



DTC114Y

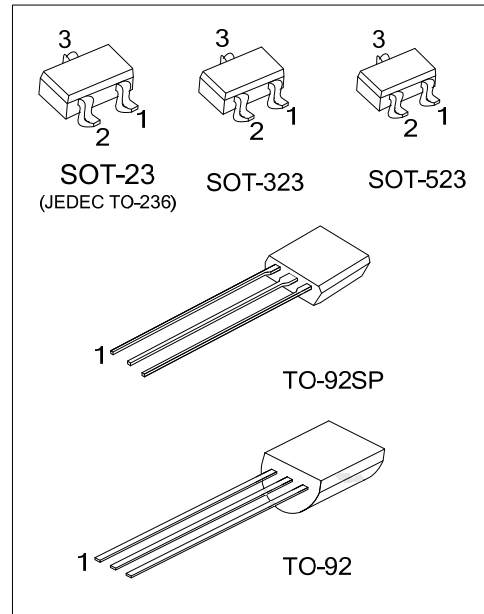
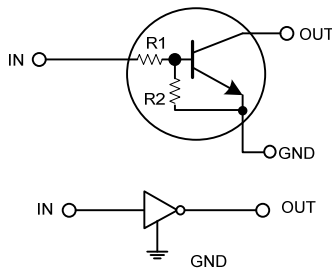
NPN SILICON TRANSISTOR

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	
-	DTC114YG-AE3-R	SOT-23	G	I	O	Tape Reel
-	DTC114YG-AL3-R	SOT-323	G	I	O	Tape Reel
-	DTC114YG-AN3-R	SOT-523	G	I	O	Tape Reel
DTC114YL-T92-K	DTC114YG-T92-K	TO-92	G	O	I	Bulk
DTC114YL-T92-B	DTC114YG-T92-B	TO-92	G	O	I	Tape Box
DTC114YL-T9S-K	DTC114YG-T9S-K	TO-92SP	G	O	I	Bulk
DTC114YL-T9S-B	DTC114YG-T9S-B	TO-92SP	G	O	I	Tape Box

Note: Pin Assignment: G: GND I: IN O: OUT

<p>DTC114YG-AE3-R</p> <p>(1) Packing Type (2) Package Type (3) Green Package</p>	<p>(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 and Lead Free, L: Lead Free</p>
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■ MARKING

SOT-23 / SOT-323 / SOT-523	TO-92	TO-92SP
	<p>L: Lead Free G: Halogen Free Data Code</p>	<p>L: Lead Free G: Halogen Free Data Code</p>

■ ABSOLUTE MAXIMUM RATINGS ($T_A=25^{\circ}\text{C}$, unless others specified)

PARAMETER		SYMBOL	RATINGS	UNIT
Supply Voltage		V_{CC}	50	V
Input Voltage		V_{IN}	-6 ~ +40	V
Output Current		I_{OUT}	70	mA
		$I_{O(MAX.)}$	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	$^{\circ}\text{C}$
Storage Temperature		T_{STG}	-55 ~ +150	$^{\circ}\text{C}$

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.

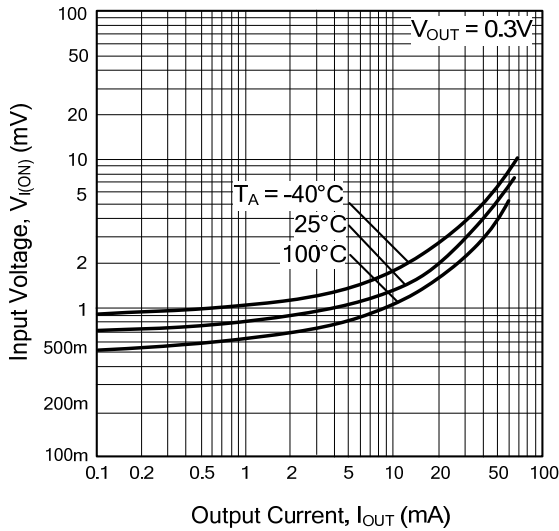
■ ELECTRICAL SPECIFICATIONS ($T_A=25^{\circ}\text{C}$, unless others specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Input Voltage	$V_{IN(OFF)}$	$V_{CC}=5\text{V}, I_{OUT}=100\mu\text{A}$			0.3	V
	$V_{IN(ON)}$	$V_{OUT}=0.3\text{V}, I_{OUT}=1\text{mA}$	1.4			V
Output Voltage	$V_{OUT(ON)}$	$I_{OUT}/I_{IN}=5\text{mA}/0.25\text{mA}$		0.1	0.3	V
Input Current	I_{IN}	$V_{IN}=5\text{V}$			0.88	mA
Output Current	$I_{OUT(OFF)}$	$V_{CC}=50\text{V}, V_{IN}=0\text{V}$			0.5	μA
DC Current Gain	h_{FE}	$V_{OUT}=5\text{V}, I_{OUT}=5\text{mA}$	68			
Input Resistance	R_1		7	10	13	K Ω
Resistor Ratio	$\frac{R_2}{R_1}$		3.7	4.7	5.7	
Transition Frequency	f_T	$V_{CE}=10\text{V}, I_E=-5\text{mA}, f=100\text{MHz}$		250		MHz

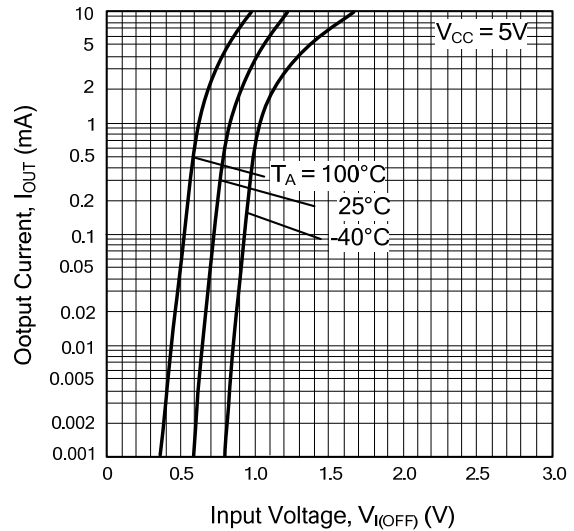
Note: Transition frequency of the device

TYPICAL CHARACTERISTICS

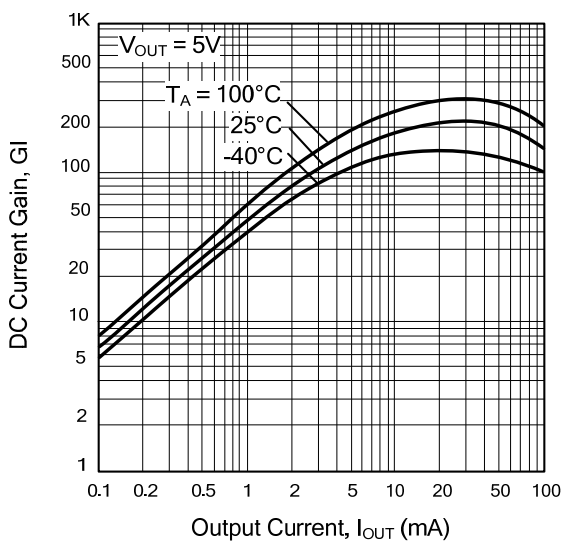
Input Voltage vs. Output Current
(ON Characteristics)



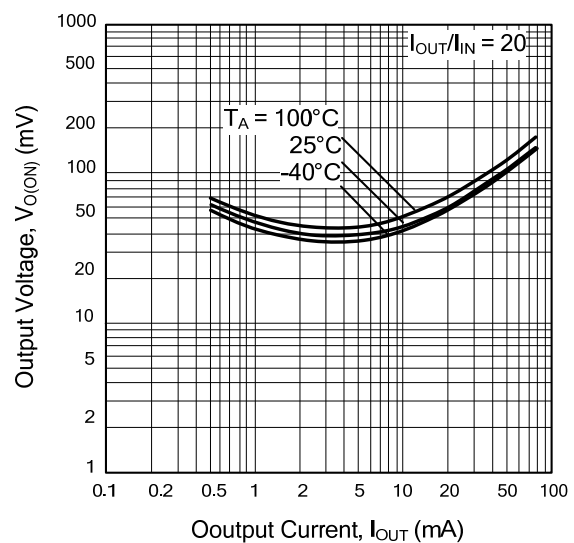
Output Current vs. Input Voltage
(OFF Characteristics)



DC Current Gain vs. Output Current



Output Voltage vs. Output Current



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