



# MMDTA114EE

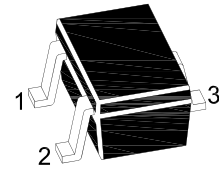
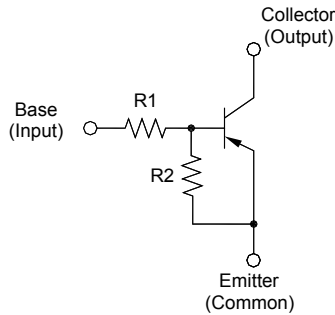
## PNP Silicon Epitaxial Planar Transistor

for switching and interface circuit and drive circuit

applications

### Features

- With built-in bias resistors
- Simplify circuit design
- Reduce a quantity of parts and manufacturing process



1.Base 2.Emitter 3.Collector  
SOT-523 Plastic Package

### Absolute Maximum Ratings ( $T_a = 25^\circ\text{C}$ )

Parameter	Symbol	Value	Unit
Collector Emitter Voltage	$V_{CEO}$	-50	V
Input Voltage	$V_I$	+10 to - 40	V
Collector Current	$I_C$	-100	mA
Power Dissipation	$P_{tot}$	150	mW
Junction Temperature	$T_J$	150	$^\circ\text{C}$
Storage Temperature Range	$T_{stg}$	- 55 to + 150	$^\circ\text{C}$

### Characteristics at $T_a = 25^\circ\text{C}$

Parameter	Symbol	Min.	Typ.	Max.	Unit
DC Current Gain at $V_{CE} = -5\text{V}$ , $I_C = -5\text{mA}$	$h_{FE}$	30	-	-	-
Collector Base Cutoff Current at $V_{CB} = -50\text{V}$	$I_{CBO}$	-	-	-500	nA
Emitter Base Cutoff Current at $V_{EB} = -5\text{V}$	$I_{EBO}$	-	-	-0.88	mA
Collector Emitter Saturation Voltage at $I_C = -10\text{mA}$ , $I_B = -0.5\text{mA}$	$V_{CE(sat)}$	-	-	-0.3	V
Input on Voltage at $V_{CE} = -0.3\text{V}$ , $I_C = -10\text{mA}$	$V_{I(on)}$	-	-	-3	V
Input off Voltage at $V_{CE} = -5\text{V}$ , $I_C = -100\mu\text{A}$	$V_{I(off)}$	-0.5	-	-	V
Transition frequency at $V_{CE} = -10\text{V}$ , $I_E = -5\text{mA}$ , $f = -100\text{MHz}$	$f_T$	-	250	-	MHz
Input Resistance	$R_1$	7	10	13	K $\Omega$
Resistance Ratio	$R_2 / R_1$	0.8	1	1.2	-
Input Resistance	$R_1 + R_2$	20		22	K $\Omega$

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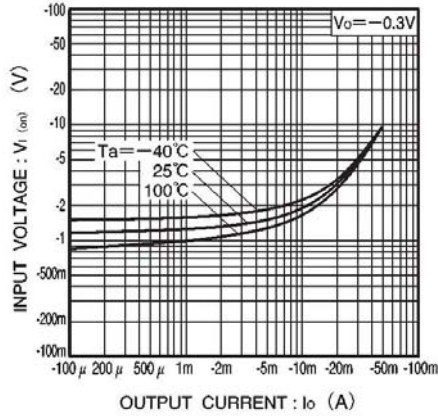


Fig.1 Input voltage vs. output current (ON characteristics)

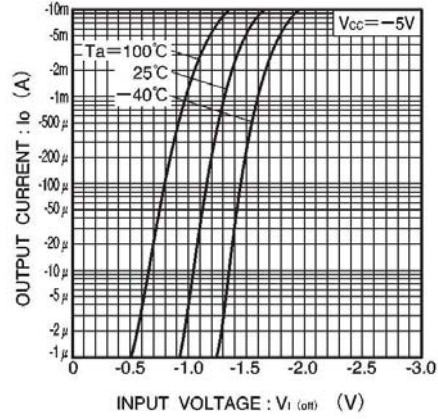


Fig.2 Output current vs. input voltage (OFF characteristics)

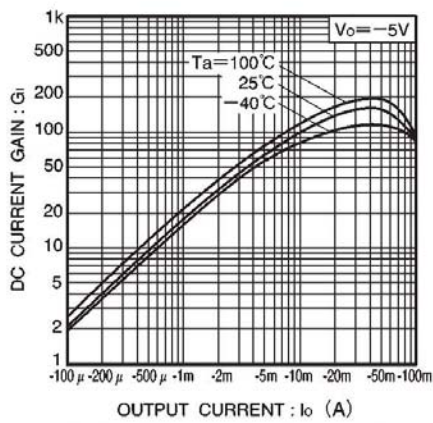


Fig.3 DC current gain vs. output current

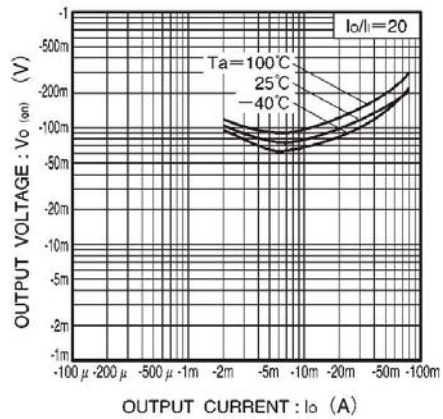
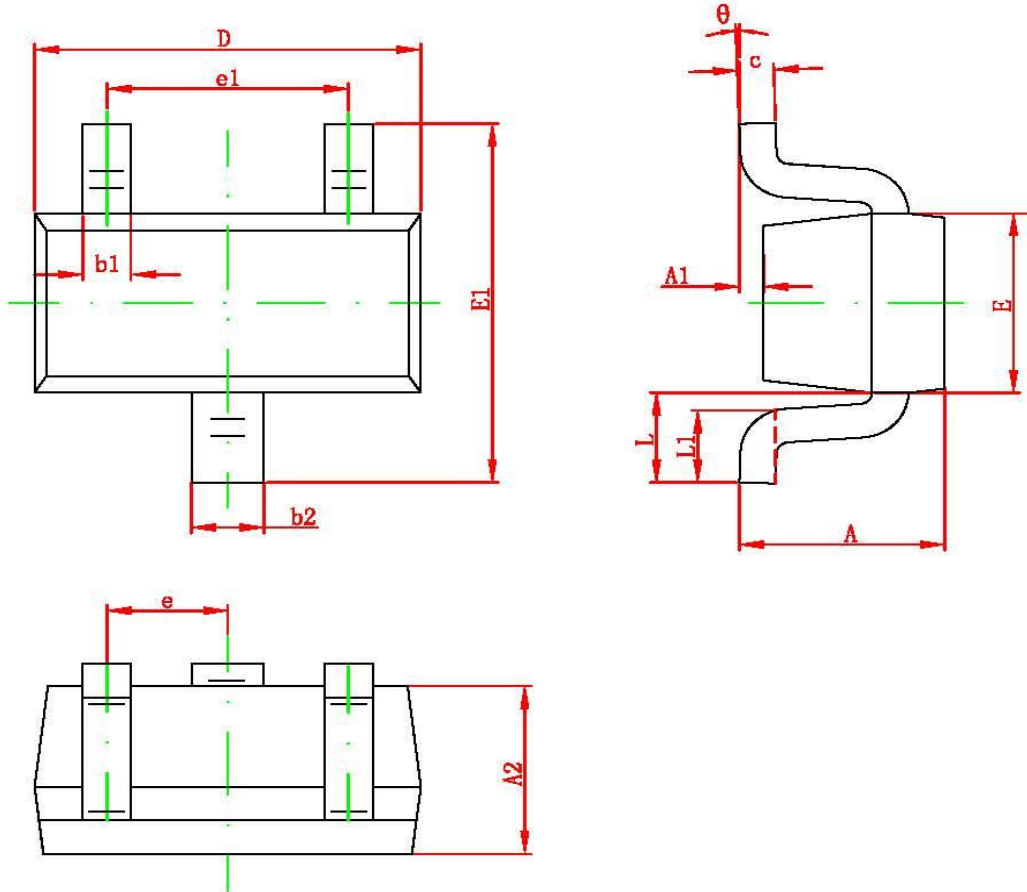


Fig.4 Output voltage vs. output current



### 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
$\theta$	0°	8°	0°	8°