



DTA114EE Digital Transistor

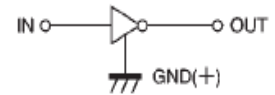
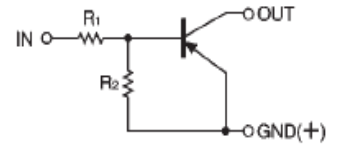
FEATURES

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

APPLICATIONS

- The NPN style digital transistor.

Marking : 14



SOT-523

MAXIMUM RATING @ Ta=25°C unless otherwise specified

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



ELECTRICAL CHARACTERISTICS @ $T_a=25^{\circ}\text{C}$ unless otherwise specified

Parameter	Symbol	Test conditions	MIN	TYP	MAX	UNIT
Input Voltage	$V_{I(\text{off})}$	$V_{CC}=-5\text{V}, I_O=-100\mu\text{A}$	-0.5	-1.1	-	V
Input Voltage	$V_{I(\text{on})}$	$V_O=-0.3\text{V}, I_O=-10\text{mA}$	-	-1.9	-3	
Output Voltage	$V_{O(\text{on})}$	$I_O/I_I=-10\text{mA}/-0.5\text{mA},$		-0.1	-0.3	V
Input Current	I_I	$V_I=-5\text{V}$			-0.88	mA
Output Current	$I_{O(\text{off})}$	$V_{CC}=-50\text{V}, V_I=0\text{V}$			-0.5	μA
DC Current Gain	G_I	$V_O=-5\text{V}, I_O=-5\text{mA}$	30			
Input Resistor DTA114EUA	$R_1(R_2)$		7	10	13	k Ω
Resistance Ratio	R_2/R_1		0.8	1	1.2	
Gain-Bandwidth Product	f_T	$V_{CE}=-10\text{V}, I_E=5\text{mA},$ $f=100\text{MHz}$	-	250	-	MHz



TYPICAL CHARACTERISTICS @ $T_a=25^\circ\text{C}$ unless otherwise specified

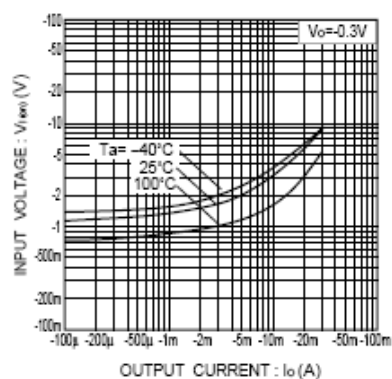


Fig.1 Input voltage vs. output current (ON characteristics)

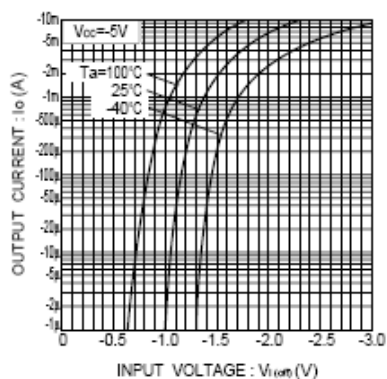


Fig.2 Output current vs. input voltage (OFF characteristics)

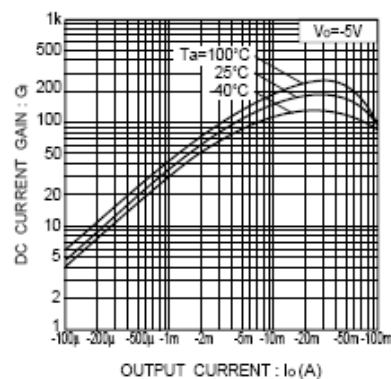


Fig.3 DC current gain vs. output current

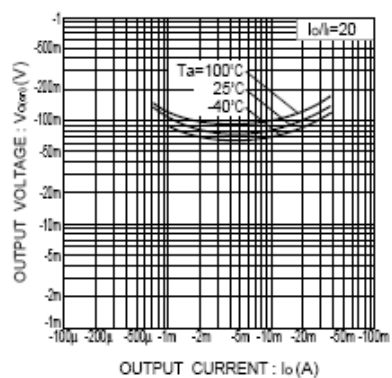
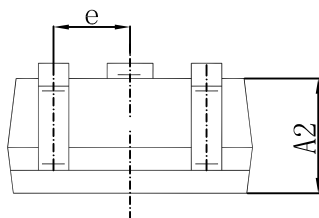
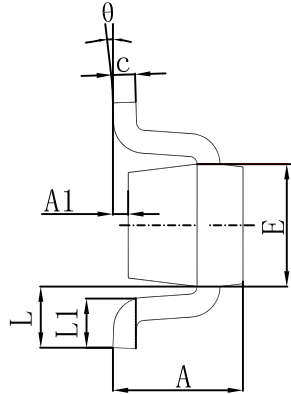
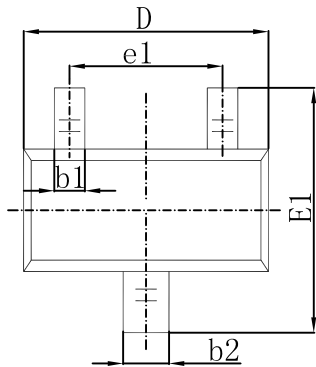


Fig.4 Output voltage vs. output current

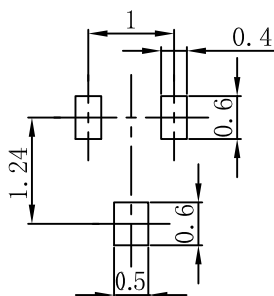


SOT-523 Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.700	0.900	0.028	0.035
A1	0.000	0.100	0.000	0.004
A2	0.700	0.800	0.028	0.031
b1	0.150	0.250	0.006	0.010
b2	0.250	0.350	0.010	0.014
c	0.100	0.200	0.004	0.008
D	1.500	1.700	0.059	0.067
E	0.700	0.900	0.028	0.035
E1	1.450	1.750	0.057	0.069
e	0.500 TYP.		0.020 TYP.	
e1	0.900	1.100	0.035	0.043
L	0.400 REF.		0.016 REF.	
L1	0.260	0.460	0.010	0.018
θ	0°	8°	0°	8°

SOT-523 Suggested Pad Layout



Note:

1. Controlling dimension: in millimeters.

2. General tolerance: $\pm 0.05\text{mm}$.

3. The pad layout is for reference purposes only.