



UMD2

DUAL TRANSISTOR

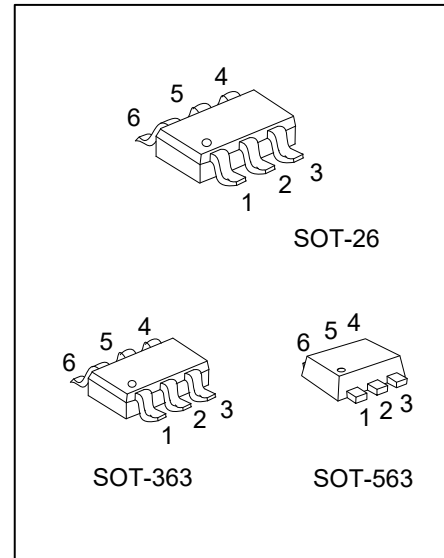
DUAL DIGITAL TRANSISTOR (BUILT- IN BIAS RESISTORS)

DESCRIPTION

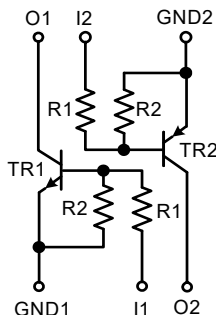
The UTC **UMD2** is an dual transistor; it uses UTC's advanced technology to provide the customers with low collector -emitter saturation voltage, etc.

FEATURES

- * Both the DTA124E chip and DTC124E chip in a SOT-26, SOT-363 and SOT-563 package.
- * NPN/PNP silicon transistor(Built-in resistor type)
- * Low collector-emitter saturation voltage
- * With built-in bias resistors
- * Simplify circuit design



EQUIVALENT CIRCUIT



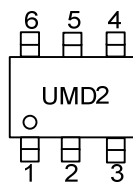
ORDERING INFORMATION

Ordering Number		Package	Pin Assignment						Packing
Lead Free	Halogen Free		1	2	3	4	5	6	
UMD2L-AG6-R	UMD2G-AG6-R	SOT-26	G1	I1	O2	G2	I2	O1	Tape Reel
UMD2L-AL6-R	UMD2G-AL6-R	SOT-363	G1	I1	O2	G2	I2	O1	Tape Reel
UMD2L-AN6-R	UMD2G-AN6-R	SOT-563	G1	I1	O2	G2	I2	O1	Tape Reel

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

UMD2G-AG6-R	(1)Packing Type	(1) R: Tape Reel
	(2)Package Type	(2) AG6: SOT-26, AL6: SOT-363, AN6: SOT-563
	(3)Green Package	(3) G: Halogen Free and Lead Free, L: Lead Free

■ MARKING



■ ABSOLUTE MAXIMUM RATING (T_A=25°C, unless otherwise specified)

PARAMETER		SYMBOL	RATINGS		UNIT
			TR1 (NPN)	TR2 (PNP)	
Supply Voltage		V _{CC}	50	-50	V
Input Voltage		V _{IN}	-10 ~ +40	-40 ~ +10	V
Output Current		I _C	100	-100	mA
		I _{OUT}	30	-30	mA
Power Dissipation	SOT-26	P _C	400		mW
	SOT-363		300		mW
	SOT-563		250		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.

■ THERMAL DATA

PARAMETER		SYMBOL	RATINGS	UNIT
Junction to Ambient	SOT-26	θ_{JA}	313	°C/W
	SOT-363		358	°C/W
	SOT-563		417	°C/W

Note: Device mounted on FR-4 substrate PC board, 2oz copper, with 1inch square copper plate.

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

TR1 (NPN)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Input Voltage	V _{I(OFF)}	V _{CC} = 5V, I _{OUT} =100μA			0.5	V
	V _{I(ON)}	V _{OUT} = 0.2V, I _{OUT} = 5mA	3			V
Output Voltage	V _{O(ON)}	I _{OUT} /I _{IN} = 10mA / 0.5 mA		0.1	0.3	V
Input Current	I _I	V _{IN} = 5V			0.36	mA
Output Current	I _{O(OFF)}	V _{CC} = 50V, V _{IN} =0V			0.5	μA
DC Current Gain	G _I	V _{OUT} = 5V, I _{OUT} = 5mA	56			
Input Resistance	R _I		15.4	22	28.6	kΩ
Resistance Ratio	R ₂ /R ₁		0.8	1	1.2	
Transition Frequency	f _T	V _{CE} =10V, I _E = -5mA, f=100MHz (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 _{OUT} = -100μA			-0.5	V
	V _{I(ON)}	V _{OUT} = -0.2V, I _{OUT} = -5mA	-3			V
Output Voltage	V _{O(ON)}	I _{OUT} /I _{IN} = -10mA / -0.5 mA		-0.1	-0.3	V
Input Current	I _I	V _{IN} = -5V			-0.36	mA
Output Current	I _{O(OFF)}	V _{CC} = -50V, V _{IN} =0V			-0.5	μA
DC Current Gain	G _I	V _{OUT} = -5V, I _{OUT} = -5mA	56			
Input Resistance	R _I		15.4	22	28.6	kΩ
Resistance Ratio	R ₂ /R ₁		0.8	1	1.2	
Transition Frequency	f _T	V _{CE} = -10 V, I _E = 5mA, f=100MHz (Note)		250		MHz

Note: Transition frequency of the device.

■ TYPICAL CHARACTERISTICS

NPN

Fig.1 Input voltage vs.output current (ON characteristics)

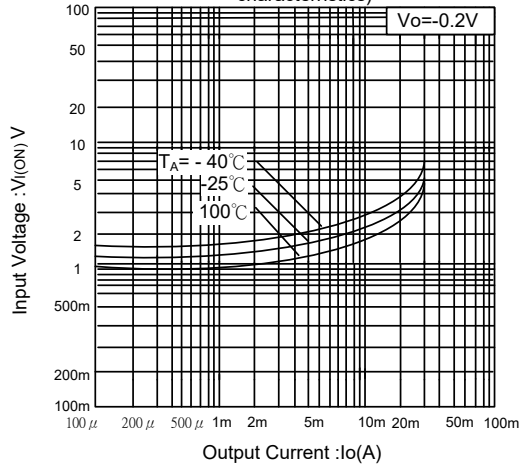


Fig.2 Output current vs Input voltage (OFF characteristics)

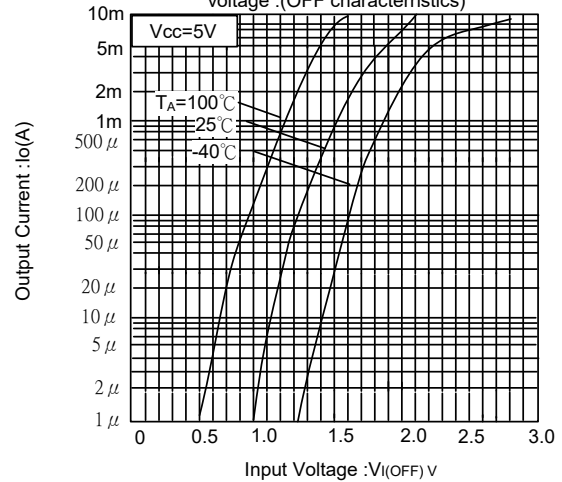


Fig.3 DC current gain vs.output current

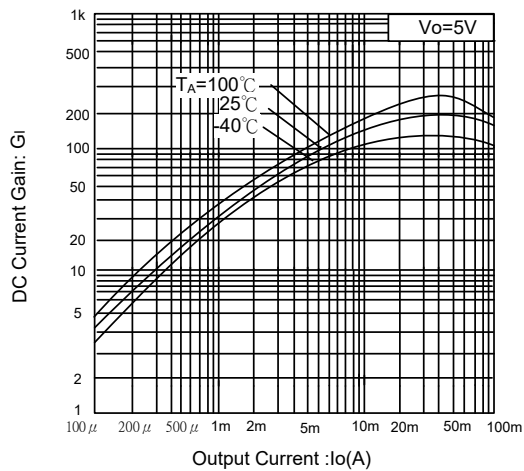
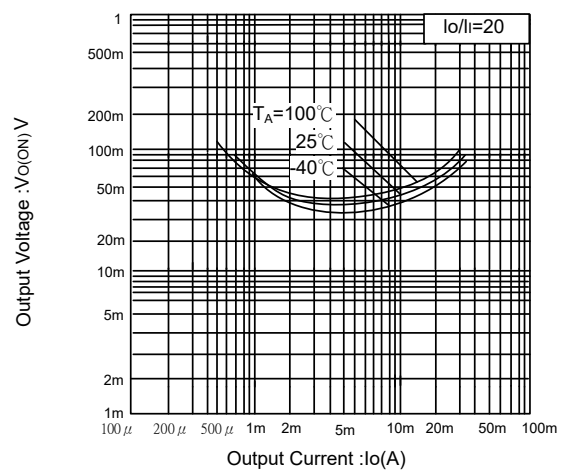


Fig.4 Output voltage vs.output current



■ TYPICAL CHARACTERISTICS

PNP

Fig.1 Input voltage vs.output current
(ON characteristics)

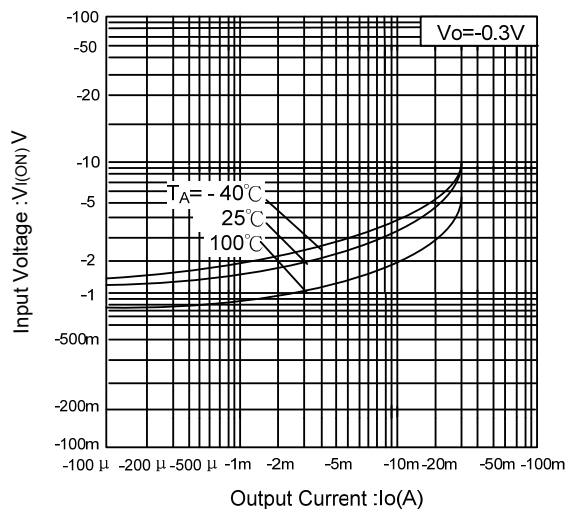


Fig.2 Output current vs Input voltage.
(OFF characteristics)

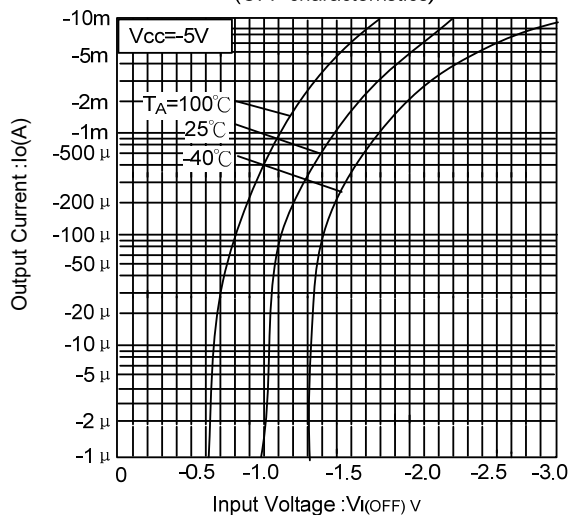


Fig.3 DC current gain vs.output current

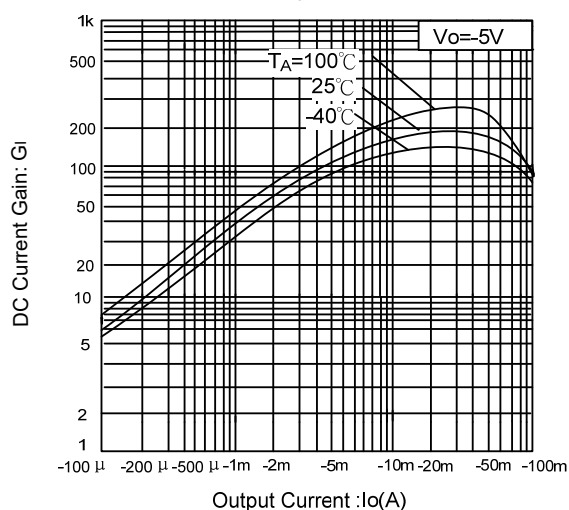
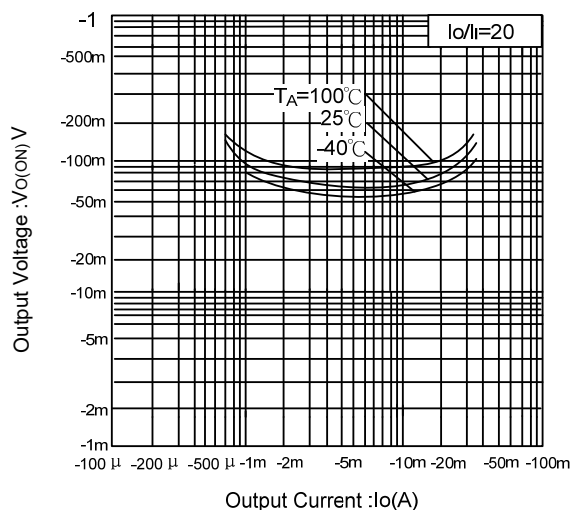


Fig.4 Output voltage vs.output current



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