

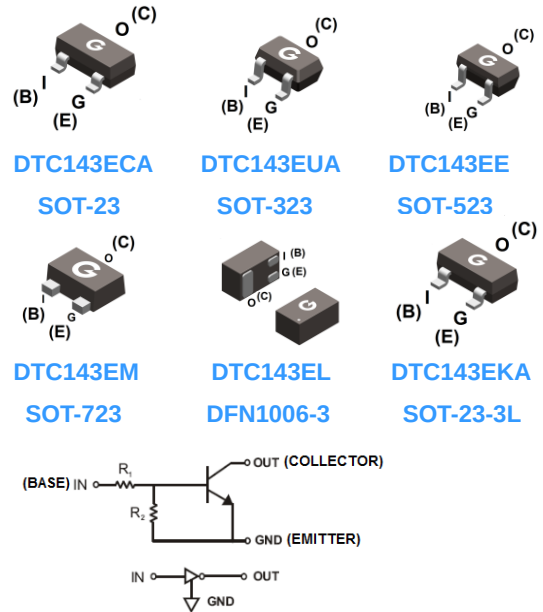
Features

- Epitaxial planar die construction
- Built-in biasing resistors (R_1 : 4.7k Ω , R_2 : 4.7k Ω)
- Also available in lead free version
- RoHS compliant with Halogen-free

HF

Mechanical Data

- Case: SOT-23, SOT-323, SOT-523, SOT-723, DFN1006-3 SOT-23-3L
- 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
DTC143ECA	SOT-23	3000 pcs / Tape & Reel	23
DTC143EUA	SOT-323	3000 pcs / Tape & Reel	23
DTC143EE	SOT-523	3000 pcs / Tape & Reel	23
DTC143EM	SOT-723	10000 pcs / Tape & Reel	23
DTC143EL	DFN1006-3	10000 pcs / Tape & Reel	23
DTC143EKA	SOT-23-3L	3000 pcs / Tape & Reel	23

Maximum Ratings (@ $T_A = 25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Value						Unit
		SOT-23	SOT-23-3L	SOT-323	SOT-523	SOT-723	DFN1006-3	
Supply Voltage	V_{CC}	50						V
Input Voltage	V_I	-10 to +30						V
Output Current	I_O	100						mA
Collector Current	$I_{C(\text{Max})}$	100						mA
Power Dissipation	P_D	200	200	200	150	100	100	mW
Junction Temperature Range	T_J	-55 ~ +150						$^\circ\text{C}$
Storage Temperature Range	T_{STG}	-55 ~ +150						$^\circ\text{C}$

Electrical Characteristics (@ $T_A = 25^\circ\text{C}$ 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
Input Voltage	$V_{I(ON)}$	$V_O = 0.3V, I_O = 20mA$	-	-	3	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	$V_O = 5V, I_O = 10mA$	20	-	-	-
Input Resistor	R_1		3.29	4.7	6.11	k Ω
Resistance ratio	R_2/R_1		0.8	1.0	1.2	-
Gain-Bandwidth Product	f_T	$V_{CE} = 10V, I_E = 5mA$ $f = 100MHz$	-	250	-	MHz

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

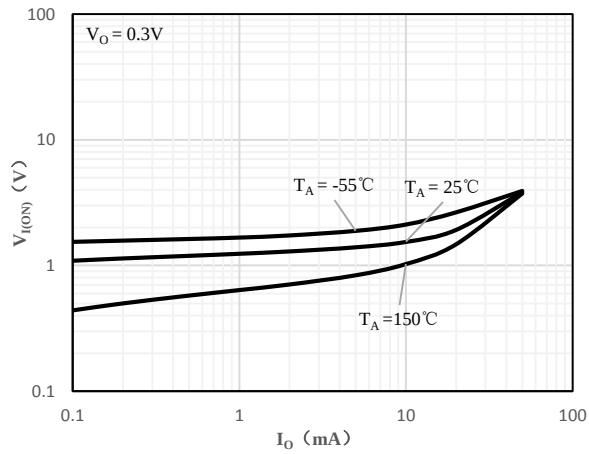


Fig 1 Input Voltage vs Output Current

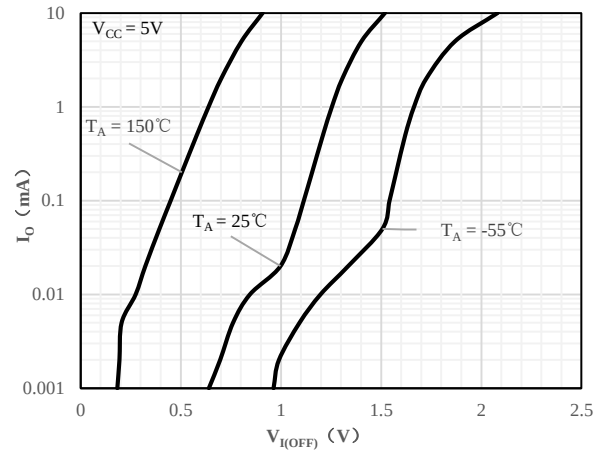


Fig 2 Output Current vs Input Voltage

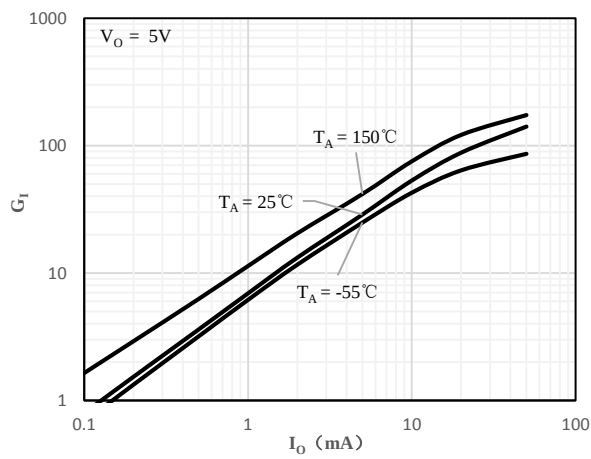


Fig 3 DC Current Gain vs Output Current

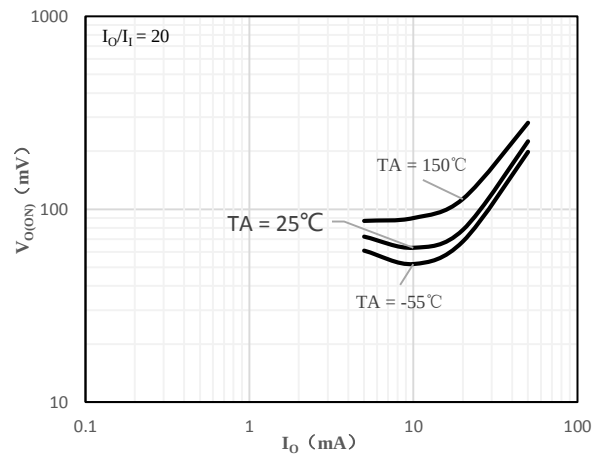
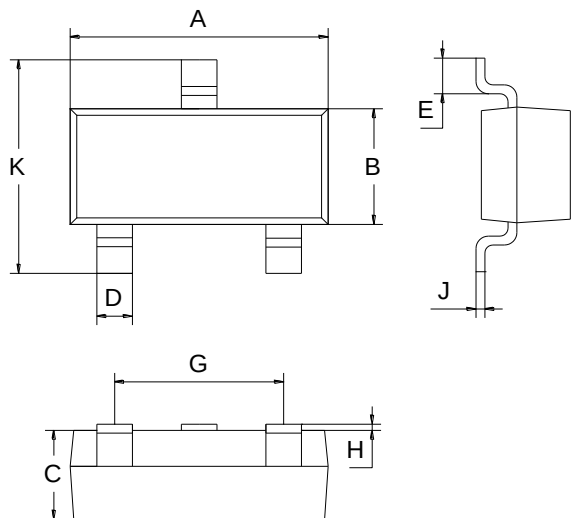
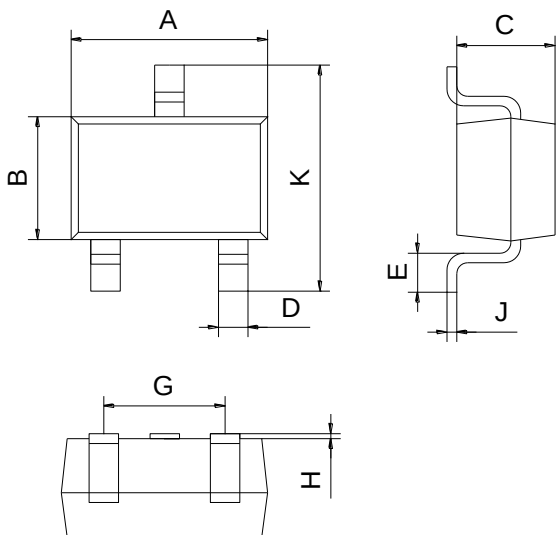


Fig 4 Output Voltage vs Output Current

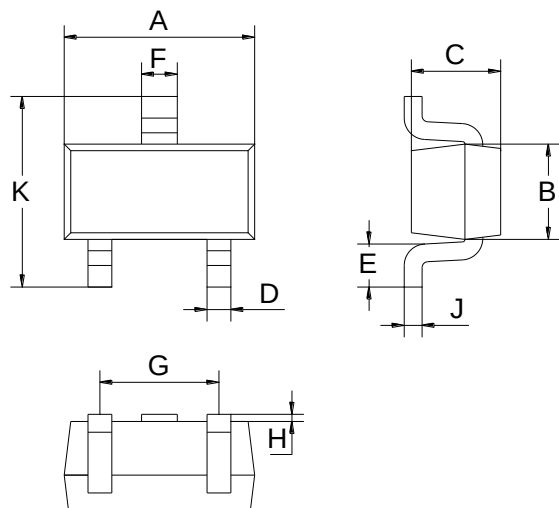
Package Outline Dimensions (Unit: mm)



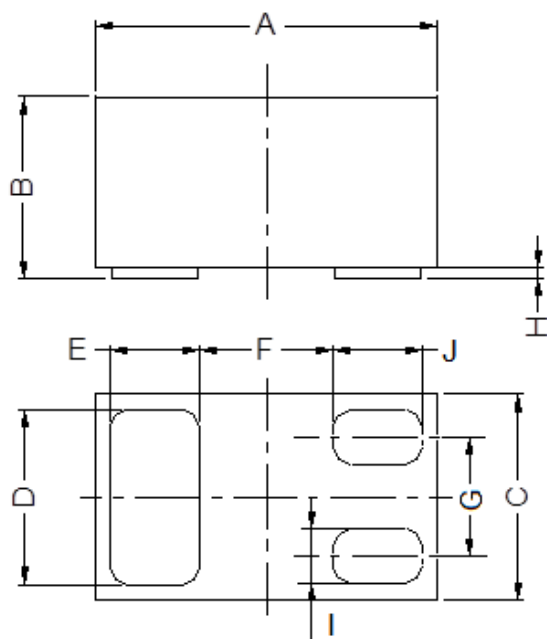
SOT-23		
Dimension	Min.	Max.
A	2.70	3.10
B	1.10	1.50
C	0.90	1.10
D	0.30	0.50
E	0.35	0.48
G	1.80	2.00
H	0.02	0.10
J	0.05	0.15
K	2.20	2.60



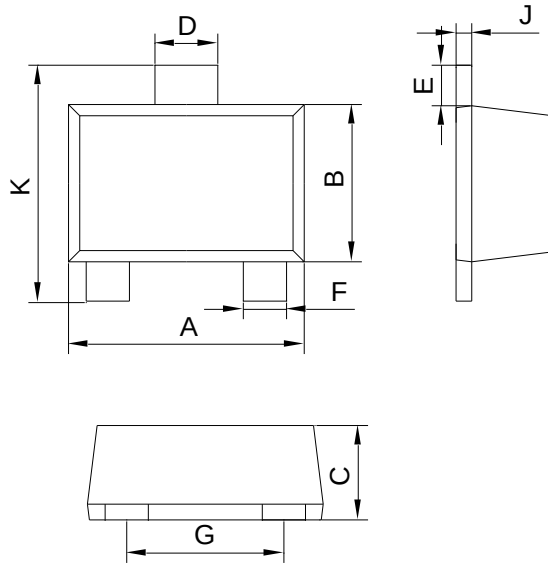
SOT-323		
Dimension	Min.	Max.
A	2.00	2.20
B	1.15	1.35
C	0.90	1.10
D	0.15	0.35
E	0.25	0.40
G	1.20	1.40
H	0.02	0.10
J	0.05	0.15
K	2.20	2.40



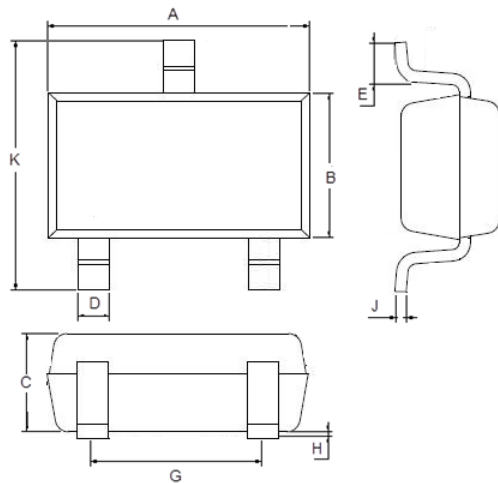
SOT-523		
Dimension	Min.	Max.
A	1.50	1.70
B	0.75	0.85
C	0.60	0.80
D	0.15	0.30
E	0.30	0.40
F	0.25	0.40
G	0.90	1.10
H	0.02	0.10
J	0.08	0.18
K	1.45	1.75



DFN1006-3			
Dimension	Min.	Typ.	Max.
A	0.95	1.00	1.075
B	0.47	0.50	0.53
C	0.55	0.60	0.675
D	0.45	0.50	0.55
E/J	0.20	0.25	0.30
F	-	0.40	-
G	-	0.35	-
H	0	0.03	0.05
I	0.10	0.15	0.20



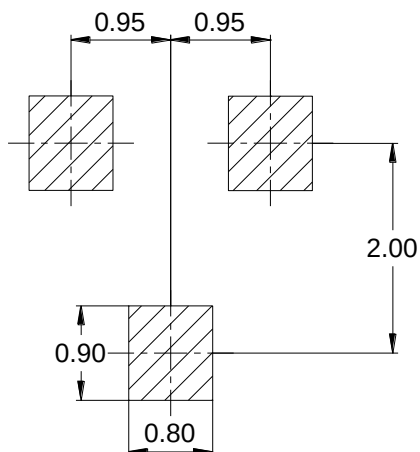
SOT-723		
Dimension	Min.	Max.
A	1.10	1.30
B	0.70	0.90
C	0.40	0.54
D	0.22	0.42
E	0.10	0.30
F	0.12	0.32
G	0.70	0.90
J	0.08	0.15
K	1.10	1.30



SOT-23-3L		
Dimension	Min.	Max.
A	2.80	3.00
B	1.50	1.70
C	1.00	1.20
D	0.35	0.45
E	0.35	0.55
G	1.80	2.00
H	0.02	0.10
J	0.10	0.20
K	2.60	3.00

Mounting Pad Layout (Unit: mm)

SOT-23



Technical drawing of a mechanical part with dimensions:

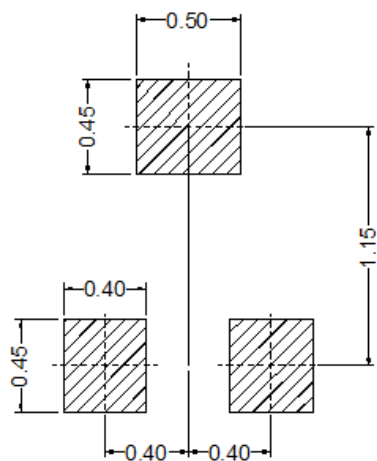
- Top width segments: 0.65 and 0.65
- Left side height: 0.90
- Right side height: 1.90
- Bottom width: 0.70

Technical drawing of a stepped shaft with the following dimensions:

- Total length: 1.803
- Top step diameter: 0.356
- Top step height: 0.787
- Bottom step diameter: 0.508
- Bottom step width: 1.000

Technical drawing showing the front and top views of a mechanical part. The front view (left) is a rectangle with a width of 0.70 and a height of 0.70. The top view (right) is a rectangle with a width of 0.70 and a height of 0.10. The part has a central hole with a diameter of 0.40. The distance from the left edge to the center of the hole is 0.30. The distance from the right edge to the center of the hole is 0.30. The distance from the top edge to the center of the hole is 0.30. The distance from the bottom edge to the center of the hole is 0.30. The total width of the part is 1.10. The total height of the part is 0.70. The part is shown with a cross-hatch pattern indicating a cut section.

SOT-723



SOT-23-3L

