Digital Transistor

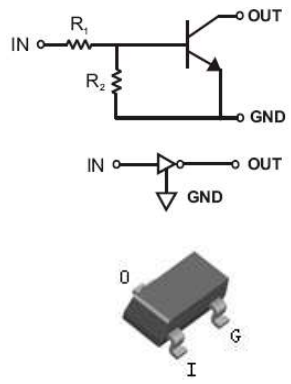
TDTC(R_1=R_2 SERIES)CAG

FEATURES

Lead-free

HF

- Epitaxial planar die construction.
- Complementary PNP types available(DTA).
- Built-in biasing resistors,R_1=R_2.
- Also available in lead free version.
- Qualified to AEC-Q101 Standards for High Reliability.
- Non-Halogen.



SOT-23

APPLICATIONS

- The NPN style digital transistor.

ORDERING INFORMATION

Type No.	Marking	Package Code
TDTC114ECAG	24	SOT-23
TDTC124ECAG	25	SOT-23
TDTC143ECAG	23	SOT-23
TDTC144ECAG	26	SOT-23

MAXIMUM RATING @ Ta=25℃ unless otherwise specified

Symbol	Parameter		Value	Units
V_{CC}	Supply Voltage		50	V
V_{IN}	Input Voltage	TDTC114ECAG	-10 to+40	V
		TDTC124ECAG	-10 to+40	
		TDTC143ECAG	-10 to+30	
		TDTC144ECA	-10 to+40	
I_O	Output Current	TDTC114ECAG	50	mA
		TDTC124ECAG	30	
		TDTC143ECAG	100	
		TDTC144ECAG	100	
I_C(Max.)	Output current	ALL	100	mA
P_D	Power Dissipation		200	mW
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient Air		625	℃/W
T_j,T_{stg}	Operating and Storage and Temperature Range		-55 to +150	℃

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ELECTRICAL CHARACTERISTICS @ Ta=25℃ unless otherwise specified

Parameter		Symbol	Test conditions	MIN	TYP	MAX	UNIT
Input Voltage		$V_{I(off)}$	V_{CC}=5V,I_O=100μA	0.5	1.1	-	V
Input Voltage	TDTC114ECAG TDTC124ECAG TDTC143ECAG TDTC144ECAG	$V_{I(on)}$	V_O=0.3V,I_O=10mA V_O=0.2V,I_O=5mA V_O=0.3V,I_O=20mA V_O=0.3V,I_O=2mA	-	1.9	3	
Output Voltage		$V_{O(on)}$	I_o/I_I=10mA/0.5mA,	-	0.1	0.3	V
Input Current	TDTC114ECAG TDTC124ECAG TDTC143ECAG TDTC144ECAG	I_I	V_I=5V	-	-	0.88 0.36 1.8 0.18	mA
Output Current		$I_{O(off)}$	V_{CC}=50V,V_I=0V	-	-	0.5	μA
DC Current Gain	TDTC114ECAG TDTC124ECAG TDTC143ECAG TDTC144ECAG	G_I	V_O=5V,I_O=5mA V_O=5V,I_O=5mA V_O=5V,I_O=10mA V_O=5V,I_O=5mA	30 56 20 68	-	-	
Input Resistor	TDTC114ECAG TDTC124ECAG TDTC143ECAG TDTC144ECAG	$R_1(R_2)$		7 15.4 3.29 32.9	10 22 4.7 47	13 28.6 6.11 61.1	kΩ
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℃ unless otherwise specified

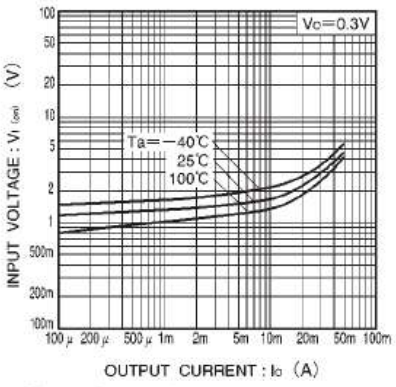

Fig.1 Input voltage vs. output current (ON characteristics)

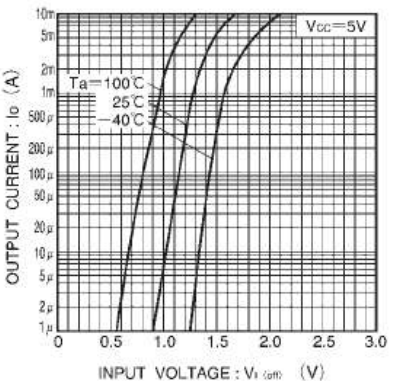

Fig.2 Output current vs. input voltage (OFF characteristics)

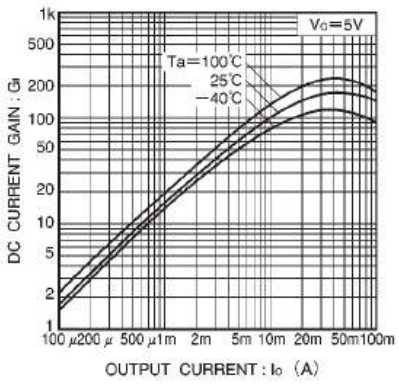

Fig.3 DC current gain vs. output current

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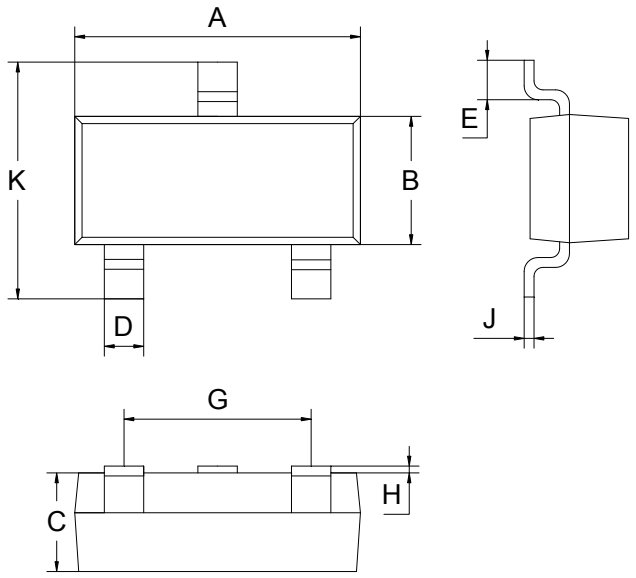
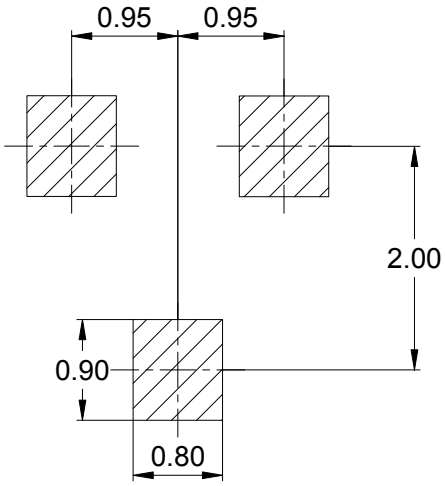
PACKAGE OUTLINE

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		

SOLDERING FOOTPRINT



Unit : mm

PACKAGE INFORMATION

Device	Package	Shipping
TDTC114ECAG/124ECAG/143ECAG/144ECAG	SOT-23	3000/Tape&Reel