



UD22K

Preliminary

DUAL TRANSISTOR

DIGITAL TRANSISTOR (BUILT-IN RESISTORS)

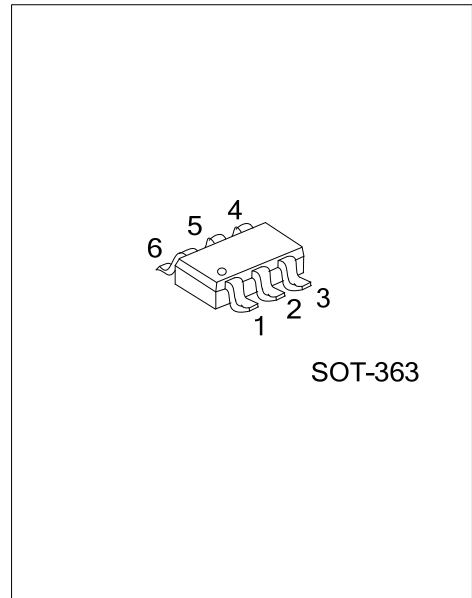
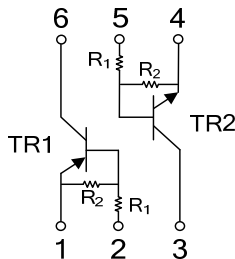
DESCRIPTION

The UTC **UD22K** is a dual transistor, including an NPN transistor and a PNP transistor.

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



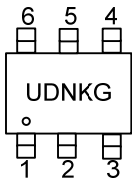
ORDERING INFORMATION

Ordering Number	Package	Pin Assignment						Packing
		1	2	3	4	5	6	
UD22KG-AL6-R	SOT-363	G1	I1	O2	G2	I2	O1	Tape Reel

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

<p>UD22KG-AL6-R</p>	<p>(1) R: Tape Reel (2) AL6: SOT-363 (3) G: Halogen Free and Lead Free</p>
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MARKING



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

PARAMETER	SYMBOL	LIMITS		UNIT
		TR1	TR2	
Collector-Emitter Voltage	V_{CEO}	50	-50	V
Collector-Base Voltage	V_{CBO}	-5 ~ + 30	-30 ~ + 5	V
Emitter-Base Voltage	V_{EBO}	100	-100	mA
Collector Current - Continuous	I_C	100	-100	mA
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.

■ THERMAL DATA

PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Ambient	θ_{JA}	415	$^\circ\text{C}/\text{W}$

■ ELECTRICAL CHARACTERISTICS ($T_A=25^\circ\text{C}$, unless otherwise noted)

TR1

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS						
Input Voltage	$V_{IN(OFF)}$	$I_C=100\mu\text{A}, I_B=0$			0.5	V
	$V_{IN(ON)}$	$I_C=10\mu\text{A}, I_E=0$	1.3			V
Output Voltage	$V_{OUT(ON)}$	$I_E=10\mu\text{A}, I_C=0$		0.1	0.3	V
Input Current	I_{IN}	$V_{IN}=5\text{V}$			1.8	mA
Output Current	$I_{O(OFF)}$	$V_{CC}=50\text{V}, V_{IN}=0\text{V}$			0.5	μA
ON CHARACTERISTICS						
DC Current Gain	h_{FE}	$V_{OUT}=5\text{V}, I_{OUT}=10\text{mA}$	80			
SMALL SIGNAL CHARACTERISTICS						
Transition Frequency	f_T	$V_{CE}=-10\text{V}, I_E=-5\text{mA}, f=100\text{MHz}$ (Note 1)		250		MHz
Input Resistance	R_1		3.29	4.7	6.11	K Ω
Resistance Ratio	R_2/R_1		8	10	12	

TR2

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS						
Input Voltage	$V_{IN(OFF)}$	$V_{CC}=-5\text{V}, I_{OUT}=-100\mu\text{A}$			-0.5	V
	$V_{IN(ON)}$	$V_{OUT}=-0.3\text{V}, I_{OUT}=-5\text{mA}$	-1.3			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}	$V_{IN}=-5\text{V}$			-1.8	mA
Output Current	$I_{O(OFF)}$	$V_{CC}=-50\text{V}, V_{IN}=0\text{V}$			-0.5	μA
ON CHARACTERISTICS						
DC Current Gain	h_{FE}	$V_{OUT}=5\text{V}, I_{OUT}=10\text{mA}$	80			
SMALL SIGNAL CHARACTERISTICS						
Transition Frequency	f_T	$V_{CE}=-10\text{V}, I_E=-5\text{mA}, f=100\text{MHz}$ (Note 1)		250		MHz
Input Resistance	R_1		3.29	3.7	6.11	K Ω
Resistance Ratio	R_2/R_1		8	10	12	

Note: Transition frequency of the device.

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