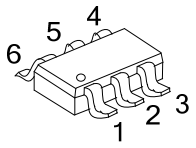
DIGITAL TRANSISTOR (BUILT-IN RESISTORS)



SOT-363

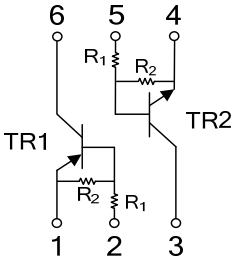
■ DESCRIPTION

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

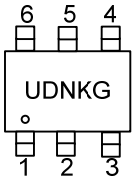
Ordering Number	Package	Pin Assignment						Packing
		1	2	3	4	5	6	
UD22KG-AL6-R	SOT-363	G1	I1	O2	G2	I2	O1	Tape Reel

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

UD22KG-AL6-R
(1)Packing Type
(2)Package Type
(3)Green Package

(1) R: Tape Reel
(2) AL6: SOT-363
(3) G: Halogen Free and Lead Free

■ MARKING



■ ABSOLUTE MAXIMUM RATINGS (T_A=25°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		°C
Storage Temperature	T_{STG}	-55~+150		°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	°C/W

■ ELECTRICAL CHARACTERISTICS (T_A=25°C, unless otherwise noted)

TR1

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS						
Input Voltage	$V_{IN(OFF)}$	I_C=100μA, I_B=0			0.5	V
	$V_{IN(ON)}$	I_C=10μA, I_E=0	1.3			V
Output Voltage	$V_{OUT(ON)}$	I_E=10μA, I_C=0		0.1	0.3	V
Input Current	I_{IN}	V_{IN}=5V			1.8	mA
Output Current	$I_{O(OFF)}$	V_{CC}=50V, V_{IN}=0V			0.5	μA
ON CHARACTERISTICS						
DC Current Gain	h_{FE}	V_{OUT}=5V, I_{OUT}=10mA	80			
SMALL SIGNAL CHARACTERISTICS						
Transition Frequency	f_T	V_{CE}=-10V, I_E=-5mA, f=100MHz (Note 1)		250		MHz
Input Resistance	R_1		3.29	4.7	6.11	KΩ
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}=-5V, I_{OUT}=-100μA			-0.5	V
	$V_{IN(ON)}$	V_{OUT}=-0.3V, I_{OUT}=-5mA	-1.3			V
Output Voltage	$V_{OUT(ON)}$	I_{OUT}/I_{IN}=-5mA/-0.25mA		-0.1	-0.3	V
Input Current	I_{IN}	V_{IN}=-5V			-1.8	mA
Output Current	$I_{O(OFF)}$	V_{CC}=-50V, V_{IN}=0V			-0.5	μA
ON CHARACTERISTICS						
DC Current Gain	h_{FE}	V_{OUT}=5V, I_{OUT}=10mA	80			
SMALL SIGNAL CHARACTERISTICS						
Transition Frequency	f_T	V_{CE}=-10V, I_E=-5mA, f=100MHz (Note 1)		250		MHz
Input Resistance	R_1		3.29	3.7	6.11	KΩ
Resistance Ratio	R_2/R_1		8	10	12	

Note: Transition frequency of the device.