

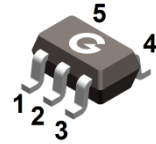
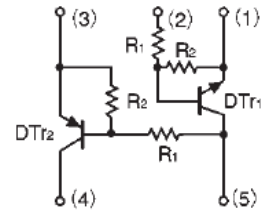
Features

- DTA143X and DTC144E transistors are built-in a package
- Built-in biasing resistors
DTr1: (R₁: 47kΩ, R₂: 47kΩ); DTr2: (R₁: 4.7kΩ, R₂: 10kΩ)
- Ideal for power switch circuits
- Mounting cost and area can be cut in half
- RoHS compliant with Halogen-free
- Qualified to AEC-Q101 Standards

Mechanical Data

- Case: SOT-353
- Molding Compound: UL Flammability Classification Rating 94V-0
- Terminals: Matte tin-plated leads; solderability-per MIL-STD-202, Method 208

HF



SOT-353

Ordering Information

Part Number	Package	Shipping Quantity	Marking Code
TUMC5N	SOT-353	3000 pcs / Tape & Reel	NP2

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

Symbol	Parameter	Value		Unit
		DTr1	DTr2	
V _{CC}	Supply Voltage	50	-50	V
V _{IN}	Input Voltage	-10 to +40	-20 to +7	V
I _O	Output Current	30	-100	mA
I _{CM}	Output Current	100	-100	mA

Thermal Characteristics

Parameter	Symbol	Value	Unit
Power Dissipation (T _A = 25°C)	P _D	150	mW
Thermal Resistance Junction-to-Air	R _{θJA}	833	°C/W
Operating Junction Temperature Range	T _J	-55 ~ +150	°C
Storage Temperature Range	T _{STG}	-55 ~ +150	°C

Electrical Characteristics-DTR1 (@ $T_A = 25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Input Voltage	$V_{I(off)}$	$V_{CC} = 5V, I_O = 100\mu A$	0.5	-	-	V
	$V_{I(on)}$	$V_O = 0.3V, I_O = 2mA$	-	-	3	V
Output Voltage	$V_{O(on)}$	$I_O = 10mA, I_I = 0.5mA$	-	-	0.3	V
Input Current	I_I	$V_I = 5V$	-	-	0.18	mA
Output Current	$I_{O(off)}$	$V_{CC} = 50V, V_I = 0V$	-	-	0.5	μA
DC Current Gain	G_I	$V_O = 5V, I_O = 5mA$	68	-	-	-
Input Resistor	R_1		32.9	47	61.1	k Ω
Resistance ratio	R_2/R_1		0.8	1	1.2	
Gain-Bandwidth Product	f_T	$V_{CE} = 10V, I_E = 5mA, f = 100MHz$	-	250	-	MHz

Electrical Characteristics-DTR2 (@ $T_A = 25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Input Voltage	$V_{I(off)}$	$V_{CC} = -5V, I_O = -100\mu A$	-0.3	-	-	V
	$V_{I(on)}$	$V_O = -0.3V, I_O = -20mA$	-	-	-2.5	V
Output Voltage	$V_{O(on)}$	$I_O = -10mA, I_I = -0.5mA$	-	-	-0.3	V
Input Current	I_I	$V_I = -5V$	-	-	-1.8	mA
Output Current	$I_{O(off)}$	$V_{CC} = -50V, V_I = 0V$	-	-	-0.5	μA
DC Current Gain	G_I	$V_O = -5V, I_O = -10mA$	30	-	-	-
Input Resistor	R_1		3.29	4.7	6.11	k Ω
Resistance ratio	R_2/R_1		1.7	2.1	2.6	
Gain-Bandwidth Product	f_T	$V_{CE} = -10V, I_E = -5mA, f = 100MHz$	-	250	-	MHz

Ratings and Characteristic Curves-DTr1 (@ $T_A = 25^\circ\text{C}$ unless otherwise specified)

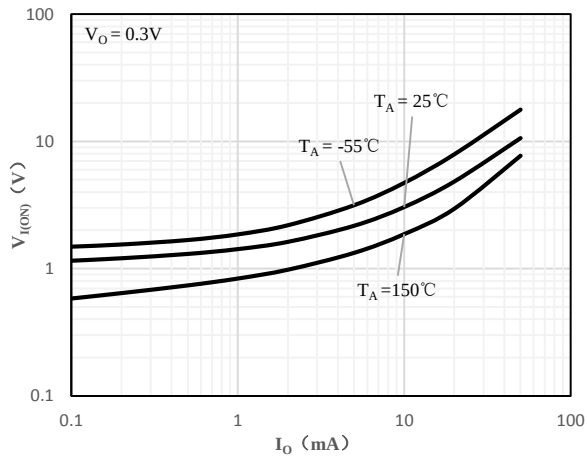


Fig 1 Input Voltage vs Output Current

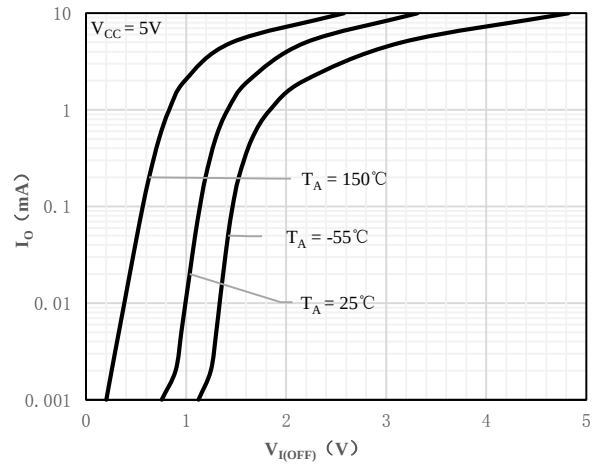


Fig 2 Output Current vs Input Voltage

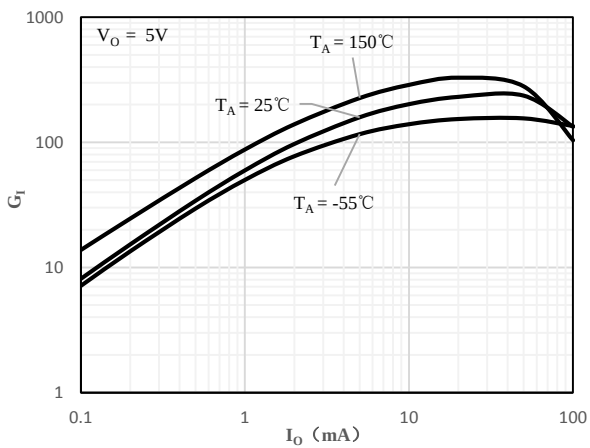


Fig 3 DC Current Gain vs Output Current

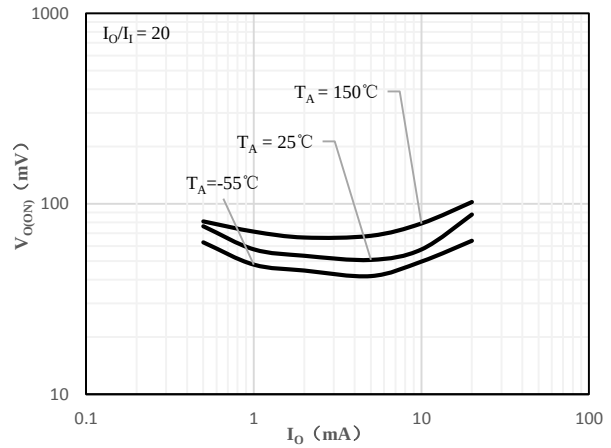


Fig 4 Output Voltage vs Output Current

Ratings and Characteristic Curves-DTr2 (@ $T_A = 25^\circ\text{C}$ unless otherwise specified)

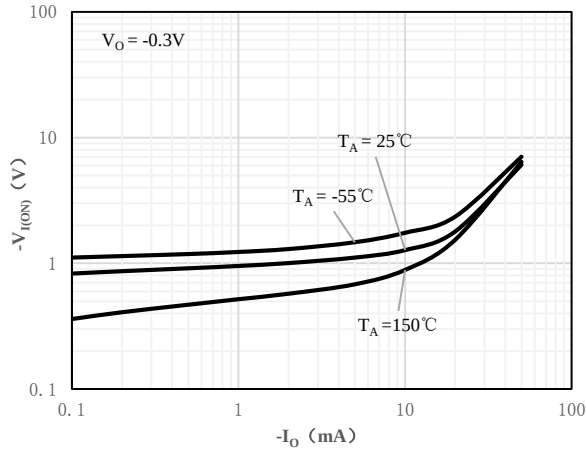


Fig 1 Input Voltage vs Output Current

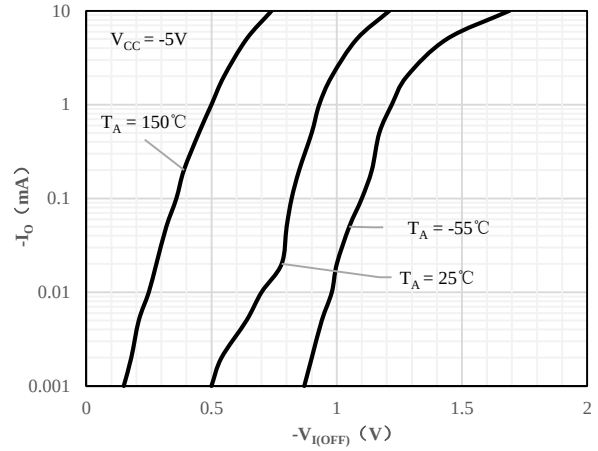


Fig 2 Output Current vs Input Voltage

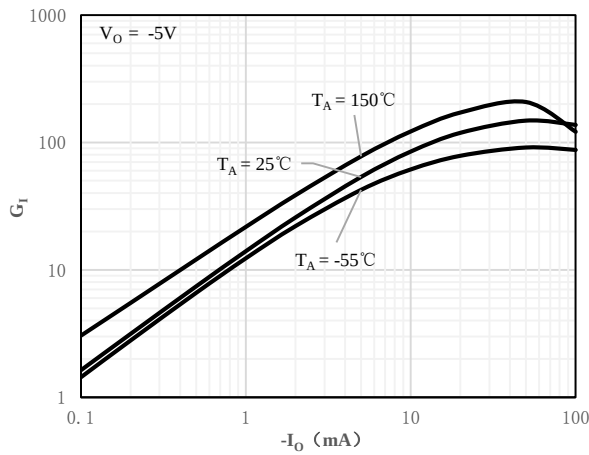


Fig 3 DC Current Gain vs Output Current

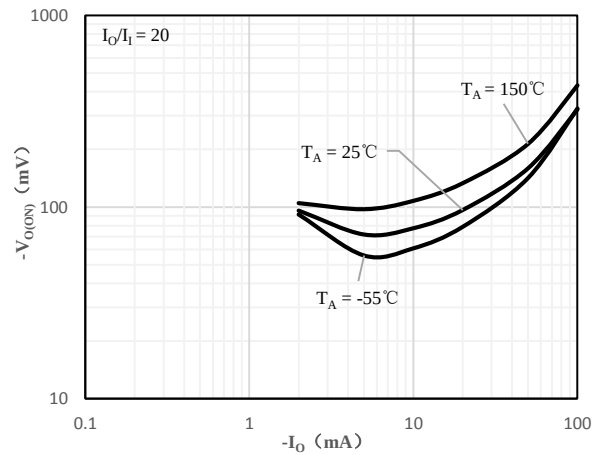


Fig 4 Output Voltage vs Output Current

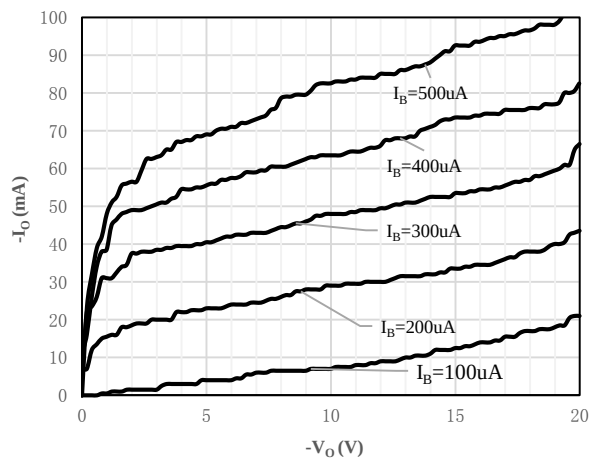
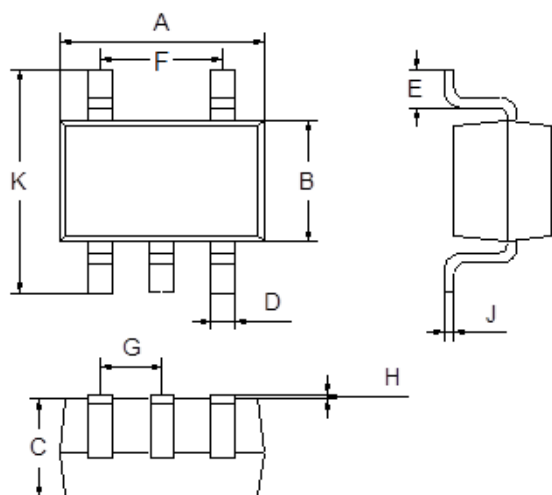


Fig 5 Output Current vs. Output Voltage

Package Outline Dimensions (Unit: mm)



SOT-353		
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
F	1.20	1.40
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-353

