Digital Transistor
UMD10N

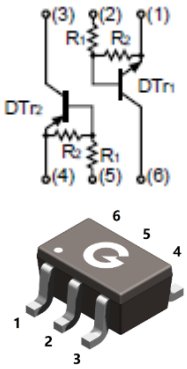
Features

- Both the DTC123J and DTA123J in SOT-363 package
- Reduces Board Space
- Reduces Component Count
- Surface Mount Package Suited for Automated Assembly

HF

Mechanical Data

- Case: SOT-363
- Molding Compound: UL Flammability Classification Rating 94V-0
- Terminals: Matte tin-plated leads; solderability-per MIL-STD-202, Method 208



SOT-363

Ordering Information

Part Number	Package	Shipping Quantity	Marking Code
UMD10N	SOT-363	3000 pcs / Tape & Reel	D10

Maximum Ratings (@ T_A = 25°C unless otherwise specified)

Parameter	Symbol	Value		Unit
		DT_{r1}	DT_{r2}	
Supply Voltage	V_{CC}	50	-50	V
Input Voltage	V_{IN}	-5 to +12	-12 to +5	V
Output Current	I_O	100	-100	mA
Collector Current	$I_{C\ (Max.)}$	100	-100	mA

Thermal Characteristics

Parameter	Symbol	Value	Unit
Power Dissipation	P_D	200	mW
Operating Junction Temperature Range	T_J	-55 ~ +150	°C
Storage Temperature Range	T_{STG}	-55 ~ +150	°C

Electrical Characteristics-DT_{r1} (@ T_A = 25°C unless otherwise specified)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Input Voltage	$V_{I(off)}$	V_{CC} = 5V, I_O = 100μA	0.5	-	-	V
	$V_{I(on)}$	V_O = 0.3V, I_O = 5mA	-	-	1.1	V
Output Voltage	$V_{O(on)}$	Io = 5mA, I_I = 0.25mA	-	-	0.3	V
Input Current	I_I	V_I = 5V	-	-	3.6	mA
Output Current	$I_{O(off)}$	V_{CC} = 50V, V_I = 0V	-	-	0.5	μA
DC Current Gain	G_I	V_O = 5V, I_O = 10mA	80	-	-	-
Input Resistor	R_1		1.54	2.2	2.86	kΩ
Resistance ratio	R_2/R_1		17	21	26	-
Gain-Bandwidth Product	f_T	V_{CE} = 10V, I_E = 5mA, f = 100MHz	-	250	-	MHz

Electrical Characteristics-DT_{r2} (@ T_A = 25°C unless otherwise specified)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Input Voltage	$V_{I(off)}$	V_{CC} = -5V, I_O = -100μA	-0.5	-	-	V
	$V_{I(on)}$	V_O = -0.3V, I_O = -5mA	-	-	-1.1	V
Output Voltage	$V_{O(on)}$	Io = -5mA, I_I = -0.25mA	-	-	-0.3	V
Input Current	I_I	V_I = -5V	-	-	-3.6	mA
Output Current	$I_{O(off)}$	V_{CC} = -50V, V_I = 0V	-	-	-0.5	μA
DC Current Gain	G_I	V_O = -5V, I_O = -10mA	80	-	-	-
Input Resistor	R_1		1.54	2.2	2.86	kΩ
Resistance ratio	R_2/R_1		17	21	26	-
Gain-Bandwidth Product	f_T	V_{CE} = -10V, I_E = -5mA, f = 100MHz	-	250	-	MHz

Ratings and Characteristics Curves-DTr1 (@ T_A = 25°C unless otherwise specified)

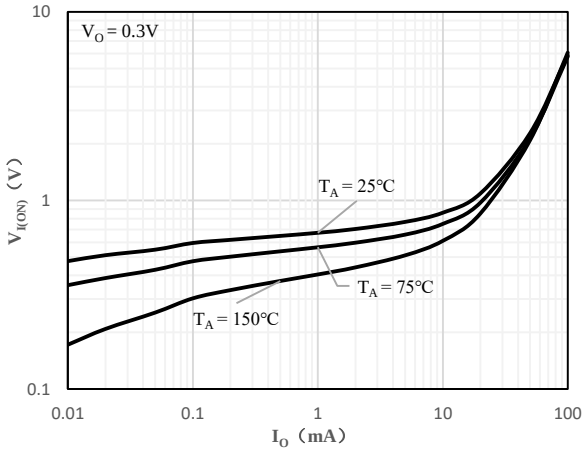


Fig 1 Input Voltage vs Output Current

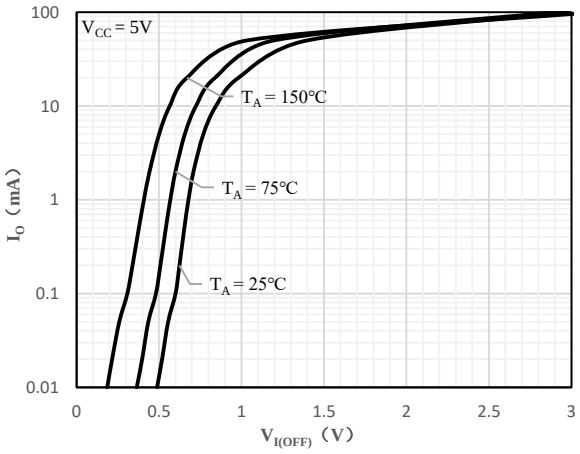


Fig 2 Output Current vs Input Voltage

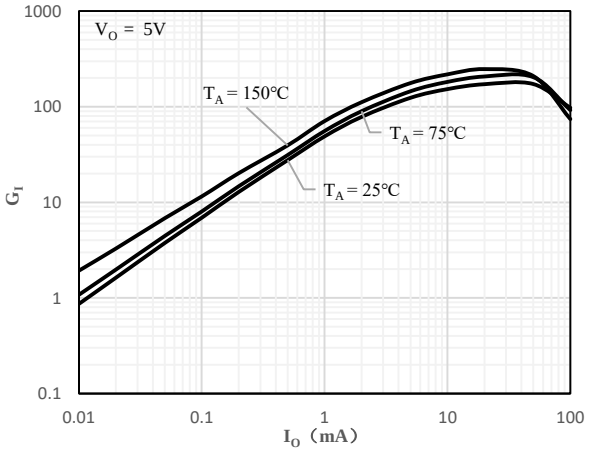


Fig 3 DC Current Gain vs Output Current

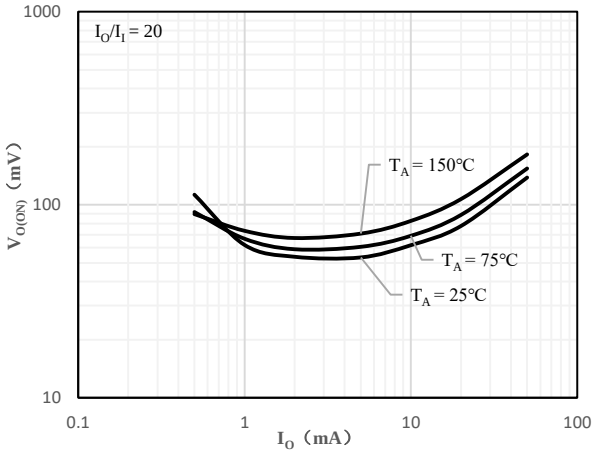


Fig 4 Output Voltage vs Output Current

Ratings and Characteristics Curves-DT$_{r2}$ (@ T_A = 25°C unless otherwise specified)

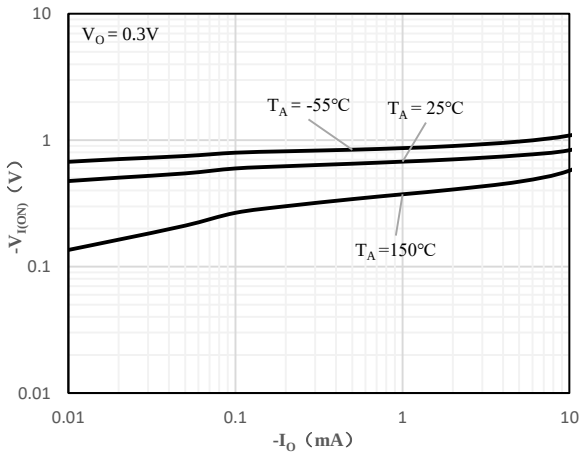


Fig 1 Input Voltage vs Output Current

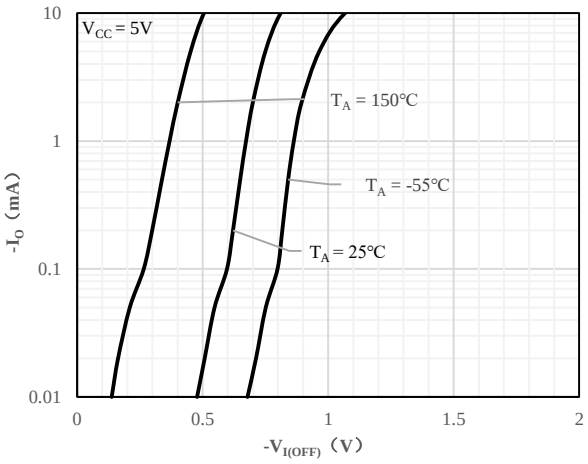


Fig 2 Output Current vs Input Voltage

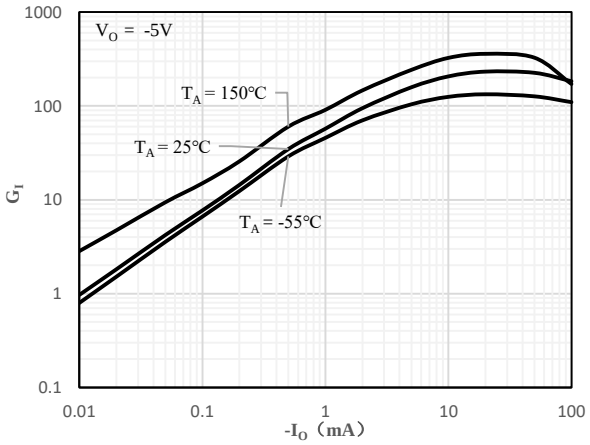


Fig 3 DC Current Gain vs Output Current

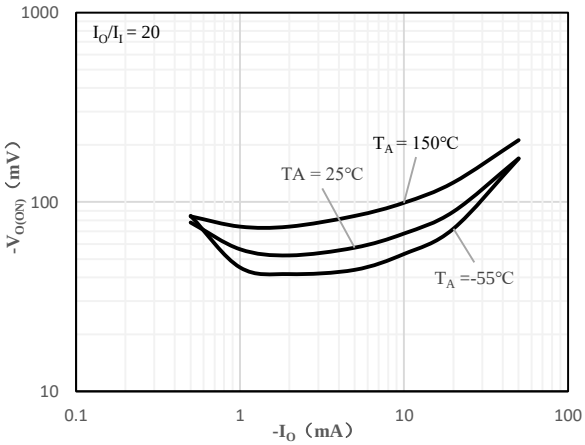
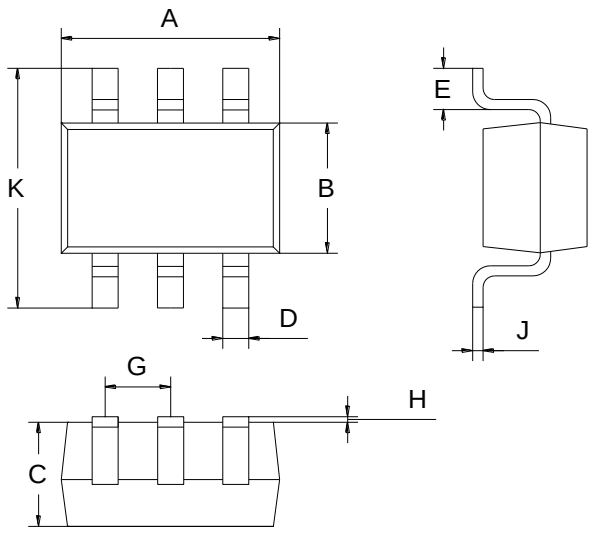


Fig 4 Output Voltage vs Output Current

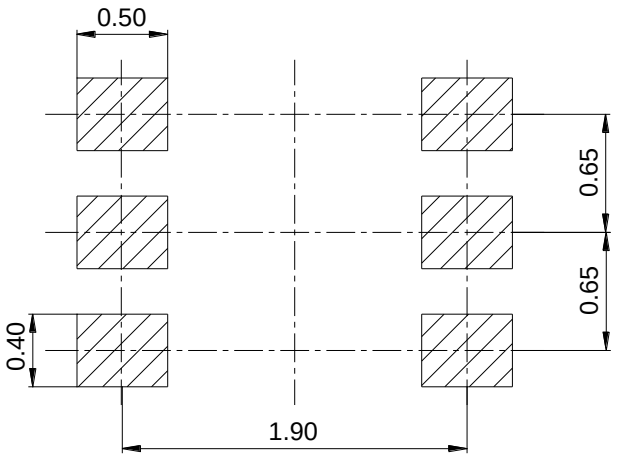
Package Outline Dimensions (Unit: mm)



SOT-363		
Dimension	**Min.**	**Max.**
A	2.00	2.20
B	1.15	1.35
C	0.85	1.05
D	0.15	0.35
E	0.25	0.40
G	0.60	0.70
H	0.02	0.10
J	0.05	0.15
K	2.20	2.40

Mounting Pad Layout (Unit: mm)

SOT-363



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