

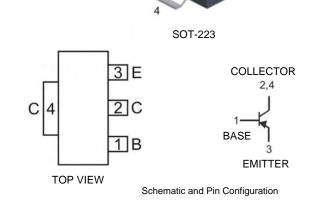


PNP SURFACE MOUNT TRANSISTOR

3

Features

- **Epitaxial Planar Die Construction** .
- Complementary NPN Type Available (DZT851)
- Ideally Suited for Automated Assembly Processes
- Ideal for Medium Power Switching or Amplification Applications
- Lead Free By Design/RoHS Compliant (Note 1)
- "Green" Device (Note 2)
- **Mechanical Data**
- Case: SOT-223 •
- Case Material: Molded Plastic, "Green" Molding Compound. • UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020C
- Terminals: Finish Matte Tin annealed over Copper Leadframe (Lead Free Plating). Solderable per MIL-STD-202, Method 208
- Marking Information: See Page 3
- Ordering Information: See Page 3
- Weight: 0.115 grams (approximate)



Maximum Ratings @T_A = 25°C unless otherwise specified

Characteristic	Symbol	Value	Unit
Collector-Base Voltage	V _{CBO}	-100	V
Collector-Emitter Voltage	V _{CEO}	-60	V
Emitter-Base Voltage	V _{EBO}	-6	V
Continuous Collector Current	Ι _c	-5	A
Power Dissipation	P _{tot}	1(Note 3) 3(Note 4)	W
Operating and Storage Temperature Range	Tj, T _{STG}	-55 to +150	°C

1. No purposefully added lead. Notes:

Diodes Inc.'s "Green" policy can be found on our website at http://www.diodes.com/products/lead_free/index.php. Device mounted on FR-4 PCB, pad layout as shown on page 4. 2.

- 3.
- 4. The power which can be dissipated, assuming the device is mounted in a typical manner on a PCB with copper equal to 4 square inch minimum.



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Characteristic	Symbol	Min	Тур	Max	Unit	Test Condition	
OFF CHARACTERISTICS			•				
Collector-Base Breakdown Voltage	V _{(BR)CBO}	-100	_	_	V	$I_{\rm C} = -100 \mu {\rm A}, \ I_{\rm E} = 0$	
Collector-Emitter Breakdown Voltage	V _{(BR)CEO}	-60	_		V	$I_{\rm C} = -10 {\rm mA}^*, I_{\rm B} = 0$	
Emitter-Base Breakdown Voltage	V _{(BR)EBO}	-6	_		V	$I_{E} = -100 \mu A, I_{C} = 0$	
Collector Cutoff Current	I _{CBO}	_	_	-50 -1	nA μA	$V_{CB} = -80V, I_E = 0$ $V_{CB} = -80V, I_E = 0, T_A = 100^{\circ}$	
Emitter Cutoff Current	I _{EBO}	_	—	-10	nA	$V_{EB} = -6V, I_{C} = 0$	
ON CHARACTERISTICS						-	
Collector-Emitter Saturation Voltage	$V_{CE(SAT)}$		-20 -85 -155 -370	-50 -140 -210 -460	mV	$\begin{split} I_{C} &= -100 \text{mA}, \ I_{B} &= -10 \text{mA}^{*} \\ I_{C} &= -1\text{A}, \ I_{B} &= -100 \text{mA}^{*} \\ I_{C} &= -2\text{A}, \ I_{B} &= -200 \text{mA}^{*} \\ I_{C} &= -5\text{A}, \ I_{B} &= -500 \text{mA}^{*} \end{split}$	
Base-Emitter Saturation Voltage	V _{BE(SAT)}	_	-1080	-1240	mV	$I_{\rm C} = -5A, I_{\rm B} = -500 \text{mA}^*$	
Base-Emitter Turn-On Voltage	V _{BE(ON)}	_	-935	-1070	mV	$I_{CE} = -5A, V_{CE} = -1V^*$	
DC Current Gain	h _{FE}	100 100 75 10	200 200 90 25	 300 	_	$ \begin{array}{l} I_{C}=-10mA, \ V_{CE}=-1V^{*} \\ I_{C}=-2A, \ V_{CE}=-1V^{*} \\ I_{C}=-5A, \ V_{CE}=-1V^{*} \\ I_{C}=-10A, \ V_{CE}=-1V^{*} \end{array} $	
SMALL SIGNAL CHARACTERISTICS			•				
Current Gain-Bandwidth Product	f⊤		120	_	MHz	$I_{C} = -100 \text{mA}, V_{CE} = -10 \text{V}, f = 50 \text{MHz}$	
Output Capacitance	C _{obo}	_	74	_	pF	$V_{CB} = -10V, f = 1MHz$	
SWITCHING CHARACTERISTICS							
Switching Times	t _{on} t _{off}		82 350		ns	$I_{C} = -2A, I_{B1} = -200mA$ $I_{B2} = +200mA, V_{CC} = -10V$	

Typical Characteristics @T_{amb} = 25°C unless otherwise specified

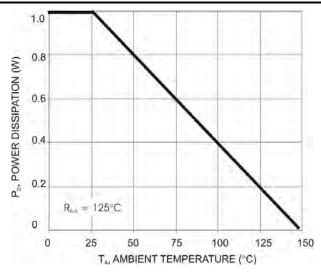


Fig. 1 Power Dissipation VS. Ambient Temperature (Note 3)

3. Device mounted on FR-4 PCB, pad layout as shown on page 4.

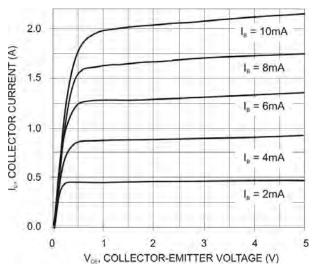
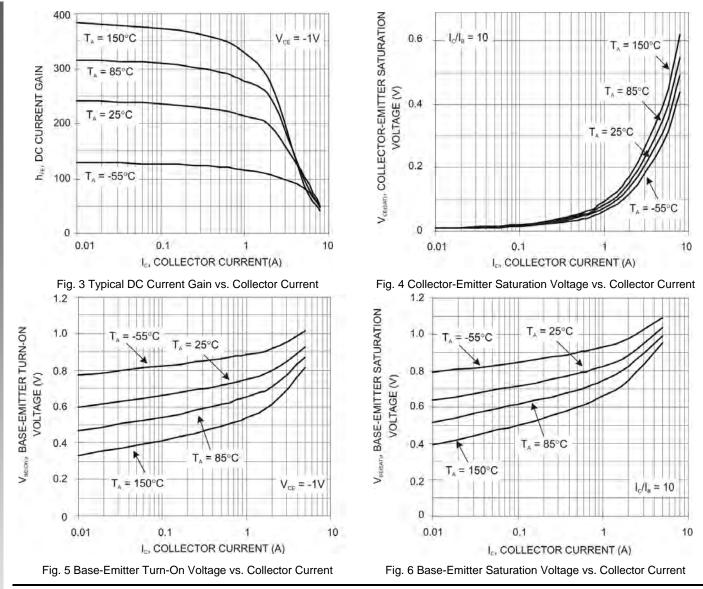


Fig. 2 Collector Current vs. Collector Emitter Voltage

Notes:



NEW PRODUCT

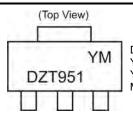


Ordering Information (Note 5)

Device	Packaging	Shipping
DZT951-13	SOT-223	2500/Tape & Reel

Notes: 5. Packaging Details as shown on page 4, or go to our website at http://www.diodes.com/ap2007.pdf.

Marking Information

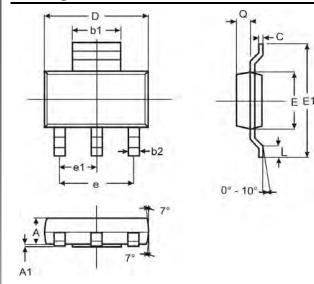


 $\begin{array}{l} \mathsf{DZT951} = \mathsf{Product Type Marking Code} \\ \mathsf{YM} = \mathsf{Date Code Marking} \\ \mathsf{Y} = \mathsf{Year ex: T} = 2006 \\ \mathsf{M} = \mathsf{Month ex: 9} = \mathsf{September} \end{array}$

Date Code Key												
Year	200	6	2007		2008	20	09	2010		2011	:	2012
Code	Т		U		V	V	V	Х		Y		Z
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Code	1	2	3	4	5	6	7	8	9	0	Ν	D

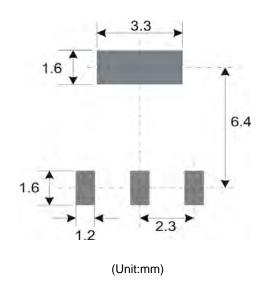


Package Outline Dimensions



SOT-223							
Dim	Min	Max	Тур				
Α	1.55	1.65	1.60				
A1	0.010	0.15	0.05				
b1	2.90	3.10	3.00				
b2	0.60	0.80	0.70				
С	0.20	0.30	0.25				
D	6.45	6.55	6.50				
Е	3.45	3.55	3.50				
E1	6.90	7.10	7.00				
е	_	_	4.60				
e1	_	_	2.30				
L	0.85	1.05	0.95				
Q	0.84	0.94	0.89				
All [All Dimensions in mm						

Suggested Pad Layout: (Based on IPC-SM-782)



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