



## Bias Resistor Transistors

NPN Silicon Surface Mount Transistors with Monolithic

Bias Resistor Network

### FEATURES

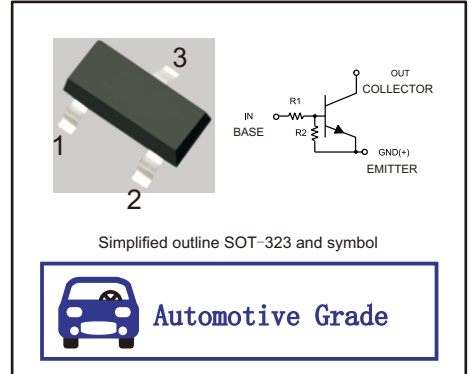
- Reduces board space
- Simplifies Circuit Design
- Reduces Board Space and Component Count

### Mechanical Data

- Case: SOT-23
- $R_1 = 10K\Omega$  (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	$V_{CB0}$	50	V
Collector-Emitter Voltage	$V_{CE0}$	50	V
Output current	$I_c$	100	mA
Power dissipation	$P_D$	200	mW
Thermal Resistance – Junction-to-Ambient	$R_{thJA}$	625	°C/W
Junction temperature	$T_J$	-55~ +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	$V_{(BR)CB0}$	$I_c = 10\mu A$ , $I_E = 0$	50			V
Collector-Emitter Breakdown Voltage	$V_{(BR)CE0}$	$I_c = 2mA$ , $I_B = 0$	50			V
Emitter-base breakdown voltage	$V_{(BR)EB0}$	$I_E = 1mA$ , $I_c = 0$	10			V
Collector-Base Cut off Current	$I_{CB0}$	$V_{CB} = 50V$ , $I_E = 0$			100	nA
Collector-Emitter Cut off Current	$I_{CE0}$	$V_{CE} = 50V$ , $I_B = 0$			0.5	uA
Emitter-Base Cutoff Current	$I_{EB0}$	$V_{EB} = 6V$ , $I_c = 0$			0.5	mA
DC Current Gain	$h_{FE}$	$V_{CE} = 10V$ , $I_c = 5mA$	35	60		
Output Voltage (on)	$V_{OL}$	$V_{CE} = 5.0V$ , $V_{BE} = 2.5V$ , $R_L = 1.0K\Omega$			0.2	V
Output Voltage (on)	$V_{OH}$	$V_{CE} = 5.0V$ , $V_{BE} = 0.5V$ , $R_L = 1.0K\Omega$	4.9			V
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_c = 10mA$ , $I_B = 0.3mA$			0.25	V
Input Voltage(off)	$V_{I(off)}$	$V_{CE} = 5V$ , $I_c = 100\mu A$	0.5			V
Input Voltage(on)	$V_{I(on)}$	$V_{CE} = 0.3V$ , $I_c = 10mA$			3	V
Input resistance	$R_1$		7	10	13	K $\Omega$
Input resistance	$R_2$		7	10	13	K $\Omega$
Resistance ratio	$R_2/ R_1$		0.8	1	1.2	



### Typical Performance Characteristics

Fig 1. HFE vs. IC

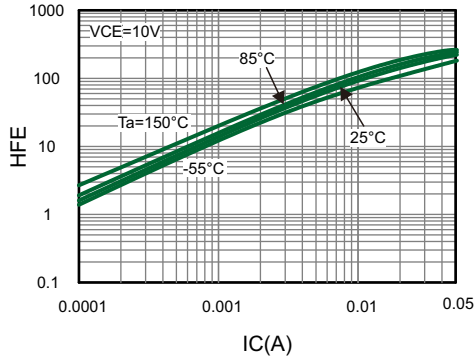


Fig 2. Vin vs. IC

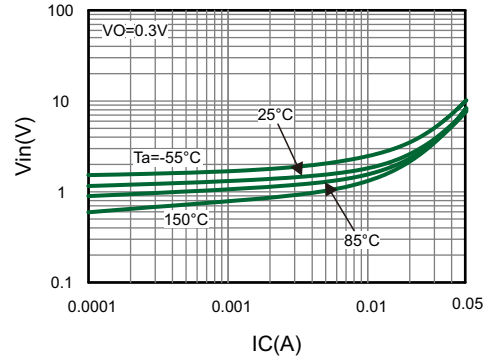


Fig 3. IC vs. Vin

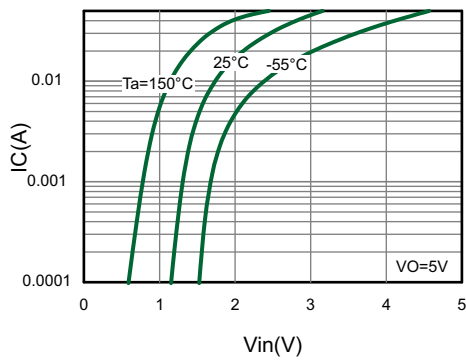


Fig 4. VCE(sat) vs. IC

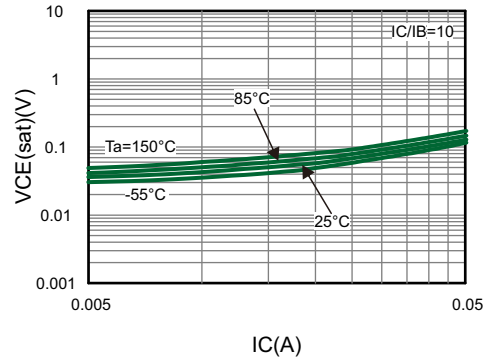
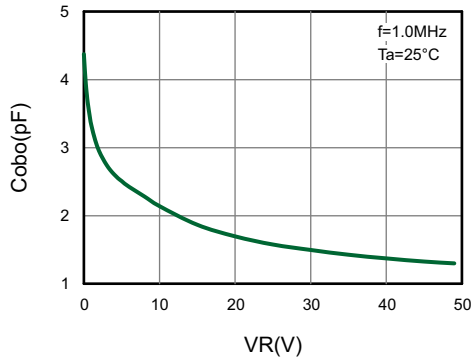
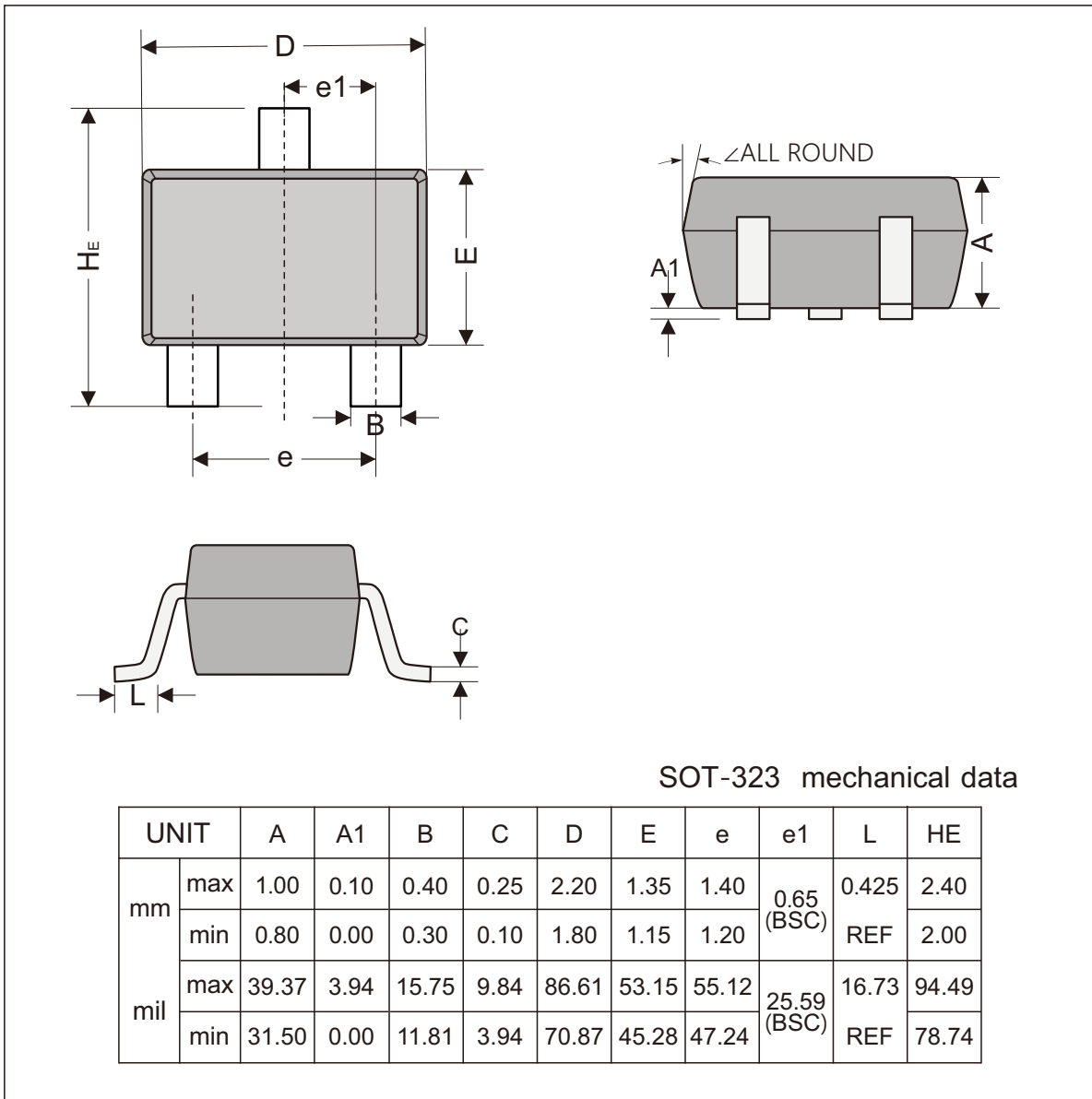


Fig 5. Capacitance

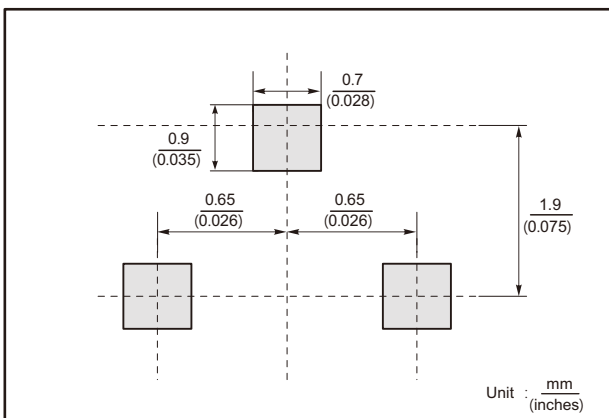




SOT-323 Package Outline Dimensions



The recommended mounting pad size



Marking

Type number	Marking code
JDTC114EWG	14E



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