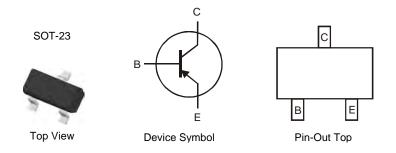


#### Features

- Epitaxial Planar Die Construction
- Ideal for Medium Power Amplification and Switching
- "Lead Free", RoHS Compliant (Note 1)
- Halogen and Antimony Free. "Green" Device (Note 2)
- Qualified to AEC-Q101 Standards for High Reliability

## **Mechanical Data**

- Case: SOT-23
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish Matte Tin annealed over Copper leadframe. Solderable per MIL-STD-202, Method 208
- Weight: 0.008 grams (approximate)



## Ordering Information (Note 3)

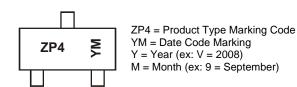
Product	Marking	Reel size (inches)	Tape width (mm)	Quantity per reel
DSS5320T-7	ZP4	7	8mm	3,000

Notes: 1. No purposefully added lead.

2. Diodes Inc's "Green" Policy can be found on our website at http://www.diodes.com

3. For packaging details, go to our website at http://www.diodes.com

# **Marking Information**



Date Code Key												
Year	2009		2010	2011		2012	2013		2014	2015		2016
Code	W		Х	Y		Z	А		В	С		D
Month	Jan	Feb	Mar	Apr	Мау	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Code	1	2	3	4	5	6	7	8	9	0	N	D



## Maximum Ratings @T<sub>A</sub> = 25°C unless otherwise specified

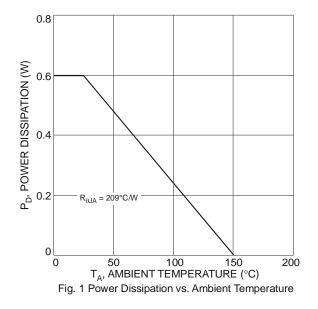
Characteristic	Symbol	Value	Unit
Collector-Base Voltage	V <sub>CBO</sub>	-20	V
Collector-Emitter Voltage	V <sub>CEO</sub>	-20	V
Emitter-Base Voltage	V <sub>EBO</sub>	-5	V
Peak Pulse Current	I <sub>CM</sub>	-5	A
Repetitive Peak Pulse Current (Note 4)	ICRP	-3	А
Continuous Collector Current	Ic	-2	A
Base Current	IB	-0.5	A

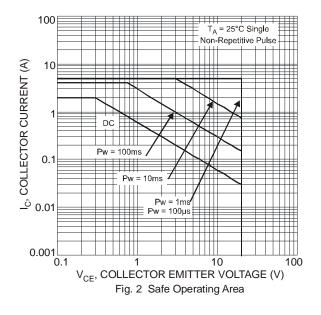
# **Thermal Characteristics**

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 5) @ $T_A = 25^{\circ}C$	PD	600	mW
Thermal Resistance, Junction to Ambient Air (Note 4) @ T <sub>A</sub> = 25°C	$R_{ ext{ heta}JA}$	209	°C/W
Operating and Storage Temperature Range	TJ, T <sub>STG</sub>	-55 to +150	°C

Notes:

Operated under pulsed conditions: pulse width ≤100ms, duty cycle ≤ 0.25.
Device mounted on 15mm x 15mm x1.6mm FR4 PCB with high coverage of single sided 1oz copper, in still air conditions.



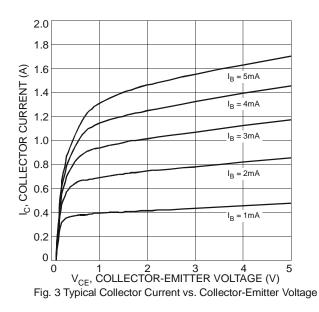


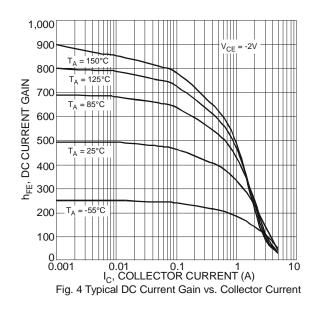


## **Electrical Characteristics** @T<sub>A</sub> = 25°C unless otherwise specified

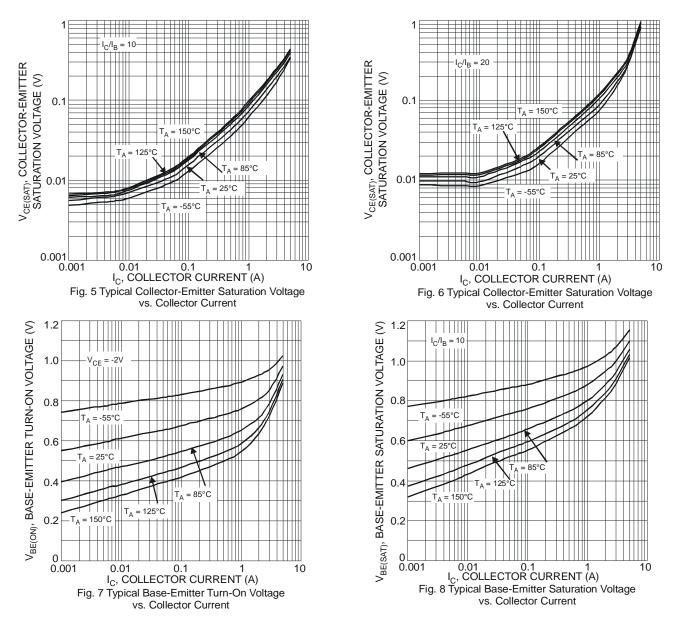
Characteristic	Symbol	Min	Тур	Max	Unit	Test Conditions
		_		-100	nA	$V_{CB} = -20V, I_E = 0$
Collector-Base Cutoff Current	I <sub>CBO</sub>	_	_	-50	μΑ	$V_{CB} = -20V, I_E = 0, T_A = 150^{\circ}C$
Emitter-Base Cutoff Current			—	-100	nA	$V_{EB} = -5V, I_{C} = 0$
Collector-Base Breakdown Voltage	BV <sub>CBO</sub>	-20	—	—	V	I <sub>C</sub> = -100μA
Collector-Emitter Breakdown Voltage (Note 6)	BV <sub>CEO</sub>	-20	_	_	V	I <sub>C</sub> = -10mA
Emitter-Base Breakdown Voltage	BV <sub>EBO</sub>	-5	_	_	V	I <sub>E</sub> = -100μA
		220	_	_		$V_{CE} = -2V, I_{C} = -0.1A$
		220	_	_		$V_{CE} = -2V, I_{C} = -0.5A$
DC Current Gain (Note 5)	h <sub>FE</sub>	200	_	_	—	$V_{CE} = -2V, I_{C} = -1A$
		150	_	_		$V_{CE} = -2V, I_{C} = -2A$
		100	_	_		$V_{CE} = -2V, I_{C} = -3A$
		_	_	-70		$I_{\rm C}$ = -0.5A, $I_{\rm B}$ = -50mA
		_	_	-130	mV	I <sub>C</sub> = -1A, I <sub>B</sub> = -50mA
Collector-Emitter Saturation Voltage (Note 6)	V <sub>CE(sat)</sub>	_	_	-230		$I_{\rm C} = -2A, I_{\rm B} = -100 {\rm mA}$
		_	—	-210		$I_{C} = -2A, I_{B} = -200mA$
		_	_	-300		$I_{\rm C} = -3A, I_{\rm B} = -300 {\rm mA}$
Equivalent On-Resistance	R <sub>CE(sat)</sub>	_	_	105	mΩ	$I_{E} = -2A, I_{B} = -200mA$
Base-Emitter Saturation Voltage		_	_	-1.1	V	$I_{\rm C} = -2A, I_{\rm B} = -100 {\rm mA}$
base-Emilier Saturation voltage	V <sub>BE(sat)</sub>		_	-1.2	V	$I_{C} = -3A, I_{B} = -300mA$
Base-Emitter Turn-on Voltage	V <sub>BE(on)</sub>	—	—	-1.2	V	$V_{CE} = -2V, I_{C} = -1A$
Transition Frequency	f⊤	100	180	—	MHz	V <sub>CE</sub> = -5V, I <sub>C</sub> = -100mA, f = 100MHz
Output Capacitance	C <sub>ob</sub>	_	25	50	pF	$V_{CB} = -10V, f = 1MHz$
Turn-On Time	t <sub>on</sub>	_	67	_	ns	
Delay Time	t <sub>d</sub>	_	23	_	ns	7
Rise Time	tr	_	44	_	ns	$V_{CC} = -10V, I_{C} = -1A,$
Turn-Off Time	t <sub>off</sub>	_	224	_	ns	$I_{B1} = -I_{B2} = -50 \text{mA}$
Storage Time	ts	_	184	_	ns	]
Fall Time	t <sub>f</sub>	_	40	_	ns	7

Notes: 6. Measured under pulsed conditions. Pulse width =  $300\mu$ s. Duty cycle  $\leq 2\%$ .

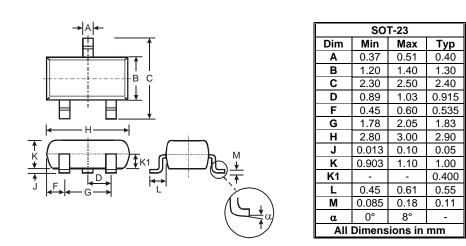








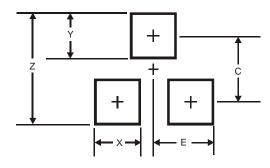
## **Package Outline Dimensions**



DSS5320T Document number: DS31620 Rev. 2 - 2 Downloaded from <u>Elcodis.com</u> electronic components distributor



## **Suggested Pad Layout**



Dimensions	Value (in mm)
Z	2.9
Х	0.8
Y	0.9
С	2.0
E	1.35

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