





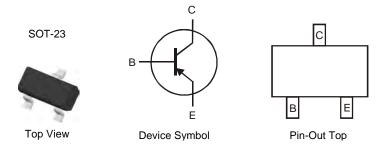
20V LOW V_{CE(sat)} PNP SURFACE MOUNT TRANSISTOR

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)



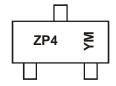
Ordering Information (Note 3)

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



ZP4 = Product Type Marking Code YM = Date Code Marking Y = Year (ex: V = 2008) M = Month (ex: 9 = September)

Date Code Key

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



Maximum Ratings @ $T_A = 25^{\circ}C$ unless otherwise specified

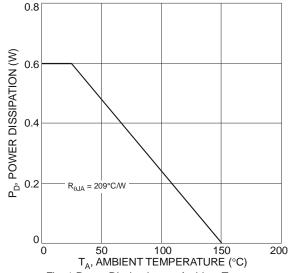
Characteristic	Symbol	Value	Unit
Collector-Base Voltage	V _{CBO}	-20	V
Collector-Emitter Voltage	V _{CEO}	-20	V
Emitter-Base Voltage	V _{EBO}	-5	V
Peak Pulse Current	I _{CM}	-5	A
Repetitive Peak Pulse Current (Note 4)	I _{CRP}	-3	Α
Continuous Collector Current	Ic	-2	Α
Base Current	I _B	-0.5	A

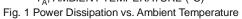
Thermal Characteristics

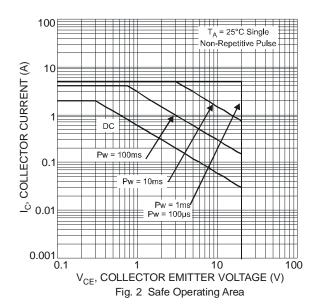
Characteristic	Symbol	Value	Unit
Power Dissipation (Note 5) @ T _A = 25°C	P _D	600	mW
Thermal Resistance, Junction to Ambient Air (Note 4) @ T _A = 25°C	$R_{ heta JA}$	209	°C/W
Operating and Storage Temperature Range	T _J , T _{STG}	-55 to +150	°C

Notes:

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





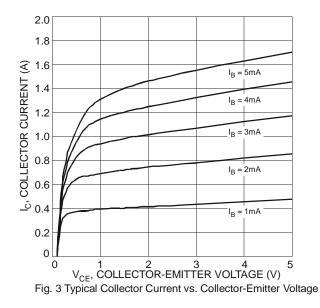


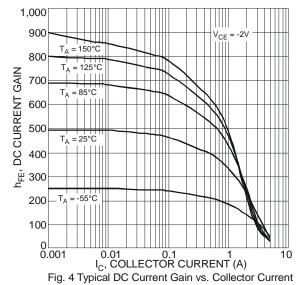


Electrical Characteristics @TA = 25°C unless otherwise specified

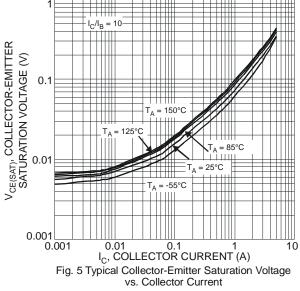
Characteristic	Symbol	Min	Тур	Max	Unit	Test Conditions
Collector-Base Cutoff Current	I _{CBO}	_	_	-100	nA	$V_{CB} = -20V, I_{E} = 0$
Collector-base Cutoff Current		_	_	-50	μΑ	$V_{CB} = -20V, I_{E} = 0, T_{A} = 150^{\circ}C$
Emitter-Base Cutoff Current	I _{EBO}	_	_	-100	nA	$V_{EB} = -5V, I_{C} = 0$
Collector-Base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

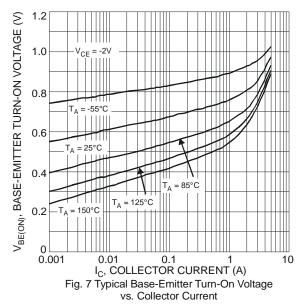
Notes: 6. Measured under pulsed conditions. Pulse width = $300\mu s$. Duty cycle $\leq 2\%$.

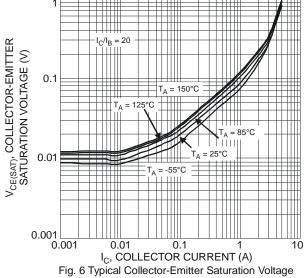




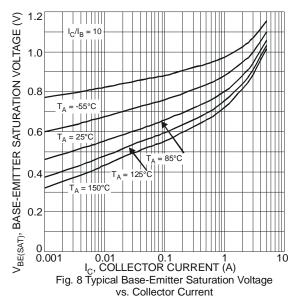




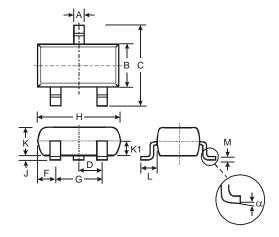




vs. Collector Current



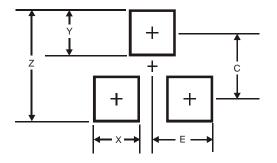
Package Outline Dimensions



SOT-23							
Dim	Min	Max	Тур				
Α	0.37	0.51	0.40				
В	1.20	1.40	1.30				
С	2.30	2.50	2.40				
D	0.89	1.03	0.915				
F	0.45	0.60	0.535				
G	1.78	2.05	1.83				
Н	2.80	3.00	2.90				
J	0.013	0.10	0.05				
K	0.903	1.10	1.00				
K1	-	1	0.400				
L	0.45	0.61	0.55				
M	0.085	0.18	0.11				
α	0°	8°	-				
All Dimensions in mm							



Suggested Pad Layout



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

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