





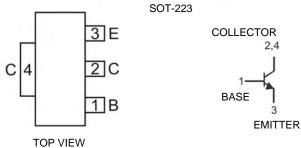
Features

- Epitaxial Planar Die Construction
- Complementary PNP Type Available (DZT951)
- 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 & Type Code Information: See Page 3
- Ordering Information: See Page 3
- Weight: 0.115 grams (approximate)





Schematic and Pin Configuration

Maximum Ratings @T_A = 25°C unless otherwise specified

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

Notes:

- 1. No purposefully added lead.
- 2. Diodes Inc.'s "Green" policy can be found on our website at http://www.diodes.com/products/lead_free/index.php.
- 3. Device mounted on FR-4 PCB, pad layout as shown on page 4.
- 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.



Electrical Characteristics @T_A = 25°C unless otherwise specified

Characteristic	Symbol	Min	Тур	Max	Unit	Test Condition			
OFF CHARACTERISTICS									
Collector-Base Breakdown Voltage	V _{(BR)CBO}	150	_	_	V	$I_C = 100 \mu A, I_E = 0$			
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	60	_	_	V	$I_C = 10 \text{mA*}, I_B = 0$			
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	$V_{CB} = 120V, I_E = 0$ $V_{CB} = 120V, I_E = 0, T_A = 100^{\circ}C$			
Emitter Cutoff Current	I _{EBO}	_		10	nA	$V_{EB} = 6V$, $I_C = 0$			
ON CHARACTERISTICS									
Collector-Emitter Saturation Voltage	V _{CE(SAT)}	_ _ _		50 100 170 375	mV	$\begin{split} I_C &= 0.1A,\ I_B = 5mA^* \\ I_C &= 1A,\ I_B = 50mA^* \\ I_C &= 2A,\ I_B = 50mA^* \\ I_C &= 6A,\ I_B = 300mA^* \end{split}$			
Base-Emitter Saturation Voltage	$V_{BE(SAT)}$	_	_	1200	mV	I _C = 6A, I _B = 300mA*			
Base-Emitter Turn-On Voltage	$V_{BE(ON)}$	_	_	1150	mV	$I_{CE} = 6A, V_{CE} = 1V^*$			
DC Current Gain		100 100 75 25		300 —	_	$\begin{split} I_{C} &= 10 m A, \ V_{CE} = 1 V^{*} \\ I_{C} &= 2 A, \ V_{CE} = 1 V^{*} \\ I_{C} &= 5 A, \ V_{CE} = 1 V^{*} \\ I_{C} &= 10 A, \ V_{CE} = 1 V^{*} \end{split}$			
SMALL SIGNAL CHARACTERISTICS									
Current Gain-Bandwidth Product	f⊤	_	130		MHz	$I_{C} = 100 \text{mA}, V_{CE} = 10 \text{V},$ f = 50MHz			
Output Capacitance	C_{obo}		45	_	pF	V _{CB} = 10V, f = 1MHz			
Switching Times	t _{on} t _{off}	_	45 1100		ns	$I_C = 1A$, $I_{B1} = 100mA$ $I_{B2} = 100mA$, $V_{CC} = 10V$			

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

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

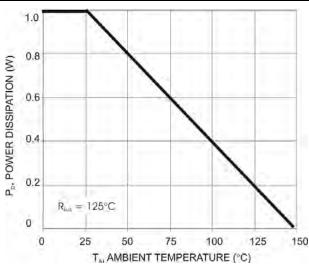


Fig. 1 Power Dissipation vs. Ambient Temperature (Note 3)

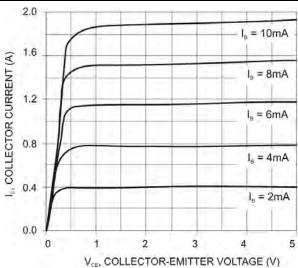


Fig. 2 Collector Current vs. Collector Emitter Voltage

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



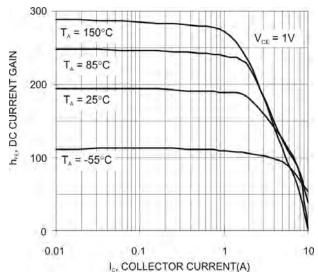


Fig. 3 Typical DC Current Gain vs. Collector Current

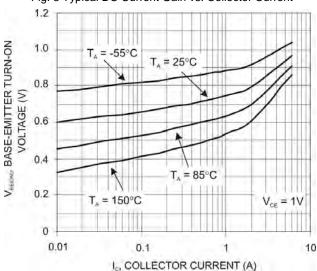


Fig. 5 Base-Emitter Turn-On Voltage vs. Collector Current

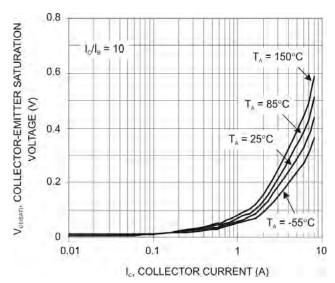


Fig. 4 Collector-Emitter Saturation Voltage vs. Collector Current

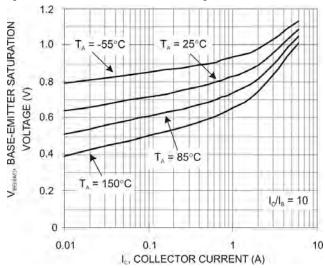


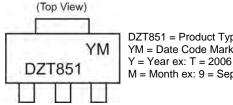
Fig. 6 Base-Emitter Saturation Voltage vs. Collector Current

Ordering Information (Note 5)

Device	Packaging	Shipping
DZT851-13	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



DZT851 = Product Type Marking Code YM = Date Code Marking

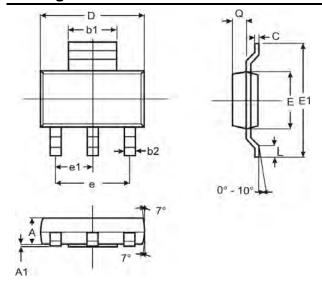
M = Month ex: 9 = September

Data Cada Kay

Date	e Code Key												
	Year 2006		6	2007 2008		20	2009			2011	- :	2012	
	Code	Т		U		V	V	V	Х		Υ		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	N	D

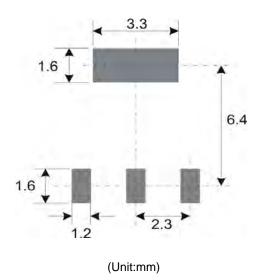


Package Outline Dimensions



SOT-223								
Dim	Min	Max	Тур					
Α	1.55	1.65	1.60					
A 1	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		1	4.60					
e1	_		2.30					
L	0.85	1.05	0.95					
Q	Q 0.84 0.94 0.8							
All Dimensions in mm								

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



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