Digital Transistor

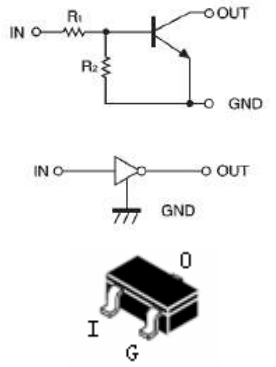
TDTC(R_1=R_2 SERIES)EG

FEATURES

Lead-free

HF

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



SOT-523

APPLICATIONS

- The NPN style digital transistor.

ORDERING INFORMATION

Type No.	Marking	Package Code
TDTC114EEG	24	SOT-523
TDTC124EEG	25	SOT-523
TDTC143EEG	23	SOT-523
TDTC144EEG	26	SOT-523

MAXIMUM RATING @ Ta=25℃ unless otherwise specified

Symbol	Parameter		Value	Units
V_{CC}	Supply Voltage		50	V
V_{IN}	Input Voltage	TDTC114EEG	-10 to +40	V
		TDTC124EEG	-10 to +40	
		TDTC143EEG	-10 to +30	
		TDTC144EEG	-10 to +40	
I_O	Output Current	TDTC114EEG	50	mA
		TDTC124EEG	30	
		TDTC143EEG	100	
		TDTC144EEG	30	
I_C(Max.)	Output current	ALL	100	mA
P_D	Power Dissipation		150	mW
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient Air		833	℃/W
T_j,T_{stg}	Operating and Storage and Temperature Range		-55 to +150	℃

Digital Transistor TDTC(R_1=R_2 SERIES)EG

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	TDTC114EEG TDTC124EEG TDTC143EEG TDTC144EEG	$V_{I(on)}$	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	TDTC114EEG TDTC124EEG TDTC143EEG TDTC144EEG	$V_{O(on)}$	I_o/I_I=10mA/0.5mA,	-	0.1	0.3	V
Input Current	TDTC114EEG TDTC124EEG TDTC143EEG TDTC144EEG	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	TDTC114 EEG TDTC124EEG TDTC143EEG TDTC144EEG	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	TDTC114EEG TDTC124EEG TDTC143EEG TDTC144EEG	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

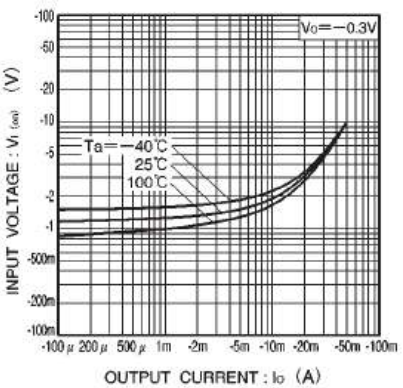


Fig.1 Input voltage vs. output current (ON characteristics)

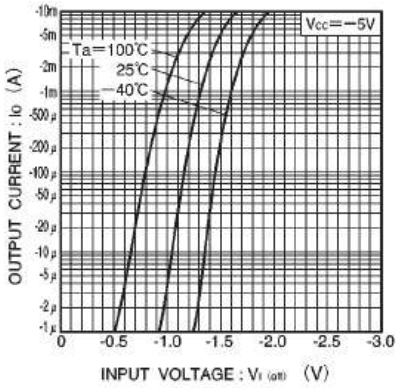


Fig.2 Output current vs. input voltage (OFF characteristics)

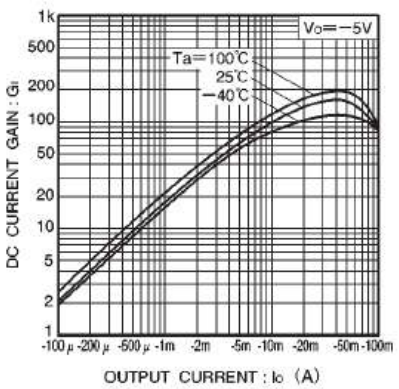
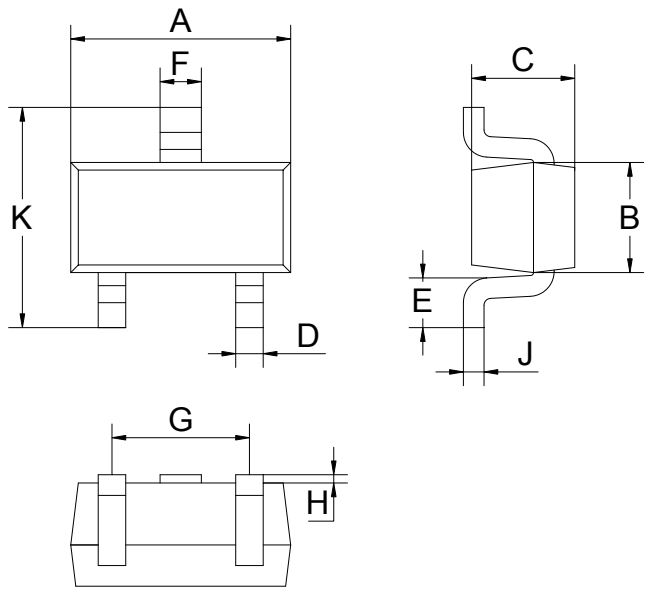


Fig.3 DC current gain vs. output current

Digital Transistor TDTC(R_1=R_2 SERIES)EG

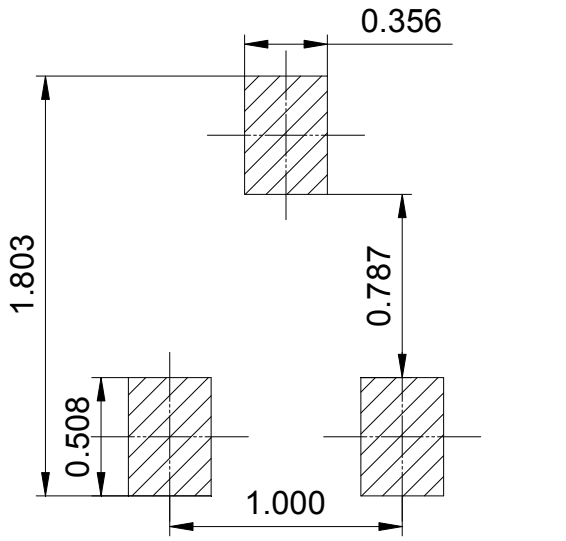
PACKAGE OUTLINE

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
G	0.90	1.10
H	0.02	0.1
J	0.08	0.18
K	1.45	1.75
All Dimensions in mm		

SOLDERING FOOTPRINT



Unit : mm

PACKAGE INFORMATION

Device	Package	Shipping
TDTCXXXEEG(114/124/143/144)	SOT-523	3000/Tape&Reel