



DTNP113EC

Preliminary

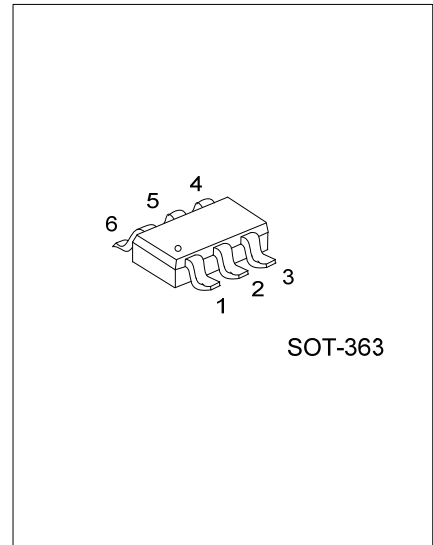
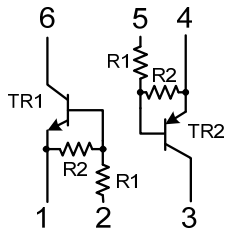
DUAL TRANSISTOR

**GENERAL PURPOSE
(DUAL DIGITAL TRANSISTOR)**

■ **FEATURES**

- * Both the DTB113EC chip and DTD113EC chip in a SOT-363 package
- * NPN/PNP silicon transistor(Built-in resistor type)

■ **EQUIVALENT CIRCUIT**



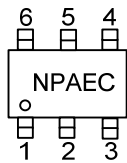
■ **ORDERING INFORMATION**

Ordering Number		Package	Pin Assignment						Packing
Lead Free	Halogen Free		1	2	3	4	5	6	
DTNP113ECL-AL6-R	DTNP113ECG-AL6-R	SOT-363	G1	I1	O2	G2	I2	O1	Tape Reel

Note: Pin Assignment: G: GND I: Input O: Output

<p>DTNP113ECG-AL6-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) AL6: SOT-363</p> <p>(3) G: Halogen Free and Lead Free, L: Lead Free</p>
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■ **MARKING**



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

PARAMETER	SYMBOL	RATINGS		UNIT
		TR1 (NPN)	TR2 (PNP)	
Supply Voltage	V_{CC}	50	-50	V
Input Voltage	V_{IN}	-10 ~ +10	-10 ~ +10	V
Output Current	I_{OUT}	500	-500	mA
Total Power Dissipation (120mW per element must not be exceeded)	P_D	150		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 (NPN)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Input Voltage	$V_{I(OFF)}$	$V_{CC}=5\text{V}$, $I_{OUT}=100\mu\text{A}$			0.5	V
	$V_{I(ON)}$	$V_{OUT}=0.3\text{V}$, $I_{OUT}=20\text{mA}$	3.0			
Output Voltage	$V_{O(ON)}$	$I_{OUT} / I_{IN}=50\text{mA}/2.5\text{mA}$			0.3	V
Input Current	I_i	$V_{IN}=5\text{V}$			7.2	mA
Output Current	$I_{O(OFF)}$	$V_{CC}=50\text{V}$, $V_{IN}=0\text{V}$			0.5	μA
DC Current Gain	h_{FE}	$V_{OUT}=5\text{V}$, $I_{OUT}=50\text{mA}$	33			
Input Resistance	R_1		0.7	1.0	1.3	k Ω
Resistance Ratio	R_2 / R_1		0.8	1.0	1.2	
Transition Frequency	f_T	$V_{CE}=10\text{V}$, $I_E=-50\text{mA}$, $f=100\text{MHz}$ (Note)		200		MHz

Note: Transition Frequency of the Device.

TR2 (PNP)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Input Voltage	$V_{I(OFF)}$	$V_{CC}=-5\text{V}$, $I_{OUT}=-100\mu\text{A}$			-0.5	V
	$V_{I(ON)}$	$V_{OUT}=-0.3\text{V}$, $I_{OUT}=-20\text{mA}$	-3.0			
Output Voltage	$V_{O(ON)}$	$I_{OUT} / I_{IN}=-50\text{mA}/-2.5\text{mA}$			-0.3	V
Input Current	I_i	$V_{IN}=-5\text{V}$			-7.2	mA
Output Current	$I_{O(OFF)}$	$V_{CC}=-50\text{V}$, $V_{IN}=0\text{V}$			-0.5	μA
DC Current Gain	G_i	$V_{OUT}=-5\text{V}$, $I_{OUT}=-50\text{mA}$	33			
Input Resistance	R_1		0.7	1.0	1.3	k Ω
Resistance Ratio	R_2 / R_1		0.8	1.0	1.2	
Transition Frequency	f_T	$V_{CE}=-10\text{V}$, $I_E=50\text{mA}$, $f=100\text{MHz}$ (Note)		200		MHz

Note: Transition Frequency of the Device.

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