Digital Transistor

DTC143E Series

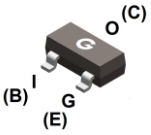
Features

HF

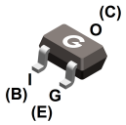
- Epitaxial planar die construction
- Built-in biasing resistors (R_1: 4.7kΩ, R_2: 4.7kΩ)
- Also available in lead free version
- RoHS compliant with Halogen-free

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



DTC143ECA
SOT-23



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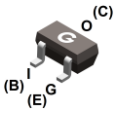
SOT-323



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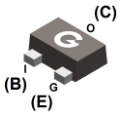
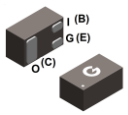
SOT-523



DTC143EM
SOT-723



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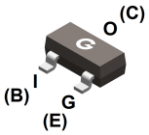
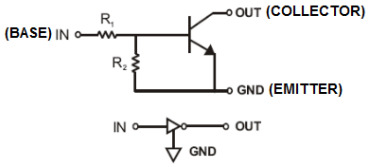
DFN1006-3



DTC143EKA
SOT-23-3L



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°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	$I_{C(Max)}$	100						mA
Power Dissipation	P_D	200	200	200	150	100	100	mW
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 = 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	kΩ
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°C unless otherwise specified)

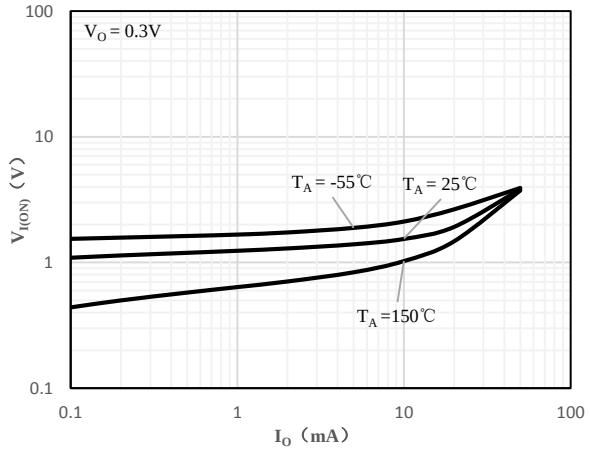


Fig 1 Input Voltage vs Output Current

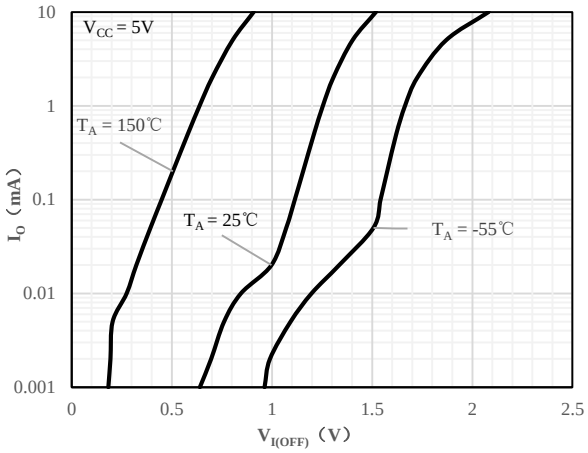


Fig 2 Output Current vs Input Voltage

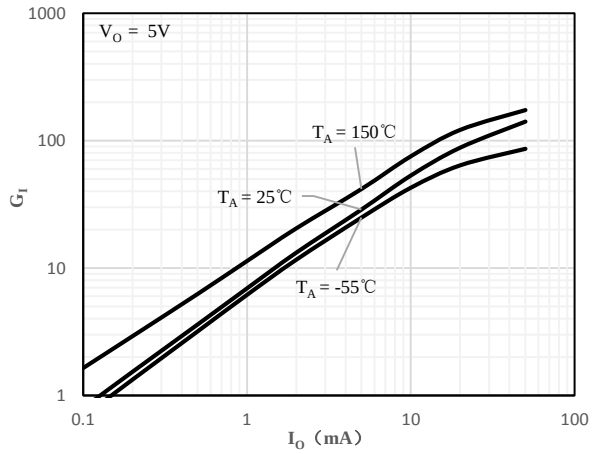


Fig 3 DC Current Gain vs Output Current

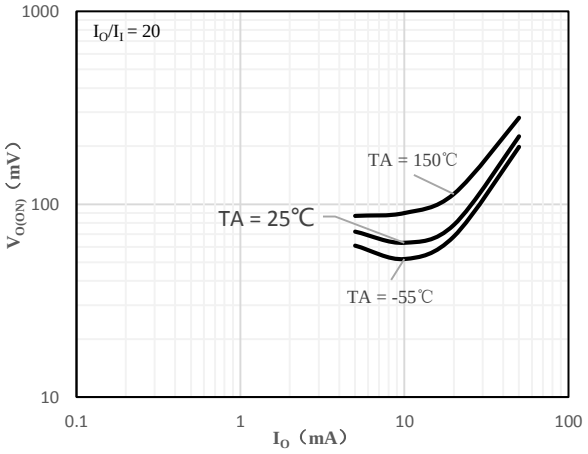
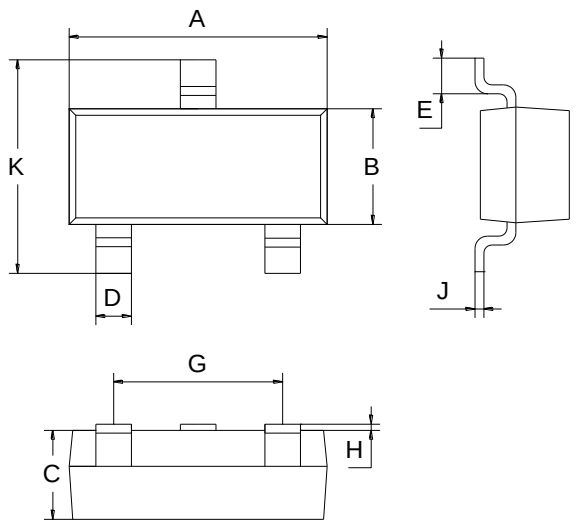
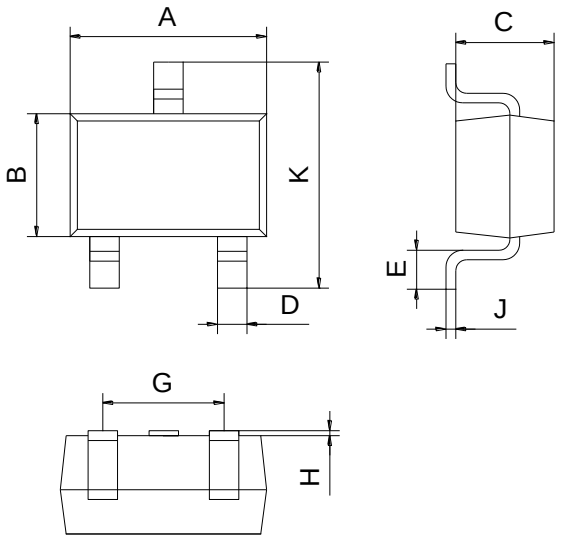


Fig 4 Output Voltage vs Output Current

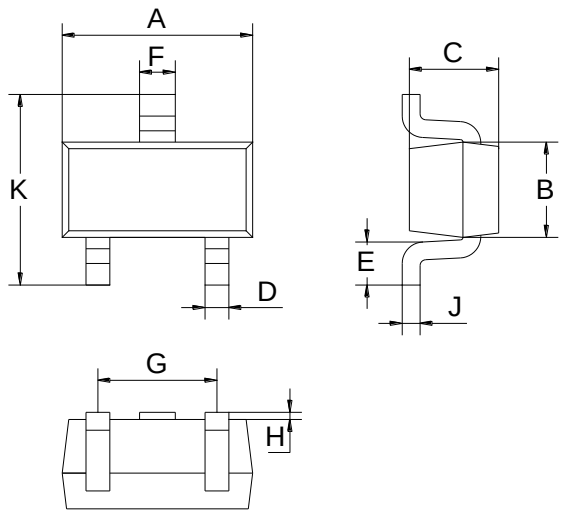
Package Outline Dimensions (Unit: mm)



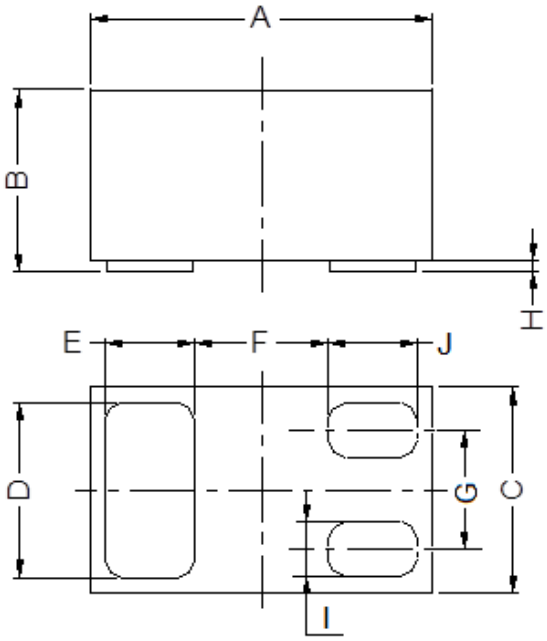
SOT-23		
Dimension	**Min.**	**Max.**
A	2.70	3.10
B	1.10	1.50
C	0.90	1.10
D	0.30	0.50
E	0.35	0.48
G	1.80	2.00
H	0.02	0.10
J	0.05	0.15
K	2.20	2.60



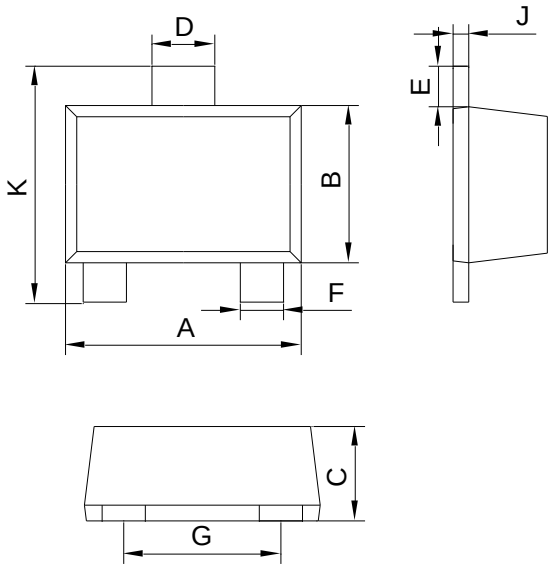
SOT-323		
Dimension	**Min.**	**Max.**
A	2.00	2.20
B	1.15	1.35
C	0.90	1.10
D	0.15	0.35
E	0.25	0.40
G	1.20	1.40
H	0.02	0.10
J	0.05	0.15
K	2.20	2.40



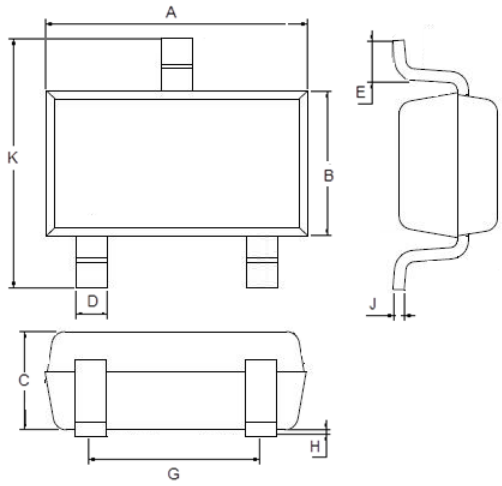
SOT-523		
Dimension	**Min.**	**Max.**
A	1.50	1.70
B	0.75	0.85
C	0.60	0.80
D	0.15	0.30
E	0.30	0.40
F	0.25	0.40
G	0.90	1.10
H	0.02	0.10
J	0.08	0.18
K	1.45	1.75



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



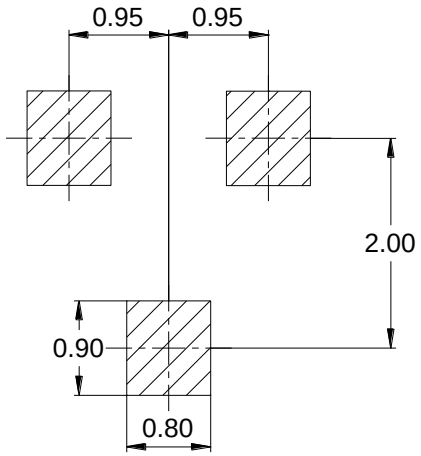
SOT-723		
Dimension	**Min.**	**Max.**
A	1.10	1.30
B	0.70	0.90
C	0.40	0.54
D	0.22	0.42
E	0.10	0.30
F	0.12	0.32
G	0.70	0.90
J	0.08	0.15
K	1.10	1.30



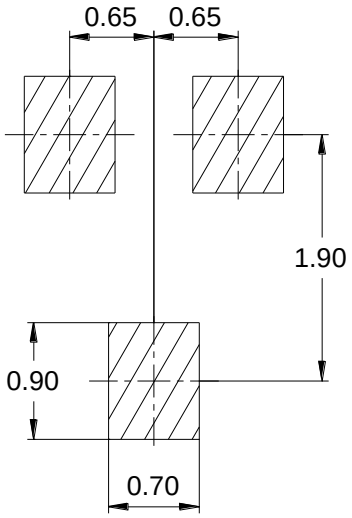
SOT-23-3L		
Dimension	**Min.**	**Max.**
A	2.80	3.00
B	1.50	1.70
C	1.00	1.20
D	0.35	0.45
E	0.35	0.55
G	1.80	2.00
H	0.02	0.10
J	0.10	0.20
K	2.60	3.00

Mounting Pad Layout (Unit: mm)

SOT-23



SOT-323



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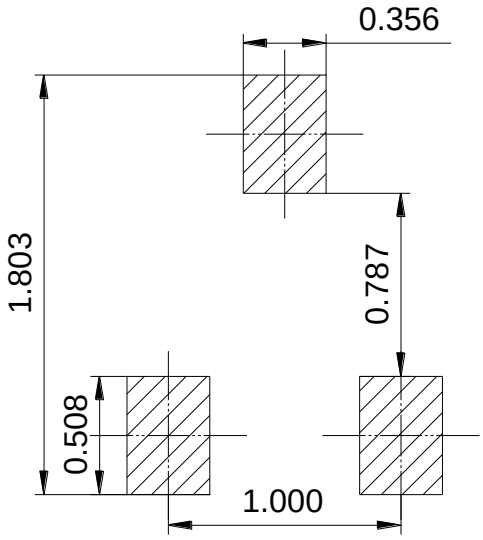
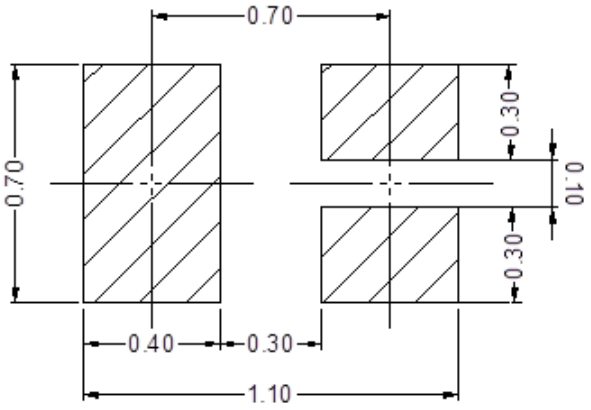


DFN1006-3



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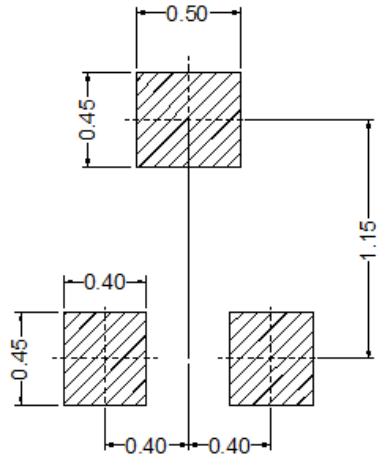

SOT-23-3L