE} =10V, I_E =−5mA, f=100MHz (Note)		250		MHz

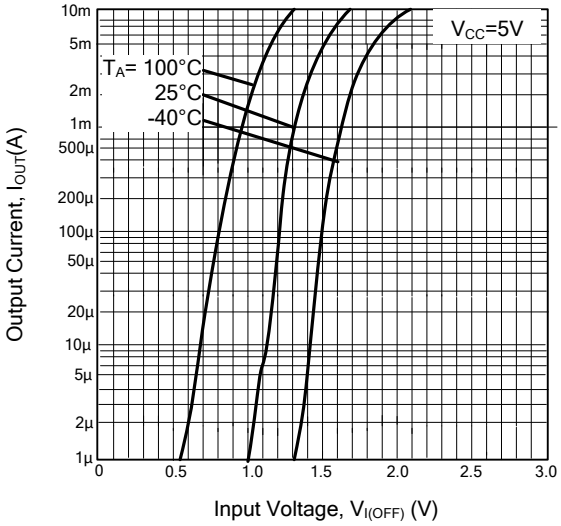
Note: Transition frequency of the device

■ TYPICAL CHARACTERISTICS

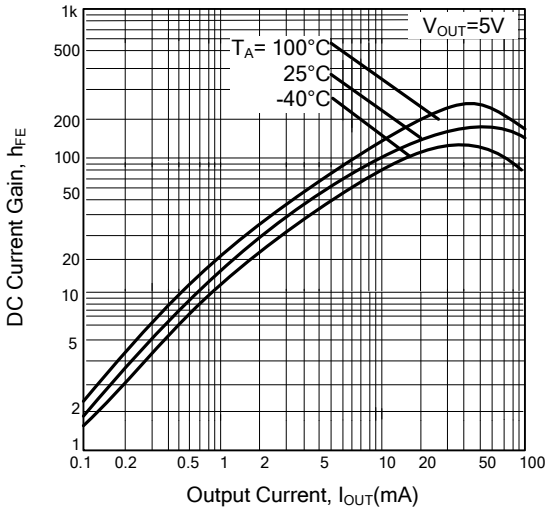
Input Voltage vs. Output Current
(ON Characteristics)



Output Current vs. Input Voltage
(OFF characteristics)



DC Current Gain vs. Output Current



Output Voltage vs. Output Current