

Digital Transistor

TDTC123E(R₁=R₂ SERIES)

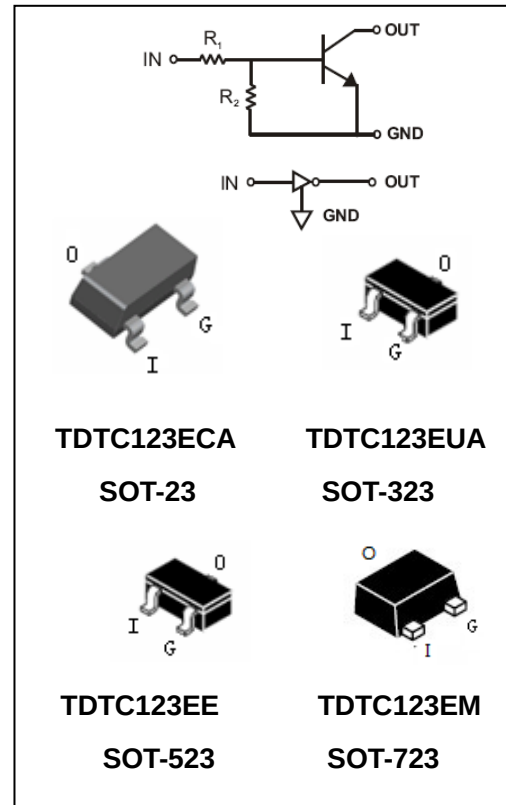
FEATURES

HF

- Epitaxial planar die construction
- Complementary PNP types available(TDTA)
- Built-in biasing resistors, R₁=R₂
- Also available in lead free version
- Halogen free
- Qualified to AEC-Q101 standards for high reliability

APPLICATIONS

- The NPN style digital transistor.



ORDERING INFORMATION

Type No.	Marking	Package Code
TDTC123ECA	22	SOT-23
TDTC123EUA	22	SOT-323
TDTC123EE	22	SOT-523
TDTC123EM	22	SOT-723

MAXIMUM RATING @ Ta=25°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 (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-523)	150	mW
T _J , T _{stg}	Operating and Storage and Temperature Range	-55 to +150	°C

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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

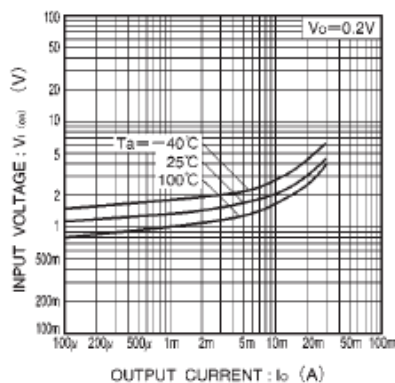


Fig.1 Input voltage vs. output current (ON characteristics)

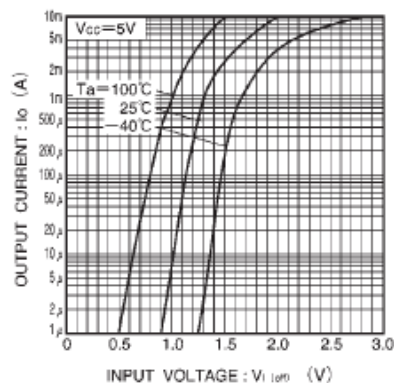


Fig.2 Output current vs. input voltage (OFF characteristics)

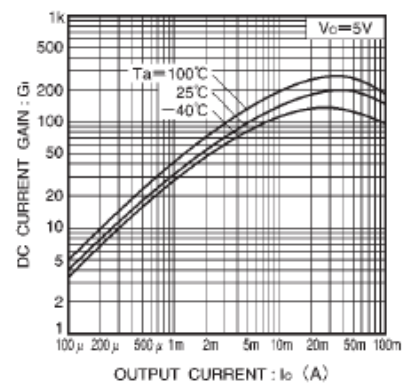


Fig.3 DC current gain vs. output current

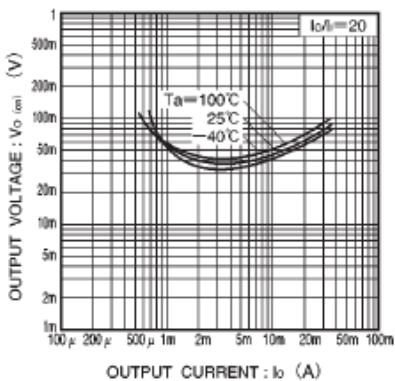


Fig.4 Output voltage vs. output current

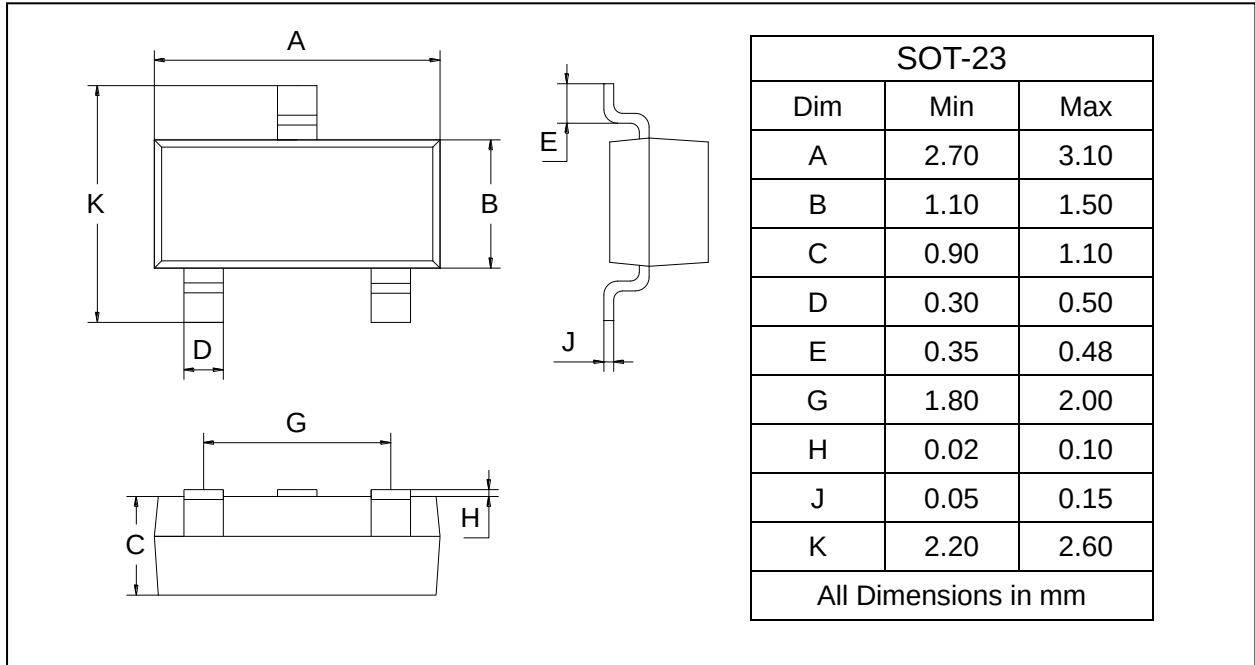
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PACKAGE OUTLINE

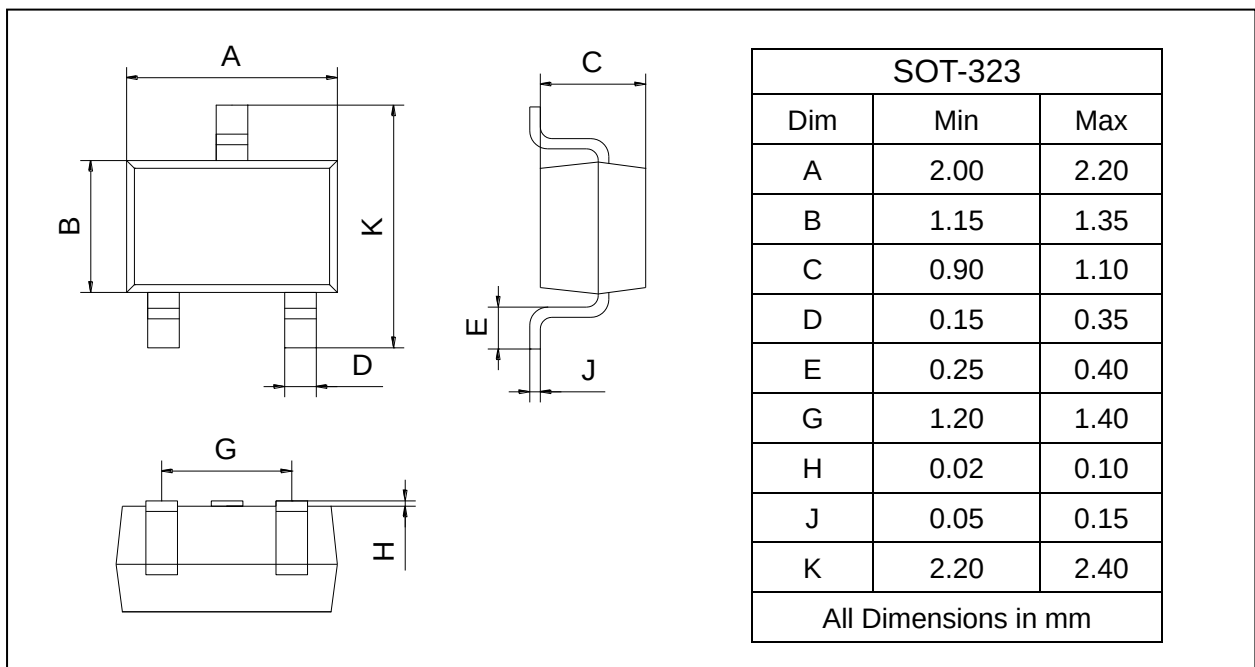
Plastic surface mounted package

SOT-23



Plastic surface mounted package

SOT-323

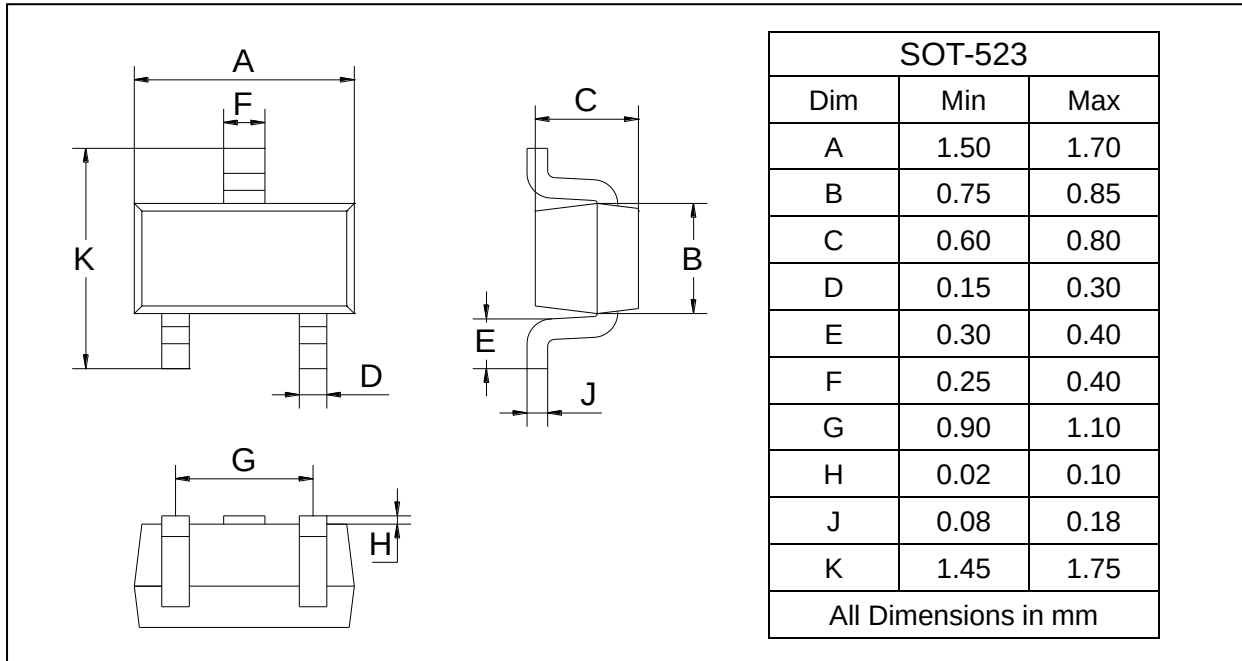


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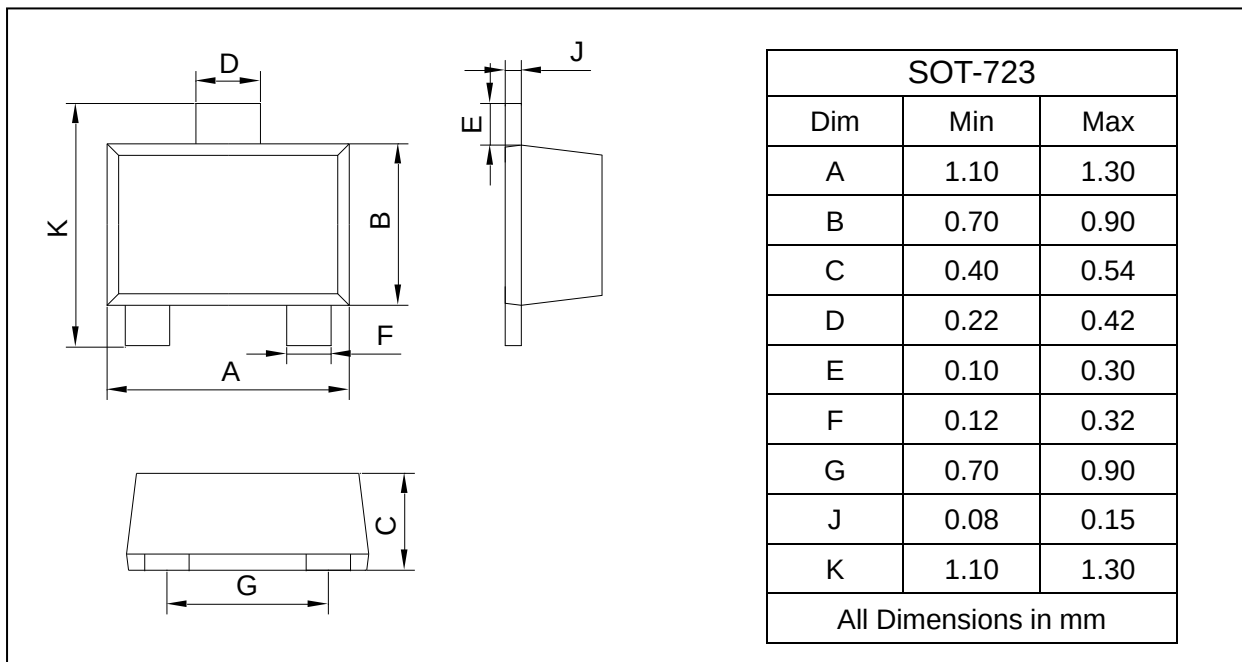
Plastic surface mounted package

SOT-523



Plastic surface mounted package

SOT-723

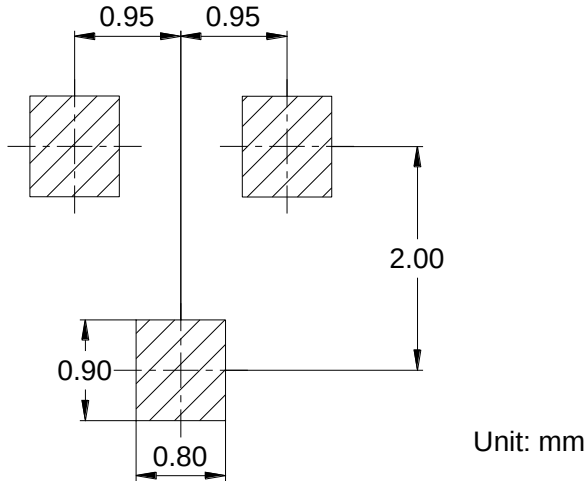


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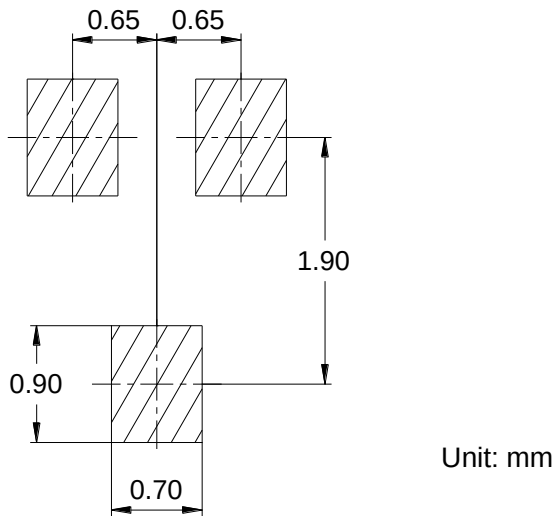
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SOLDERING FOOTPRINT

SOT-23



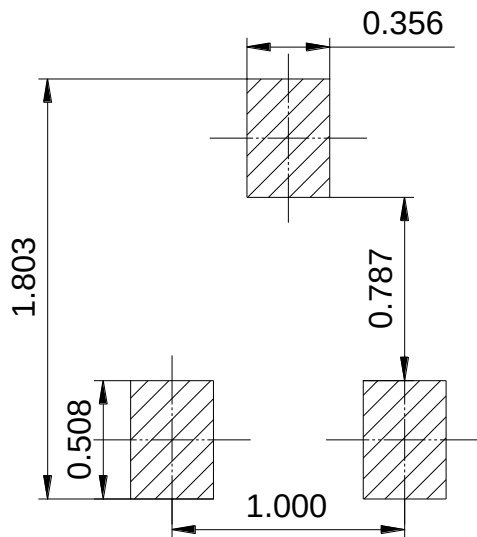
SOT-323



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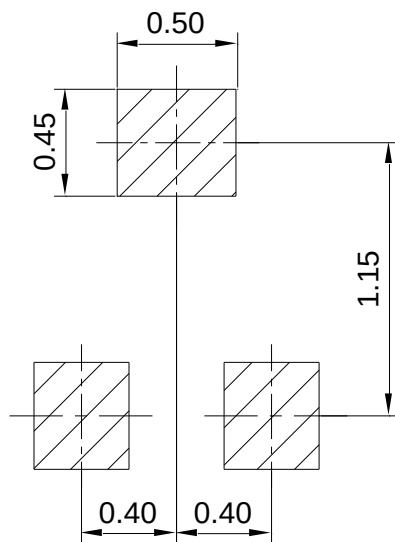
TDTC123E(R₁=R₂ SERIES)

SOT-523



Unit: mm

SOT-723



Unit: mm

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PACKAGE INFORMATION

Device	Package	Shipping
TDTC123ECA	SOT-23	3000pcs / Tape & Reel
TDTC123EUA	SOT-323	3000pcs / Tape & Reel
TDTC123EE	SOT-523	3000pcs / Tape & Reel
TDTC123EM	SOT-723	10000pcs / Tape & Reel