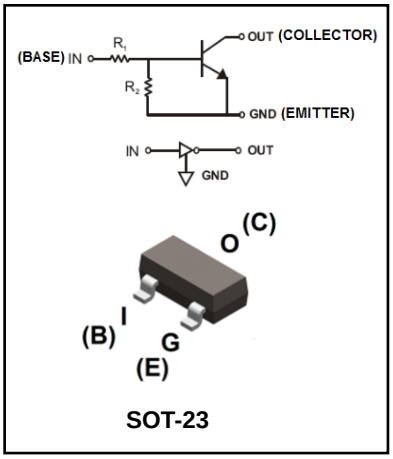
DTD143ECA

Digital Transistor(NPN)

Features

- Epitaxial planar die construction
- Collector Current: 500mA
- Built-in biasing resistors (R_1: 4.7kΩ, R_2: 4.7kΩ)



Mechanical Data

- Case: SOT-23
- Molding Compound: UL Flammability Classification Rating 94V-0
- Terminals: Matte tin-plated leads; solderability-per MIL-STD-202, Method 208

Ordering Information

Part Number	Package	Shipping Quantity	Marking Code
DTD143ECA	SOT-23	3000 pcs / Tape & Reel	4Z

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

Parameter	Symbol	Value	Unit
Supply Voltage	V_{CC}	50	V
Input Voltage	V_I	-10 to +30	V
Collector Current	I_C	500	mA

Thermal Characteristics

Parameter	Symbol	Value	Unit
Power Dissipation (T_A = 25°C)	P_D	200	mW
Thermal Resistance Junction-to-Air	$R_{\theta JA}$	625	°C/W
Operating Junction Temperature Range	T_J	-55 ~ +150	°C
Storage Temperature Range	T_{STG}	-55 ~ +150	°C

Electrical Characteristics (@ 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
Input Voltage	$V_{I(ON)}$	V_O = 0.3V, I_O = 20mA	-	-	3	V
Output Voltage	$V_{O(on)}$	I_o = 50mA, I_I = 2.5mA	-	-	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 = 50mA	47	-	-	-
Input Resistor	R_1		3.29	4.7	6.11	kΩ
Resistance ratio	R_2/R_1		0.8	1	1.2	-
Gain-Bandwidth Product	f_T	V_{CE} = 10V, I_E = 50mA f = 100MHz	-	200	-	MHz

Ratings and Characteristic Curves (@ T_A = 25°C unless otherwise specified)

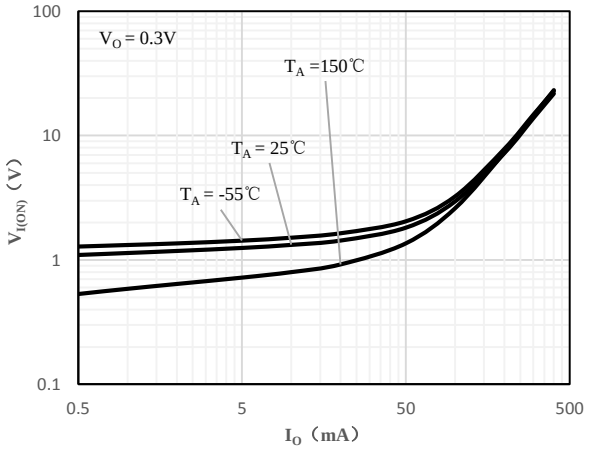


Fig 1 Input Voltage vs Output Current

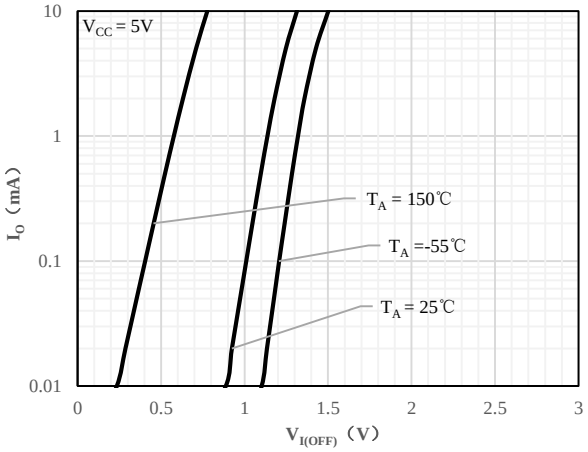


Fig 2 Output Current vs Input Voltage

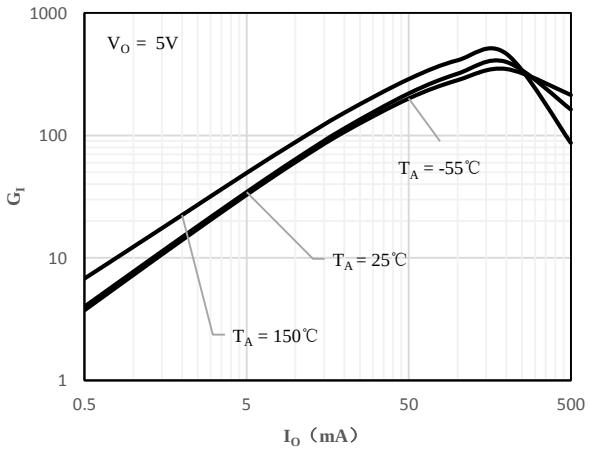


Fig 3 DC Current Gain vs Output Current

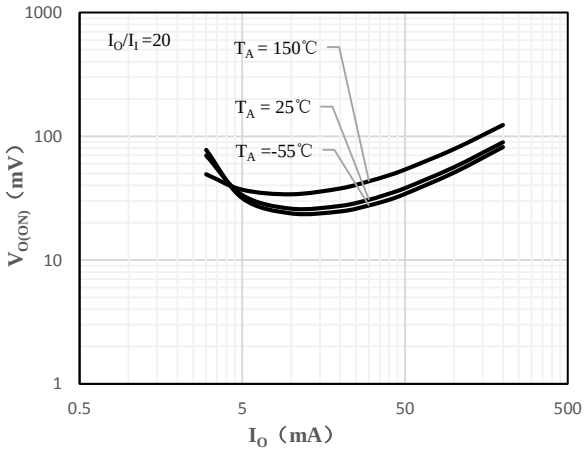


Fig 4 Output Voltage vs Output Current

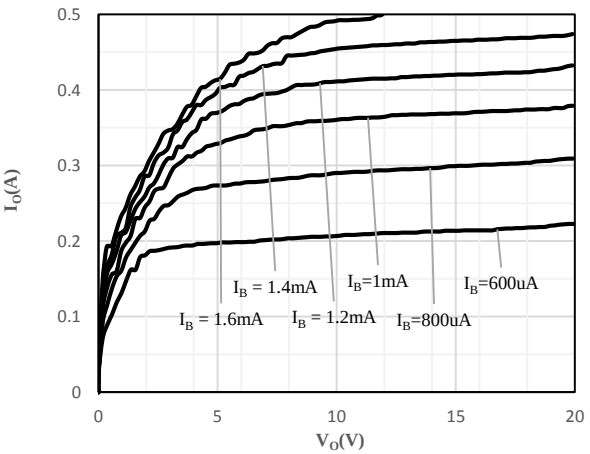


Fig 5 Output Current vs. Output Voltage

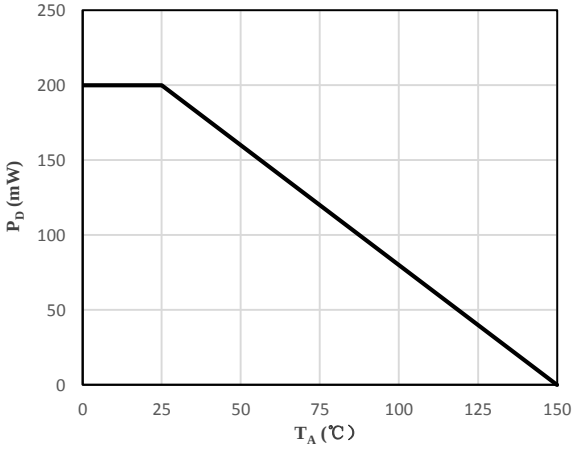


Fig 6 Power Dissipation vs. Air Temperature

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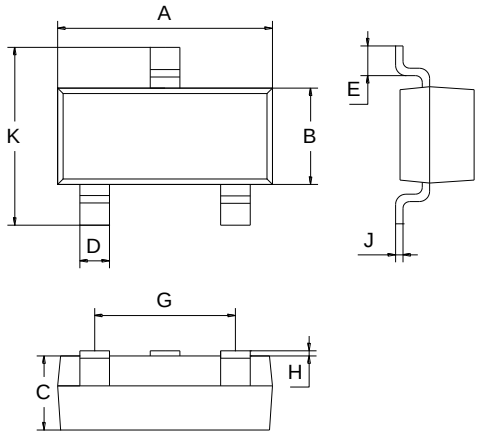
Package Outline Dimensions (Unit: mm)



SOT-23		
Dimension	**Min.**	**Max.**
A	2.70	3.10
B	1.10	1.50
C	0.9	1.1
D	0.3	0.5
E	0.35	0.48
G	1.80	2.00
H	0.02	0.1
J	0.05	0.15
K	2.20	2.60

Package Outline Dimensions (Unit: mm)

SOT-23