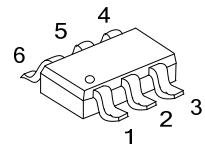
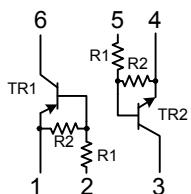


**UD12K****DUAL TRANSISTOR****GENERAL PURPOSE  
(DUAL DIGITAL TRANSISTOR)****■ FEATURES**

- \* Both the DTA144E chip and DTC144E chip in a SOT-363 package.
- \* NPN/PNP silicon transistor(Built-in resistor type)

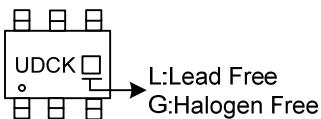
**■ EQUIVALENT CIRCUIT**

SOT-363

**■ ORDERING INFORMATION**

Ordering Number		Package	Pin Assignment						Packing
Lead Free	Halogen-Free		1	2	3	4	5	6	
UD12KL-AL6-R	UD12KG-AL6-R	SOT-363	E1	B1	C2	E2	B2	C1	Tape Reel

UD12KL-AL6-R 	(1)Packing Type (2)Package Type (3)Lead Free	(1) R: Tape Reel (2) AL6: SOT-363 (3) G: Halogen Free, L: Lead Free
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**■ MARKING**

■ ABSOLUTE MAXIMUM RATINGS ( $T_a=25^\circ C$ )

TR<sub>1</sub> (PNP)

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	$V_{CC}$	-50	V
Input Voltage	$V_{IN}$	-40~10	V
Output Current	$I_C$	-100	mA
Total Power Dissipation (120mW per element must not be exceeded)	$P_D$	150	mW
Junction Temperature	$T_J$	+150	°C
Storage Temperature	$T_{STG}$	-55 ~ +150	°C

TR<sub>2</sub> (NPN)

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	$V_{CC}$	50	V
Input Voltage	$V_{IN}$	-10~40	V
Output Current	$I_C$	100	mA
Total Power Dissipation (120mW per element must not be exceeded)	$P_D$	150	mW
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.

■ ELECTRICAL CHARACTERISTICS ( $T_a=25^\circ C$ )

TR<sub>1</sub> (PNP)

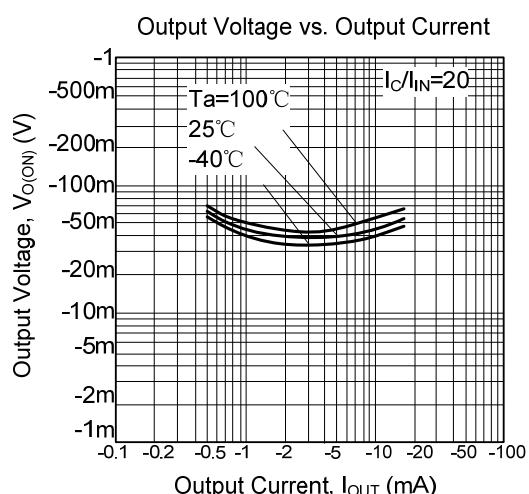
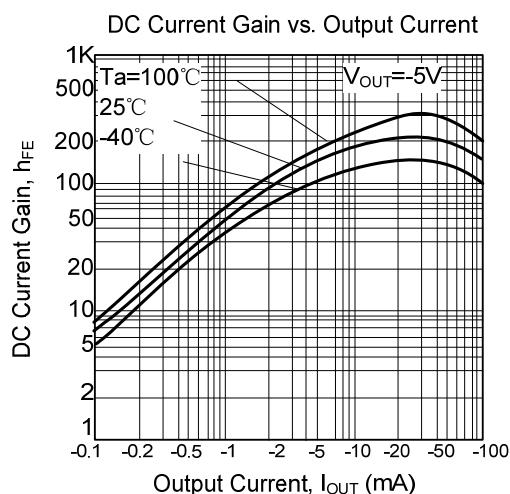
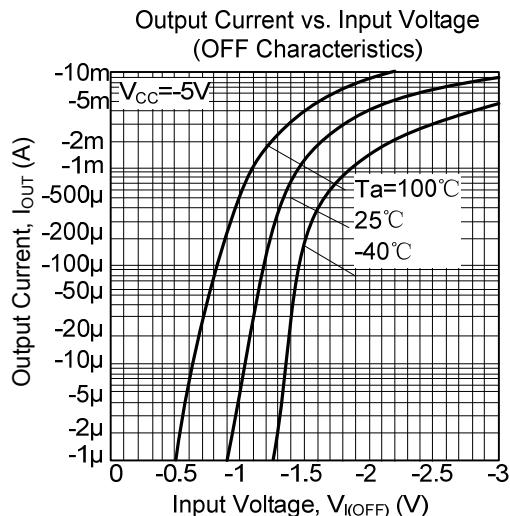
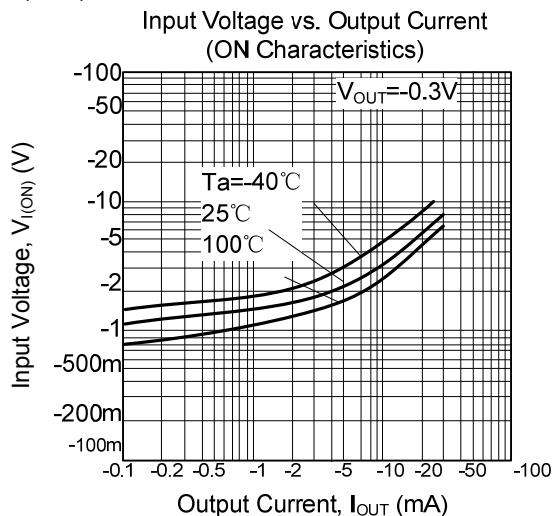
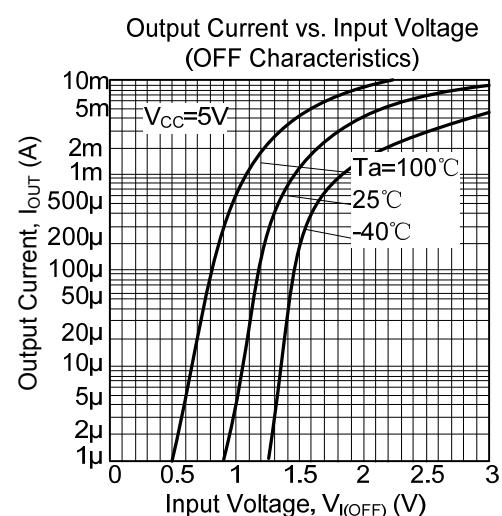
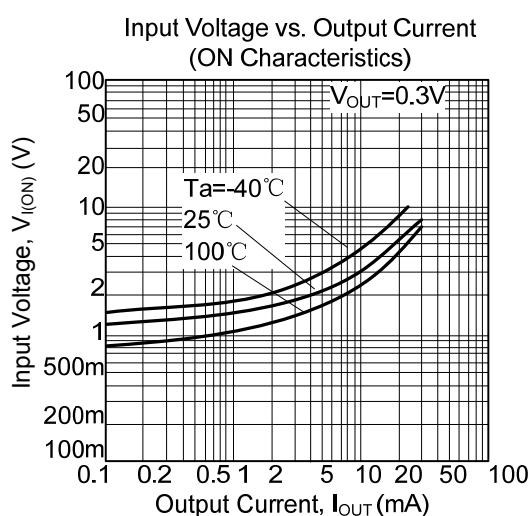
PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Input Voltage	$V_{I(OFF)}$	$V_{CC}=-5V, I_{OUT}=-100\mu A$			-0.5	V
	$V_{I(ON)}$	$V_{OUT}=-0.3V, I_{OUT}=-2mA$	-3			V
Output Voltage	$V_{O(ON)}$	$I_{OUT}=-10mA, I_{IN}=-0.5mA$		-0.1	-0.3	V
Input Current	$I_{IN}$	$V_{IN}=-5V$			-0.18	mA
Output Current	$I_{O(OFF)}$	$V_{CC}=-50V, V_{IN}=0V$			-0.5	μA
DC Current Gain	$h_{FE}$	$V_{OUT}=-5V, I_{OUT}=-5mA$	68			
Collector-Emitter Saturation Voltage	$V_{CE(SAT)}$	$I_C=5mA, I_B=0.25mA$		0.1	0.3	V
Transition Frequency	$f_T$	$V_{CE}=-10V, I_E=-5mA, f=100MHz$ (Note)		250		MHz
Input Resistance	$R_1$		32.9	47	61.1	KΩ
Resistance Ratio	$R_2/R_1$		0.8	1	1.2	

TR<sub>2</sub> (NPN)

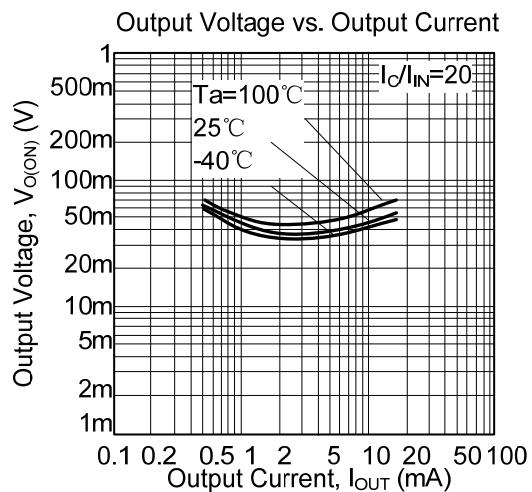
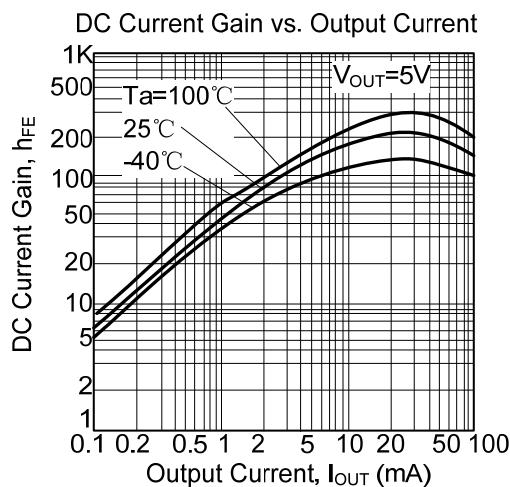
PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Input Voltage	$V_{I(OFF)}$	$V_{CC}=5V, I_{OUT}=100\mu A$			0.5	V
	$V_{I(ON)}$	$V_{OUT}=0.3V, I_{OUT}=2mA$	3			V
Output Voltage	$V_{O(ON)}$	$I_{OUT}=10mA, I_{IN}=0.5mA$		0.1	0.3	V
Input Current	$I_{IN}$	$V_{IN}=5V$			0.18	mA
Output Current	$I_{O(OFF)}$	$V_{CC}=50V, V_{IN}=0V$			0.5	μA
DC Current Gain	$h_{FE}$	$V_{OUT}=5V, I_{OUT}=5mA$	68			
Collector-Emitter Saturation Voltage	$V_{CE(SAT)}$	$I_C=-5mA, I_B=-0.25mA$		-0.1	-0.3	V
Transition Frequency	$f_T$	$V_{CE}=10V, I_E=-5mA, f=100MHz$ (Note)		250		MHz
Input Resistance	$R_1$		32.9	47	61.1	KΩ
Resistance Ratio	$R_2/R_1$		0.8	1	1.2	

Note: Transition frequency of the device

## ■ TYPICAL CHARACTERISTICS

TR<sub>1</sub> (PNP)TR<sub>2</sub> (NPN)

## ■ TYPICAL CHARACTERISTICS(Cont.)



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