

## Bias Resistor Transistors

PNP Silicon Surface Mount Transistors with Monolithic

Bias Resistor Network

### FEATURES

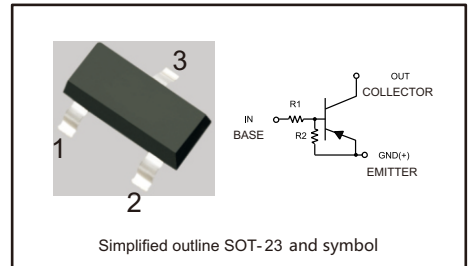
- Reduces board space
- Simplifies Circuit Design
- Reduces Board Space and Component Count

### Mechanical Data

- Case: SOT-23
- $R_1 = 2.2K\Omega$  (Typ) ,  $R_2 = 10K\Omega$  (Typ)

### PINNING

PIN	DESCRIPTION
1	BASE
2	EMITTER
3	COLLECTOR



### MAXIMUM RATINGS (Ta = 25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Collector-Base Voltage	$V_{CBO}$	-50	V
Collector-Emitter Voltage	$V_{CEO}$	-50	V
Output current	$I_c$	-500	mA
Power dissipation <sup>(1)</sup>	$P_D$	200	mW
Thermal Resistance – Junction-to-Ambient	$R_{\theta JA}$	625	°C/W
Junction temperature	$T_J$	150	°C
Range of storage temperature	$T_{stg}$	-55~ +150	°C

### ELECTRICAL CHARACTERISTICS (TA = 25°C unless otherwise noted.)

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_c = -10\mu A, I_E = 0$	-50			V
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_c = -2mA, I_B = 0$	-50			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E = -3mA, I_c = 0$	-5			V
Collector-Base Cut off Current	$I_{CBO}$	$V_{CB} = -50V, I_E = 0$			-100	nA
Collector-Emitter Cut off Current	$I_{CEO}$	$V_{CE} = -50V, I_B = 0$			-0.5	uA
Emitter-Base Cut off Current	$I_{EBO}$	$V_{EB} = -5V, I_c = 0$			-3	mA
DC Current Gain	$h_{FE}$	$V_{CE} = -5V, I_c = -50mA$	56			
Output Voltage (on)	$V_{OL}$	$V_{CE} = -5.0V, V_{BE} = -2.5V, R_L = 1.0K\Omega$			-0.2	V
Output Voltage (off)	$V_{OH}$	$V_{CE} = -5.0V, V_{BE} = -0.5V, R_L = 1.0K\Omega$	-4.9			V
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_c = -50mA, I_B = -2.5mA$			-0.3	V
Input Voltage(off)	$V_{I(off)}$	$V_{CE} = -5V, I_c = -100\mu A$	-0.3			V
Input Voltage(on)	$V_{I(on)}$	$V_{CE} = -0.3V, I_c = -20mA$			-2	V
Input resistance	$R_1$		1.5	2.2	2.9	K $\Omega$
Input resistance	$R_2$		7.0	10.0	13.0	K $\Omega$
Resistance ratio	$R_2 / R_1$		3.6	4.5	5.5	



### Typical Performance Characteristics

Fig 1. Input voltage vs. output current

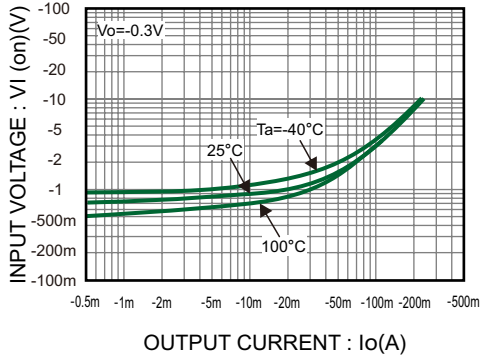


Fig 2. Output current vs. input voltage

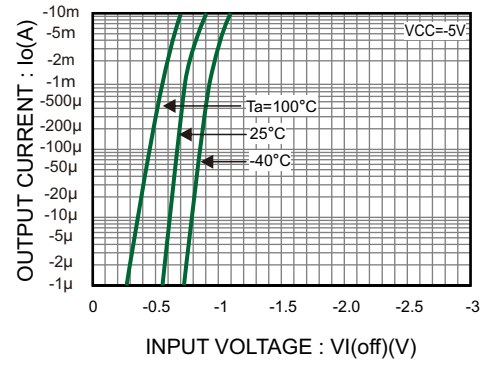


Fig 3. DC current gain vs. output current

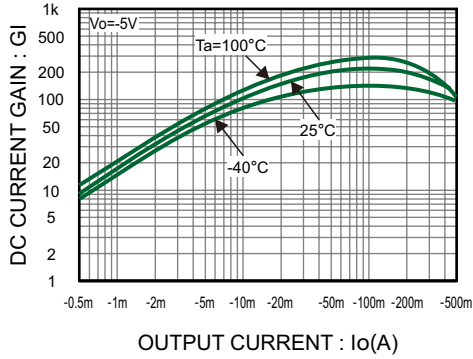
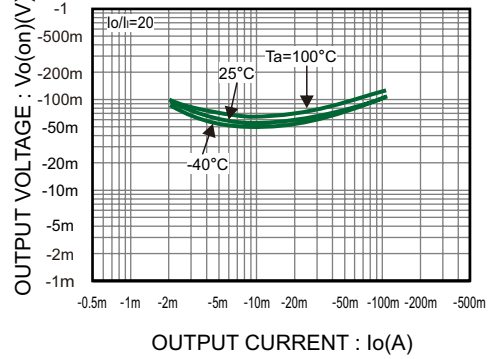
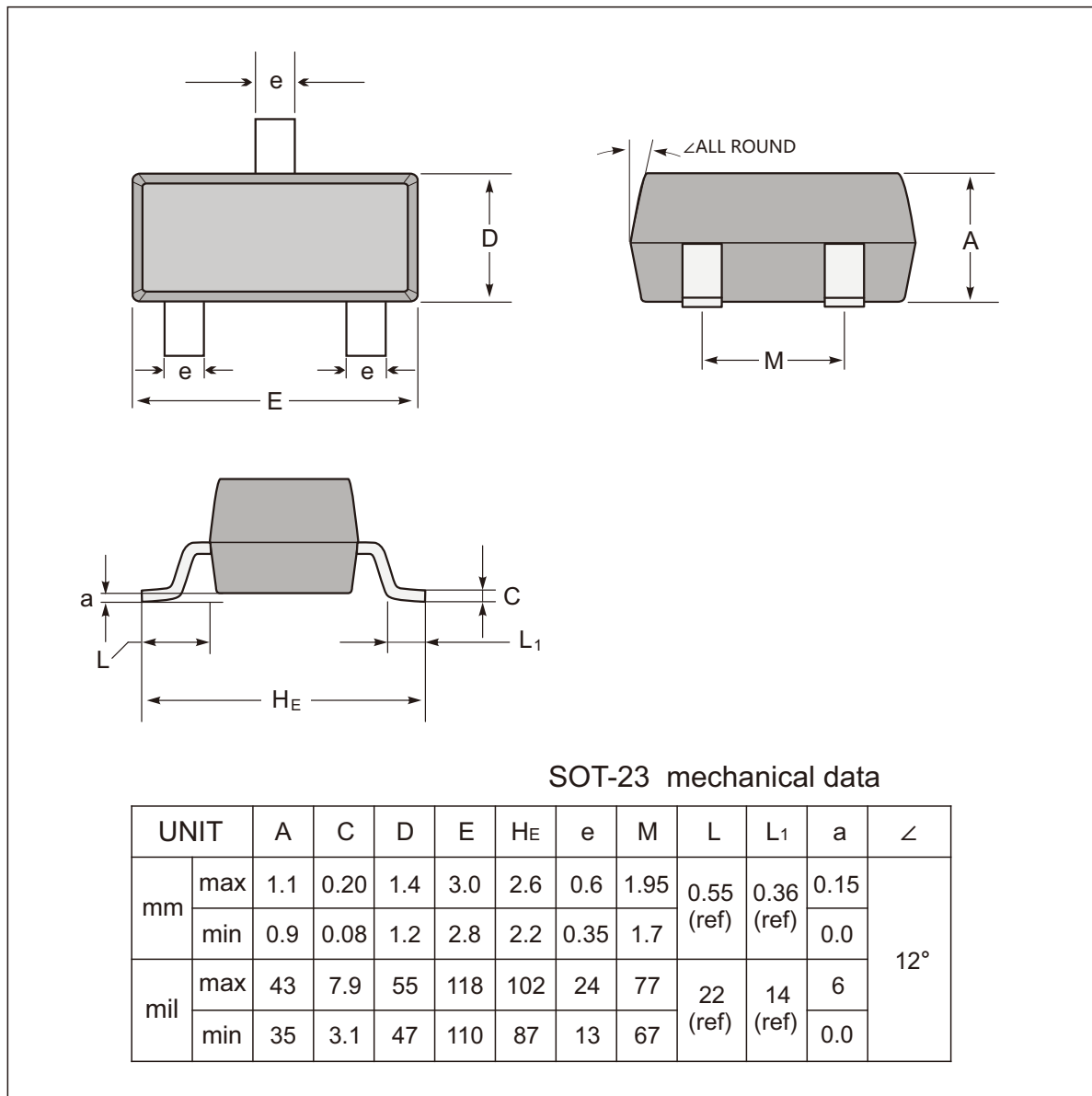


Fig 4. Output voltage vs. output current

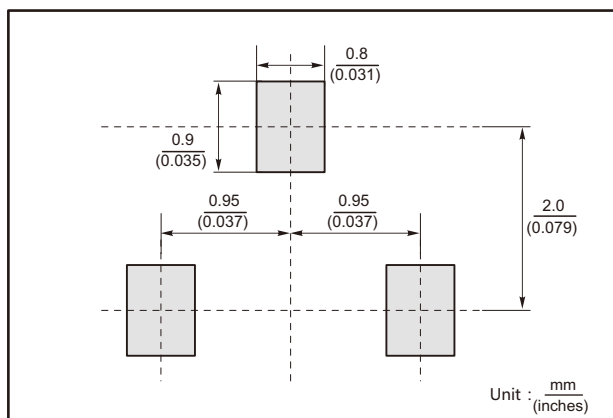




### SOT-23 Package Outline Dimensions



#### The recommended mounting pad size



#### Marking

Type number	Marking code
JDTB123YWD	Y08



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