



**DTNP123J**

Preliminary

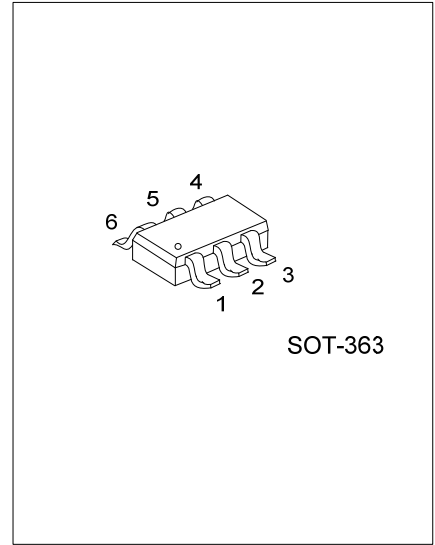
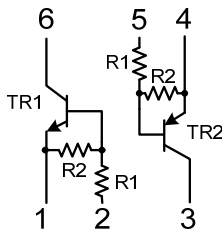
**DUAL TRANSISTOR**

**GENERAL PURPOSE  
(DUAL DIGITAL TRANSISTOR)**

■ **FEATURES**

- \* Both the DTA123J chip and DTC123J chip in a SOT-363 package.
- \* NPN/PNP silicon transistor(Built-in resistor type)

■ **EQUIVALENT CIRCUIT**



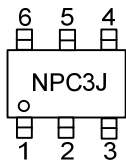
■ **ORDERING INFORMATION**

Ordering Number		Package	Pin Assignment						Packing
Lead Free	Halogen Free		1	2	3	4	5	6	
DTNP123JL-AL6-R	DTNP123JG-AL6-R	SOT-363	G1	I1	O2	G2	I2	O1	Tape Reel

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

<p>DTNP123JG-AL6-R</p> <ul style="list-style-type: none"> <li>(1)Packing Type</li> <li>(2)Package Type</li> <li>(3)Green Package</li> </ul>	<ul style="list-style-type: none"> <li>(1) R: Tape Reel</li> <li>(2) AL6: SOT-363</li> <li>(3) G: Halogen Free and Lead Free, L: Lead Free</li> </ul>
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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	$V_{IN}$	-5 ~ +12	-12 ~ +5	V
Output Current	$I_{OUT}$	100	-100	mA
	$I_{C(MAX)}$	100	-100	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	$V_{I(OFF)}$	$V_{CC}=5V, I_o=100\mu\text{A}$			0.5	V
	$V_{I(ON)}$	$V_o=0.3V, I_o=5\text{mA}$	1.1			
Output Voltage	$V_{O(ON)}$	$I_o/I_i=5\text{mA}/0.25\text{mA}$		0.1	0.3	V
Input Current	$I_i$	$V_i=5V$			3.6	mA
Output Current	$I_{O(OFF)}$	$V_{CC}=50V, V_i=0V$			0.5	$\mu\text{A}$
DC Current Gain	$h_{FE}$	$V_o=5V, I_o=10\text{mA}$	80			
Input Resistance	$R_1$		1.54	2.2	2.86	K $\Omega$
Resistance Ratio	$R_2/R_1$		17	21	26	
Transition Frequency	$f_T$	$V_{CE}=10V, I_E=-5\text{mA}, f=100\text{MHz}$ (Note)		250		MHz

Note: Transition Frequency of the Device.

**TR2 (PNP)**

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Input Voltage	$V_{I(OFF)}$	$V_{CC}=-5V, I_o=-100\mu\text{A}$			-0.5	V
	$V_{I(ON)}$	$V_o=-0.3V, I_o=-5\text{mA}$	-1.1			
Output Voltage	$V_{O(ON)}$	$I_o/I_i=-5\text{mA}/-0.25\text{mA}$		-0.1	-0.3	V
Input Current	$I_i$	$V_i=-5V$			-3.6	mA
Output Current	$I_{O(OFF)}$	$V_{CC}=-50V, V_i=0V$			-0.5	$\mu\text{A}$
DC Current Gain	$G_I$	$V_o=-5V, I_o=-10\text{mA}$	80			
Input Resistance	$R_1$		1.54	2.2	2.86	K $\Omega$
Resistance Ratio	$R_2/R_1$		17	21	26	
Transition Frequency	$f_T$	$V_{CE}=-10V, I_E=-5\text{mA}, f=100\text{MHz}$ (Note)		250		MHz

Note: Transition Frequency of the Device.

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