



## USS4320T

Preliminary

**NPN SILICON TRANSISTOR**

### 3A, 20V NPN LOW $V_{CE(SAT)}$ TRANSISTOR

#### DESCRIPTION

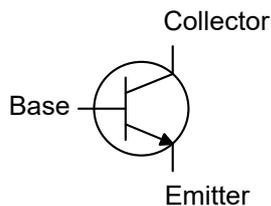
The **USS4320T** is NPN low  $V_{CE(SAT)}$  transistor in a medium power and flat lead SOT-23 Surface-Mounted Device (SMD) plastic package.

PNP complement: USS5320T.

#### FEATURES

- \* Very low collector-emitter saturation voltage  $V_{CE(SAT)}$
- \* High collector current capability  $I_C$  and  $I_{CM}$
- \* High collector current gain ( $h_{FE}$ ) at high  $I_C$
- \* High energy efficiency due to less heat generation

#### EQUIVALENT CIRCUIT



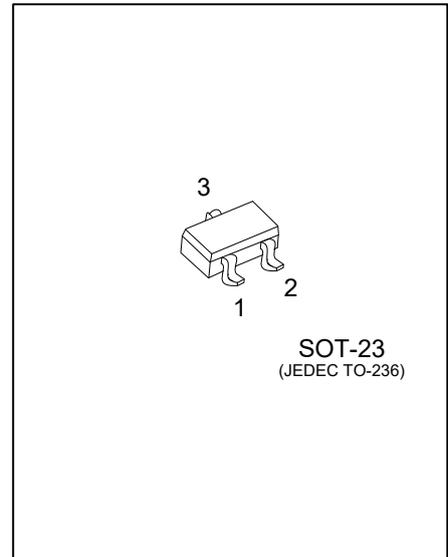
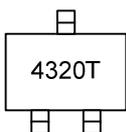
#### ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
USS4320TL-AE3-R	USS4320TG-AE3-R	SOT-23	B	E	C	Tape Reel

Note: Pin Assignment: B: Base E: Emitter C: Collector

USS4320TG-AE3-R	(1)Packing Type	(1) R: Tape Reel
	(2)Package Type	(2) AE3: SOT-23
	(3)Green Package	(3) G: Halogen Free and Lead Free, L: Lead Free

#### MARKING



■ ABSOLUTE MAXIMUM RATING (T<sub>A</sub>=25°C, unless otherwise specified)

PARAMETER	SYMBOL	RATINGS	UNIT
Collector-Base Voltage	V <sub>CBO</sub>	20	V
Collector-Emitter Voltage	V <sub>CEO</sub>	20	V
Emitter-Base Voltage	V <sub>EBO</sub>	5	V
Collector Current	I <sub>C</sub>	2	A
Peak Collector Current	I <sub>CM</sub>	5	A
Power Dissipation	P <sub>C</sub>	300	mW
Junction Temperature	T <sub>J</sub>	+150	°C
Storage Temperature	T <sub>STG</sub>	-55 ~ +150	°C

Note: 1. Absolute maximum ratings are those values beyond which the device could be permanently damaged.

Absolute maximum ratings are stress ratings only and functional device operation is not implied.

2. Device mounted on an FR4 PCB, single-sided copper, tin-plated and standard footprint.

■ THERMAL DATA

PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Ambient	θ <sub>JA</sub>	417	°C/W

Note: Device mounted on an FR4 PCB, single-sided copper, tin-plated and standard footprint.

■ ELECTRICAL CHARACTERISTICS (T<sub>A</sub>=25°C, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Collector-Base Breakdown Voltage	BV <sub>CBO</sub>	I <sub>C</sub> =100μA, I <sub>E</sub> =0	20			V
Collector-Emitter Breakdown Voltage	BV <sub>CEO</sub>	I <sub>C</sub> =1mA, I <sub>B</sub> =0	20			V
Emitter-Base Breakdown Voltage	BV <sub>EBO</sub>	I <sub>E</sub> =100μA, I <sub>C</sub> =0	5			V
Collector-Base Cut-off Current	I <sub>CBO</sub>	V <sub>CB</sub> =20V			100	nA
Emitter-Base Cut-off Current	I <sub>EBO</sub>	V <sub>EB</sub> =5V			100	nA
Base-Emitter Saturation Voltage	V <sub>BE(SAT)</sub>	I <sub>C</sub> =2A, I <sub>B</sub> =40mA			1.1	V
		I <sub>C</sub> =3A, I <sub>B</sub> =300mA			1.2	V
Base-Emitter Turn-On Voltage	V <sub>BE(ON)</sub>	V <sub>CE</sub> =2V, I <sub>C</sub> =1A			1.2	V
DC Current Gain	h <sub>FE</sub>	V <sub>CE</sub> =2V, I <sub>C</sub> =100mA	220			
		V <sub>CE</sub> =2V, I <sub>C</sub> =500mA	220			
		V <sub>CE</sub> =2V, I <sub>C</sub> =1A	220			
		V <sub>CE</sub> =2V, I <sub>C</sub> =2A	200			
		V <sub>CE</sub> =2V, I <sub>C</sub> =2A	150			
Collector-Emitter Saturation Voltage	V <sub>CE(SAT)</sub>	I <sub>C</sub> =500mA, I <sub>B</sub> =50mA			70	mV
		I <sub>C</sub> =1A, I <sub>B</sub> =50mA			120	mV
		I <sub>C</sub> =2A, I <sub>B</sub> =40mA			230	mV
		I <sub>C</sub> =2A, I <sub>B</sub> =200mA			210	mV
		I <sub>C</sub> =3A, I <sub>B</sub> =300mA			310	mV
Transition Frequency	f <sub>T</sub>	V <sub>CE</sub> =5V, I <sub>C</sub> =100mA, f=100MHz	100			MHz

UTC assumes no responsibility for equipment failures that result from using products at values that exceed, even momentarily, rated values (such as maximum ratings, operating condition ranges, or other parameters) listed in products specifications of any and all UTC products described or contained herein. UTC products are not designed for use in life support appliances, devices or systems where malfunction of these products can be reasonably expected to result in personal injury. Reproduction in whole or in part is prohibited without the prior written consent of the copyright owner. UTC reserves the right to make changes to information published in this document, including without limitation specifications and product descriptions, at any time and without notice. This document supersedes and replaces all information supplied prior to the publication hereof.