

## FEATURES

- | High current

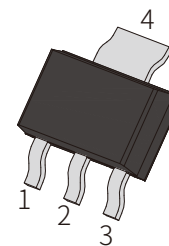
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- | Three current gain selections

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- | High power dissipation capability

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SOT-223

## APPLICATIONS

- | Linear voltage regulators

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- | High-side switches

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- | Battery-driven devices

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- | Power management

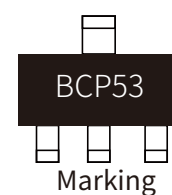
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- | MOSFET drivers

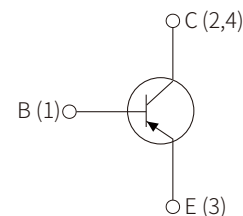
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- | Amplifiers

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Marking



Schematic Symbol

## APPROVALS

<b>RoHS</b>	Compliance with 2011/65/EU
<b>HF</b>	Compliance with IEC61249-2-21:2003

## MAXIMUM RATINGS ( $T_A=25^{\circ}\text{C}$ )

Parameter	Symbol	Value	Unit
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	-100	V
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	-80	
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	-5	
Collector Current (Continuous) <sup>(Note 1)</sup>	$I_C$	-1	A
Power Dissipation	$P_{tot}$	0.625	W
Junction Temperature Range	$T_J$	150	$^{\circ}\text{C}$
Storage Temperature Range	$T_{STG}$	-55~+150	$^{\circ}\text{C}$

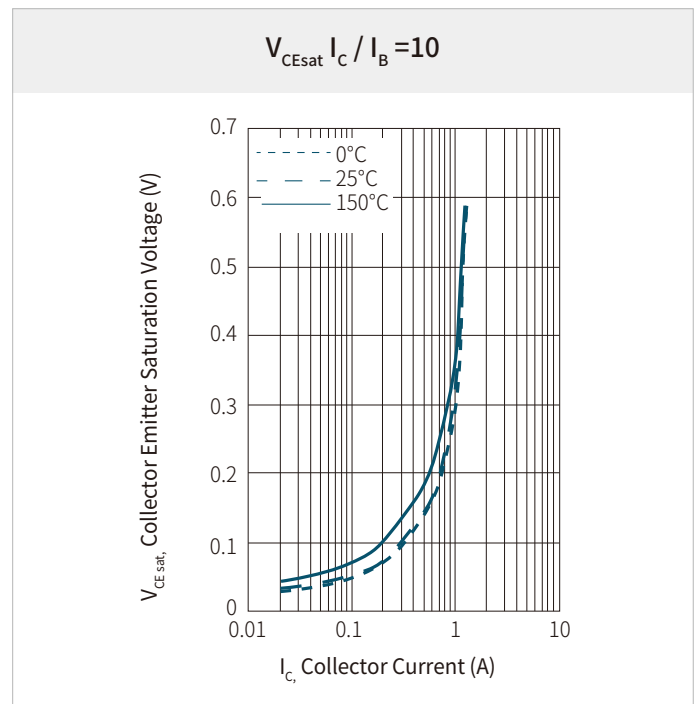
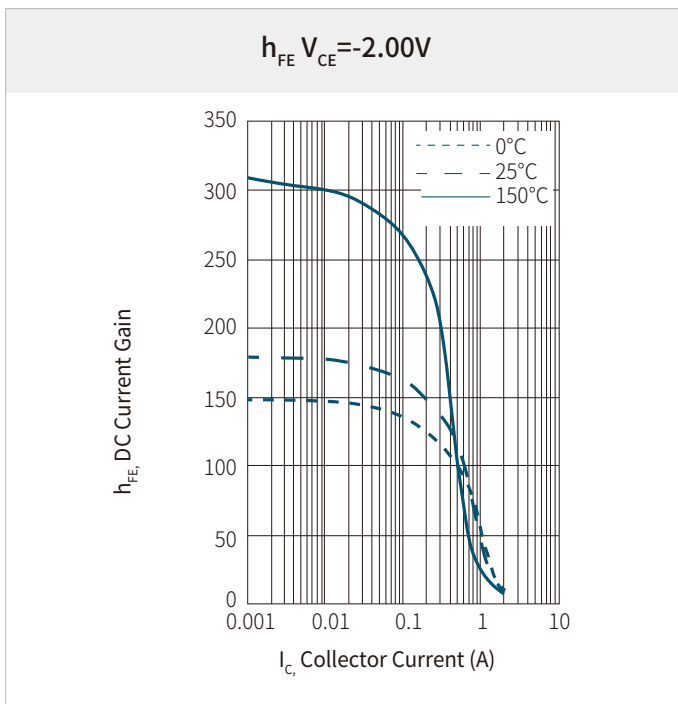
## ELECTRICAL CHARACTERISTICS (T<sub>A</sub>=25°C)

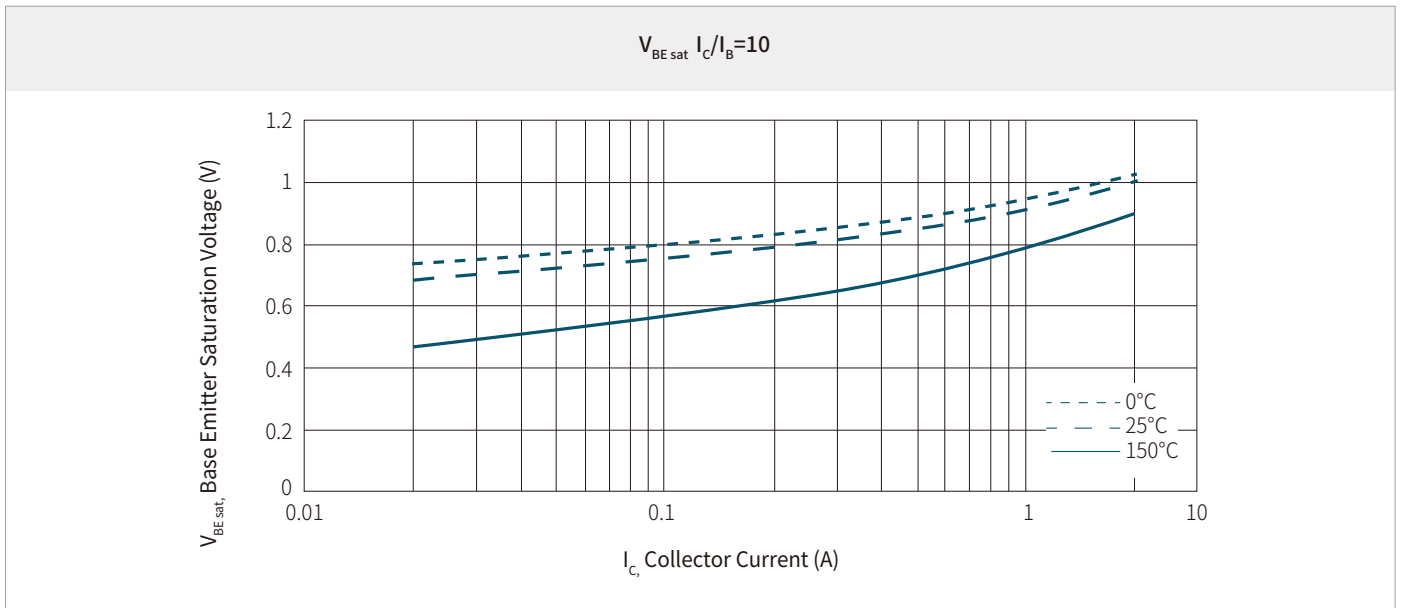
Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Collector Cut-off Current <sup>(Note 2)</sup>	I <sub>CBO</sub>	V <sub>CB</sub> = -90V, I <sub>E</sub> = 0			-0.1	μA
Emitter Cut-off Current <sup>(Note 2)</sup>	I <sub>EBO</sub>	V <sub>EB</sub> = -5V, I <sub>C</sub> = 0			-0.2	μA
DC Current Gain <sup>(Note 2)</sup>	h <sub>FE</sub>	V <sub>CE</sub> = -2V, I <sub>C</sub> = -150mA	55		400	
Collector-Emitter Saturation Voltage <sup>(Note 2)</sup>	V <sub>CE(sat)</sub>	I <sub>C</sub> = -500mA, I <sub>B</sub> = -50mA			-0.5	V
Base-Emitter Saturation Voltage <sup>(Note 2)</sup>	V <sub>BE(sat)</sub>	I <sub>C</sub> = -500mA, I <sub>B</sub> = -50mA			-1.5	V
Transition Frequency	f <sub>T</sub>	V <sub>CE</sub> = -10V, I <sub>C</sub> = -50mA, f = 100MHz	100			MHz

Note:

1. Test pulse width tp < 5ms
2. When testing DC parameters, short duration pulses with minimum self-heating effect, pulse width tp ≤ 300μs, duty cycle δ ≤ 2% are used.

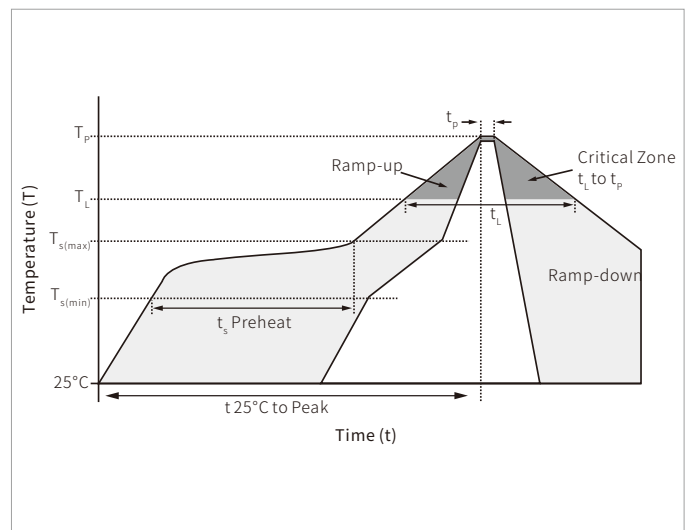
## TYPICAL CHARACTERISTICS



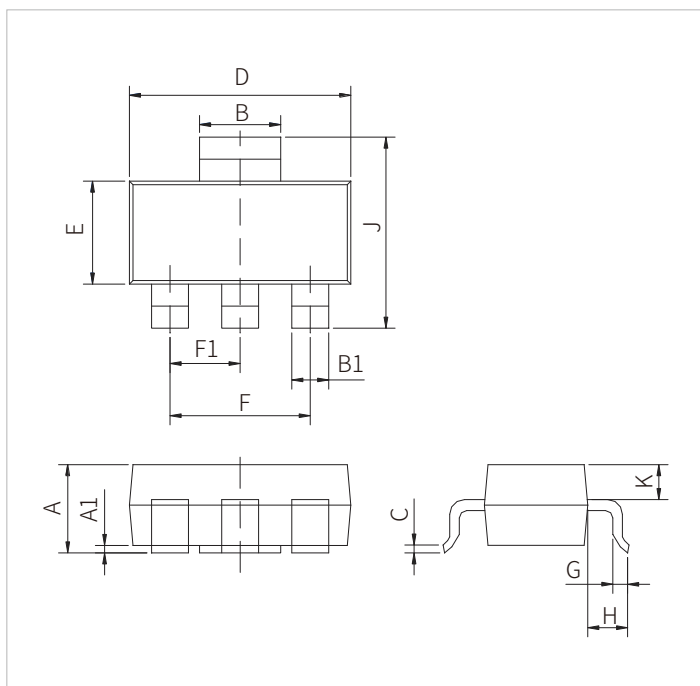


## SOLDERING PARAMETERS

Reflow Condition		Lead-free assembly
Pre Heat	Temperature Max ( $T_{s(min)}$ )	150°C
	Temperature Max ( $T_{s(max)}$ )	200°C
	Time (min to max) ( $t_s$ )	60 - 180 secs
Average ramp up rate (Liquidus Temp ( $T_L$ ) to peak)		3°C/second max
$T_{s(max)}$ to $T_L$ - Ramp-up Rate		3°C/second max
Reflow	Temperature ( $T_L$ ) (Liquidus)	217°C
	Time (min to max) ( $t_L$ )	60 - 150 seconds
Peak Temperature ( $T_p$ )		260°C
Time within 5°C of actual peak Temperature ( $t_p$ )		20 - 40 seconds
Ramp-down Rate		6°C/second max
Time 25°C to peak Temperature ( $T_p$ )		8 minutes max.
Do not exceed		260°C



## SOT-223 PACKAGE DIMENSIONS



Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	1.50		1.80	0.059		0.071
A1	0.01		0.06	0.001		0.002
B	2.90		3.10	0.114		0.122
B1	0.60		0.80	0.024		0.031
C	0.22		0.32	0.009		0.013
D	6.30		6.70	0.248		0.264
E	3.30		3.70	0.130		0.146
F		4.60			0.181	
F1		2.30			0.091	
G	0.70		1.10	0.028		0.043
H	1.50		2.00	0.059		0.079
J	6.70		7.30	0.264		0.287
K		0.90			0.035	

## ORDERING INFORMATION

Part Number	Component Package	QTY/Reel	Reel Size
BCP53	SOT-223	2500PCS	13"

To find your local partner within Semiwell' s website : [www.semiwell.com.cn](http://www.semiwell.com.cn)

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