



## DBC2314

## DUAL TRANSISTOR

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

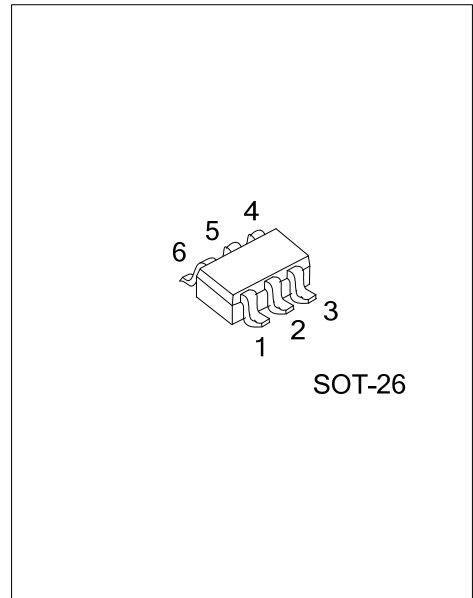
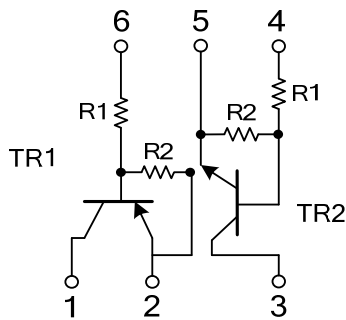
#### DESCRIPTION

- \* Both the DTB123Y chip and DTC114Y chip in a SOT-26 package.
- \* NPN/PNP silicon transistor(Built-in resistor type)

#### FEATURES

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

#### EQUIVALENT CIRCUITS



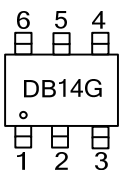
#### ORDERING INFORMATION

Ordering Number	Package	Pin Assignment						Packing
		1	2	3	4	5	6	
DBC2314G-AG6-R	SOT-26	C1	E1	C2	B2	E2	B1	Tape Reel

Note: Pin Assignment: C: Collector B: Base E: Emitter

<p>DBC2314G-AG6-R</p> <p>(1) Packing Type</p> <p>(2) Package Type</p> <p>(3) Green Package</p>	<p>(1) R: Tape Reel</p> <p>(2) AG6: SOT-26</p> <p>(3) G: Halogen Free and Lead Free</p>
--	---

#### MARKING



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

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	TR1	-50	V
	TR2	50	V
Input Voltage	TR1	-12~+5	V
	TR2	-6~+40	V
Output Current	TR1	-500	mA
	TR2	100	mA
Power Dissipation	$P_D$	200	mW
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 CHARACTERISTICS ( $T_A=25^{\circ}\text{C}$ , unless otherwise specified)

**TR1 (PNP)**

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
<b>OFF CHARACTERISTICS</b>						
Input Voltage	$V_{IN(OFF)}$	$V_{CC}=-5V, I_{OUT}=-100\mu\text{A}$			-0.3	V
	$V_{IN(ON)}$	$V_{OUT}=-0.3V, I_{OUT}=-20\text{mA}$	-2			
Output Voltage	$V_{OUT(ON)}$	$I_{OUT}/I_{IN}=-50\text{mA}/-2.5\text{mA}$		-0.1	-0.3	V
Input Current	$I_{IN}$	$V_{IN}=-5V$			-3.0	mA
Output Current	$I_{OUT(OFF)}$	$V_{CC}=-50V, V_{IN}=0V$			-0.5	$\mu\text{A}$
<b>ON CHARACTERISTICS</b>						
DC Current Gain	$h_{FE}$	$V_{OUT}=-5V, I_{OUT}=-50\text{mA}$	56			
<b>SMALL SIGNAL CHARACTERISTICS</b>						
Input Resistance	$R_1$		1.54	2.2	2.86	K $\Omega$
Resistor Ratio	$R_2/R_1$		3.6	4.5	5.5	
Transition Frequency (Note 1)	$f_T$	$V_{CE}=-10V, I_E=50\text{mA}, f=100\text{MHz}$		200		MHz

**TR2 (NPN)**

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

Note 1. Transition frequency of the device

UTC assumes no responsibility for equipment failures that result from using products at values that exceed, even momentarily, rated values (such as maximum ratings, operating condition ranges, or other parameters) listed in products specifications of any and all UTC products described or contained herein. UTC products are not designed for use in life support appliances, devices or systems where malfunction of these products can be reasonably expected to result in personal injury. Reproduction in whole or in part is prohibited without the prior written consent of the copyright owner. The information presented in this document does not form part of any quotation or contract, is believed to be accurate and reliable and may be changed without notice.