

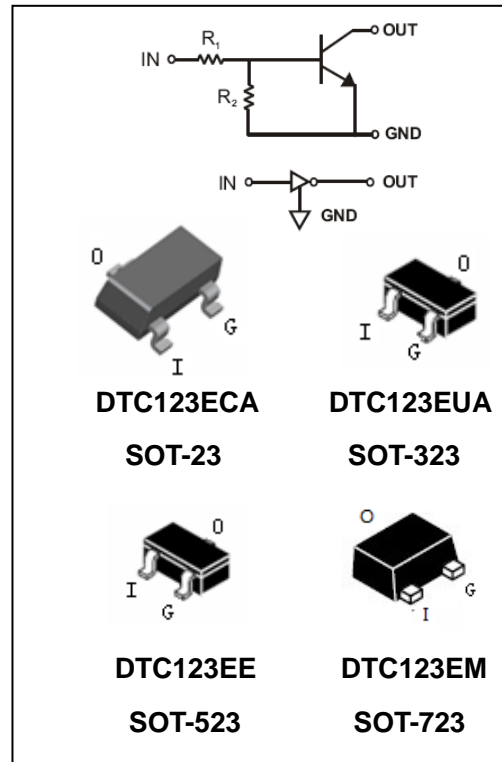


FEATURES

- Epitaxial planar die construction.
- Complementary PNP types available(DTA).
- Built-in biasing resistors, $R_1=R_2$
- Also available in lead free version.

APPLICATIONS

- The NPN style digital transistor.



ORDERING INFORMATION

Type No.	Marking	Package Code
DTC123ECA	22	SOT-23
DTC123EUA	22	SOT-323
DTC123EE	22	SOT-523
DTC123EM	22	SOT-723

MAXIMUM RATING @ $T_a=25^{\circ}\text{C}$ unless otherwise specified

Symbol	Parameter	Value	Units
V_{CC}	Supply Voltage	50	V
V_{IN}	Input Voltage	-10 to +12	V
I_o	Output Current	100	mA
$I_C(\text{Max.})$	Output current	100	mA
P_D	Power Dissipation(SOT-23)	200	mW
P_D	Power Dissipation(SOT-323)	200	mW
P_D	Power Dissipation(SOT-523)	150	mW
P_D	Power Dissipation(SOT-723)	150	mW
T_j, T_{stg}	Operating and Storage and Temperature Range	-55 to +150	$^{\circ}\text{C}$



ELECTRICAL CHARACTERISTICS @ Ta=25°C unless otherwise specified

Parameter	Symbol	Test conditions	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	-	-	
Output Voltage	$V_{O(on)}$	$I_O/I_I=10mA/0.5mA,$	-	-	0.3	V
Input Current	I_I	$V_I=5V$	-	-	3.8	mA
Output Current	$I_{O(off)}$	$V_{CC}=50V, V_I=0V$	-	-	0.5	μA
DC Current Gain	G_I	$V_O=5V, I_O=20mA$	20	-	-	-
Input Resistor	$R_1(R_2)$		1.54	2.2	2.86	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

TYPICAL CHARACTERISTICS @ Ta=25°C unless otherwise specified

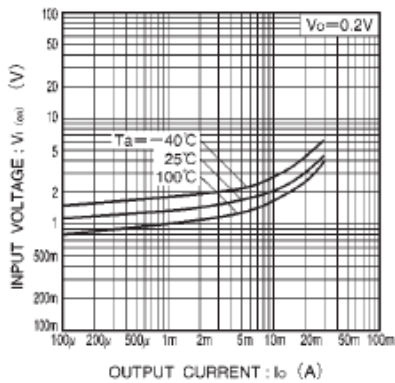


Fig.1 Input voltage vs. output current (ON characteristics)

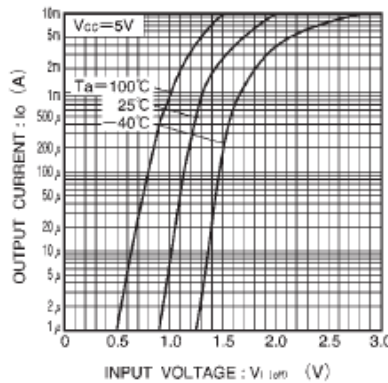


Fig.2 Output current vs. input voltage (OFF characteristics)

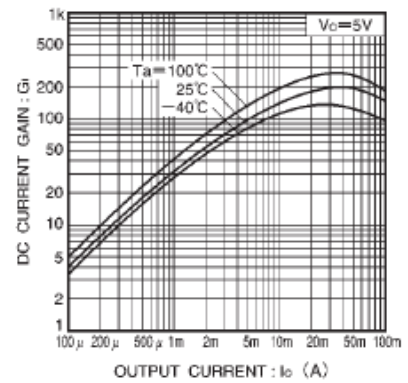


Fig.3 DC current gain vs. output current

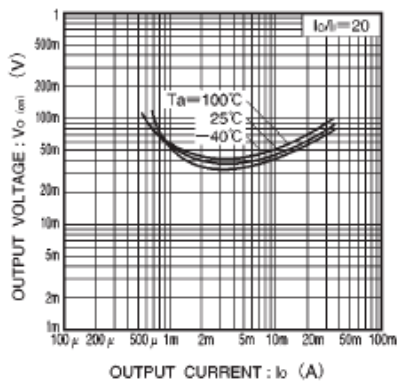


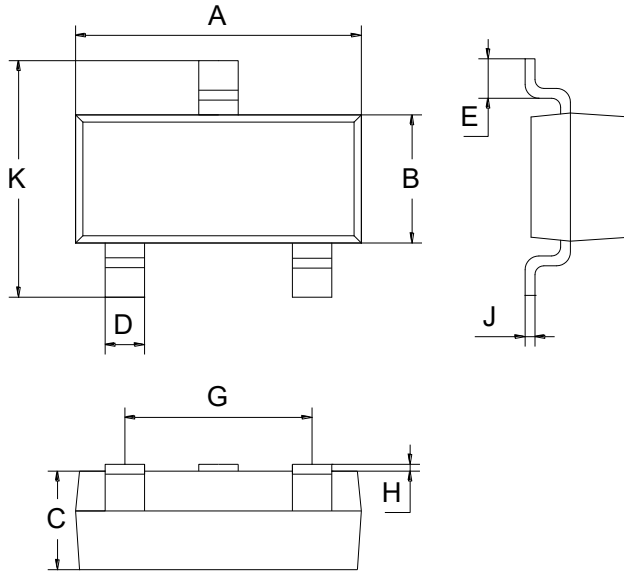
Fig.4 Output voltage vs. output current



PACKAGE OUTLINE

Plastic surface mounted package

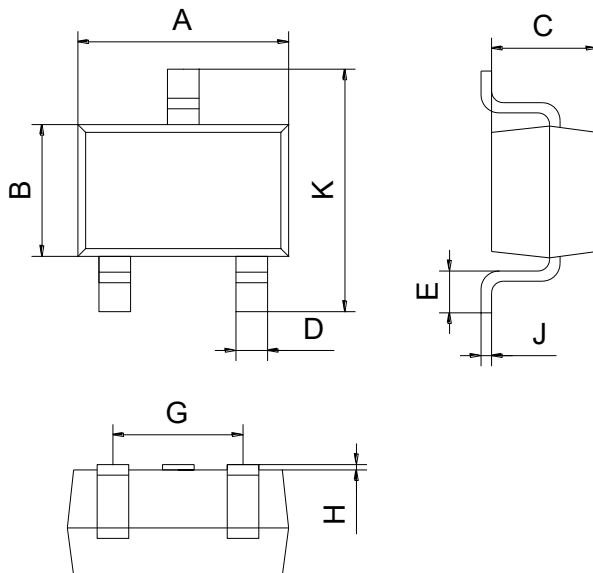
SOT-23



SOT-23		
Dim	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
All Dimensions in mm		

Plastic surface mounted package

SOT-323

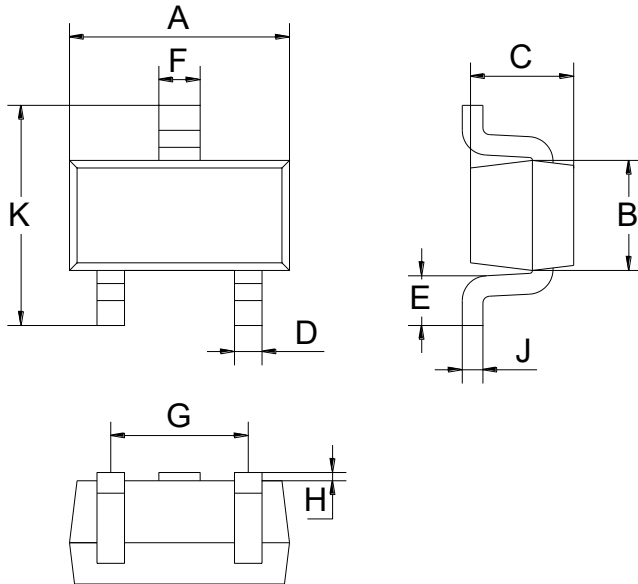


SOT-323		
Dim	Min	Max
A	2.00	2.20
B	1.15	1.35
C	0.90	1.10
D	0.15	0.35
E	0.25	0.40
G	1.20	1.40
H	0.02	0.10
J	0.05	0.15
K	2.20	2.40
All Dimensions in mm		



Plastic surface mounted package

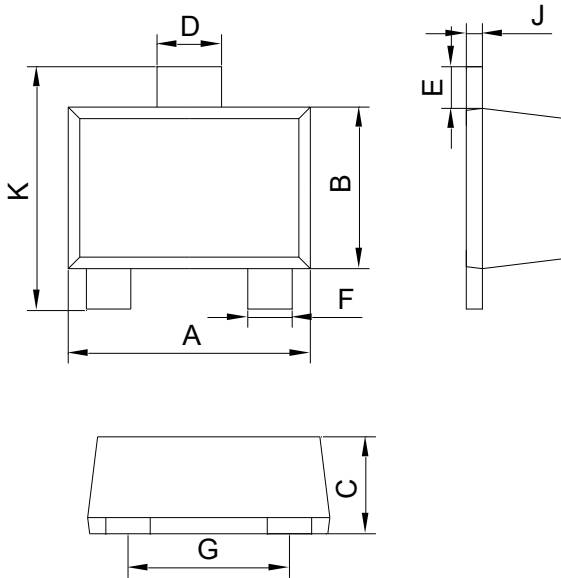
SOT-523



SOT-523		
Dim	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
All Dimensions in mm		

Plastic surface mounted package

SOT-723

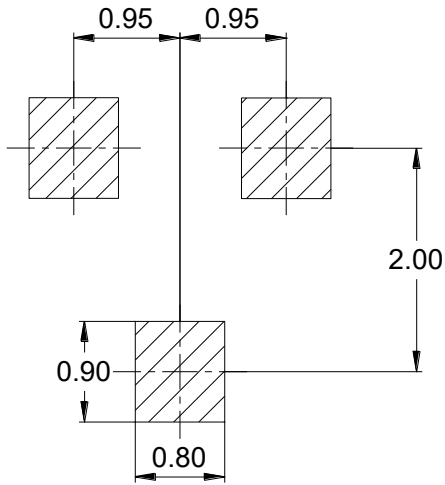


SOT-723		
Dim	Min	Max
A	1.10	1.30
B	0.70	0.90
C	0.40	0.54
D	0.22	0.42
E	0.10	0.30
F	0.12	0.32
G	0.70	0.90
J	0.08	0.15
K	1.10	1.30
All Dimensions in mm		

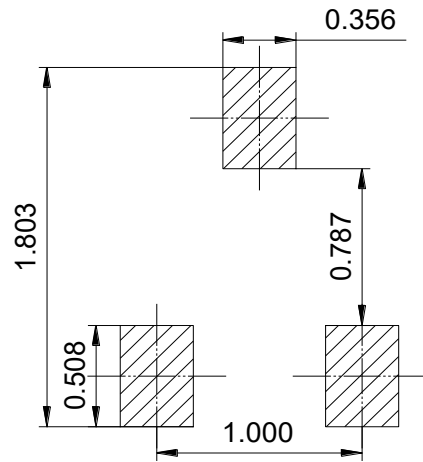


SOLDERING FOOTPRINT Unit: mm

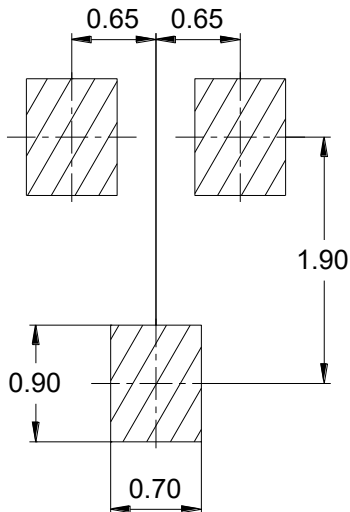
SOT-23



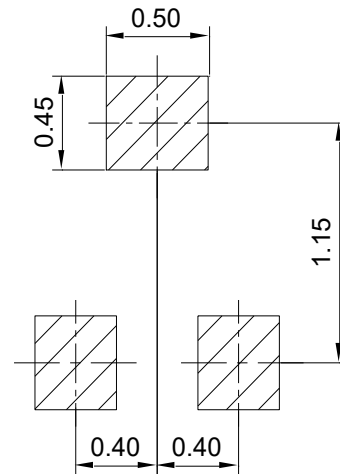
SOT-523



SOT-323



SOT-723



PACKAGE INFORMATION

Device	Package	Shipping
DTC123ECA	SOT-23	3000pcs / Tape & Reel
DTC123EUA	SOT-323	3000pcs / Tape & Reel
DTC123EE	SOT-523	3000pcs / Tape & Reel
DTC123EM	SOT-723	10000pcs / Tape & Reel