



UMD10

Preliminary

DUAL TRANSISTOR

DUAL DIGITAL TRANSISTOR (BUILT-IN BIAS RESISTORS)

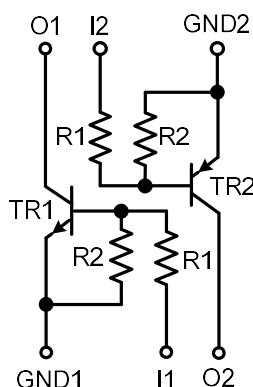
DESCRIPTION

The UTC **UMD10** is an dual transistor; it uses UTC's advanced technology to provide the customers with low collector -emitter saturation voltage, etc.

FEATURES

- * NPN/PNP silicon transistor(Built-in resistor type)
- * Low collector-emitter saturation voltage
- * With built-in bias resistors
- * Simplify circuit design
- * Green & Pb Free

EQUIVALENT CIRCUIT

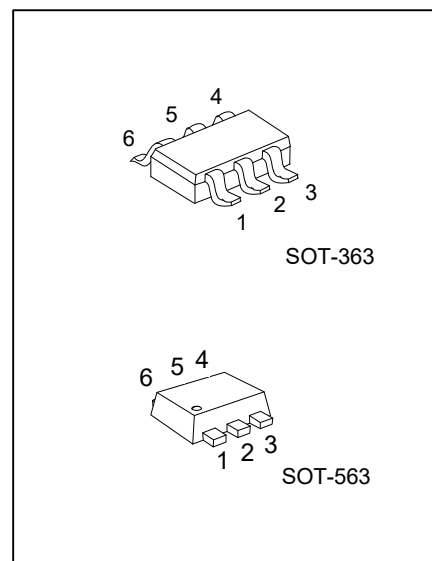


ORDERING INFORMATION

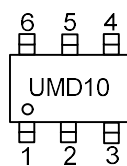
Ordering Number	Package	Pin Assignment						Packing
		1	2	3	4	5	6	
UMD10G-AL6-R	SOT-363	G1	I1	O2	G2	I2	O1	Tape Reel
UMD10G-AN6-R	SOT-563	G1	I1	O2	G2	I2	O1	Tape Reel

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

UMD10G-AL6-R	(1)Packing Type	(1) R: Tape Reel
	(2)Package Type	(2) AL6: SOT-363, AN6: SOT-563
	(3)Green Package	(3) G: Halogen Free and Lead Free



■ MARKING



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

PARAMETER	SYMBOL	RATINGS		UNIT
		TR1 (NPN)	TR2 (PNP)	
Collector-Base Voltage	V _{CBO}	50	-50	V
Collector-Emitter Voltage	V _{CEO}	50	-50	V
Emitter-Base Voltage	V _{EBO}	5	-5	V
Input Voltage	V _{IN}	-5 ~ +12	-12 ~ +5	V
Output Current	I _{OUT}	100	-100	mA
Power Dissipation	SOT-363	P _C	300	mW
	SOT-563		250	mW
Junction Temperature	T _J	+150		°C
Ambient Temperature	T _A	-55 ~ +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-363	417	°C/W
	SOT-563	500	°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
Collector-Base Breakdown Voltage	V _{(BR)CBO}	I _C =100μA, I _E =0A	50			V
Collector-Emitter Breakdown Voltage	V _{(BR)CEO}	I _C =2mA, I _B =0A	50			V
Collector-Base Cut-Off Current	I _{CBO}	V _{CB} =50V, I _E =0A			100	nA
Collector-Emitter Cut-Off Current	I _{CEO}	V _{CE} =30V, I _B =0A			100	nA
Emitter-Base Cut-Off Current	I _{EBO}	V _{EB} =5V, I _C =0A			180	μA
DC Current Gain	h _{FE}	V _{CE} =5V, I _C =10mA	100			
Collector-Emitter Saturation Voltage	V _{CE(SAT)}	I _C =5mA, I _B =0.25mA			100	mV
Off-State Input Voltage	V _{I(OFF)}	V _{CE} =5V, I _C =100μA			0.8	V
On-State Input Voltage	V _{I(ON)}	V _{CE} =0.3V, I _C =10mA	3			V
Bias Resistor 1 (Input)	R1		1.54	2.2	2.86	KΩ
Bias Resistor Ratio	R2/R1		17	21	26	
Transition Frequency	f _T	V _{CE} =5V, I _E =-10mA, f=100MHz (Note)		230		MHz

Note: Transition frequency of the device

■ ELECTRICAL CHARACTERISTICS (Cont.)

TR2 (PNP)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C = -100\mu A, I_E = 0A$	-50			V
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C = -2mA, I_B = 0A$	-50			V
Collector-Base Cut-Off Current	I_{CBO}	$V_{CB} = -50V, I_E = 0A$			-100	nA
Collector-Emitter Cut-Off Current	I_{CEO}	$V_{CE} = -30V, I_B = 0A$			-100	nA
Emitter-Base Cut-Off Current	I_{EBO}	$V_{EB} = -5V, I_C = 0A$			-180	μA
DC Current Gain	h_{FE}	$V_{CE} = -5V, I_C = -10mA$	100			
Collector-Emitter Saturation Voltage	$V_{CE(SAT)}$	$I_C = -5mA, I_B = -0.25mA$			-100	mV
Off-State Input Voltage	$V_{I(OFF)}$	$V_{CE} = -5V, I_C = -100\mu A$			-0.8	V
On-State Input Voltage	$V_{I(ON)}$	$V_{CE} = -0.3V, I_C = -10mA$	-3			V
Bias Resistor 1 (Input)	R1		1.54	2.2	2.86	K Ω
Bias Resistor Ratio	R2/R1		17	21	26	
Transition Frequency	f_T	$V_{CE} = -10V, I_E = -5mA, f = 100MHz$ (Note)		180		MHz

Note: Transition frequency of the device

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