



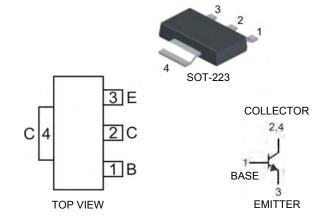
NPN SURFACE MOUNT TRANSISTOR

Features

- **Epitaxial Planar Die Construction**
- 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)



Schematic and Pin Configuration

Maximum Ratings @T_A = 25°C unless otherwise specified

Characteristic	Symbol	Value	Unit
Collector-Base Voltage	V _{CBO}	50	V
Collector-Emitter Voltage	V _{CEO}	25	V
Emitter-Base Voltage	V _{EBO}	7.0	V
Collector Current	lc	5.0	A
Base Current	I _B	1.0	A
Power Dissipation	P_D	1 (Note 3) 2 (Note 4)	W
Thermal Resistance, Junction-to-Ambient	$R_{\theta JA}$	125 (Note 3) 62.5 (Note 4)	°C/W
Operating and Storage Temperature Range	T_{j}, T_{STG}	-65 to +150	°C

Notes:

- 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.
- Device mounted on FR-4 PCB, pad layout as shown on page 4.
- Device mounted on Polyimide PCB with a copper area of 1.8cm²



Electrical Characteristics @T_A = 25°C unless otherwise specified

Characteristic	Symbol Min		Тур	Max	Unit	Test Condition		
OFF CHARACTERISTICS								
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	25	_	_	V	I _C = 10mA, I _B = 0		
Collector Cutoff Current	I _{CBO}	_	_	1.0	μА	$V_{CB} = 50V, I_{E} = 0$		
Emitter Cutoff Current	I _{EBO}	_	_	1.0	μА	V _{EB} = 7.0V, I _C = 0		
ON CHARACTERISTICS								
Collector-Emitter Saturation Voltage	V _{CE(SAT)}	_	_	0.35 0.50	V V	I _C = 3.0A, I _B = 150mA* I _C = 4.0A, I _B = 200mA*		
Base-Emitter Saturation Voltage	V _{BE(SAT)}	_	_	1.10 1.40	V V	$I_C = 3.0A$, $I_B = 150mA^*$ $I_C = 4.0A$, $I_B = 200mA^*$		
DC Current Gain	h _{FE}	250 150 50	_	500 — —		$\begin{split} &I_{C} = 500 \text{mA}, & V_{CE} = 2.0 \text{V}^{\star} \\ &I_{C} = 2.0 \text{A}, & V_{CE} = 2.0 \text{V}^{\star} \\ &I_{C} = 5.0 \text{A}, & V_{CE} = 2.0 \text{V}^{\star} \end{split}$		
SMALL SIGNAL CHARACTERISTICS								
Current Gain-Bandwidth Product	f _T	_	150	_	MHz	$I_C = 50$ mA, $V_{CE} = 6.0$ V, f = 200MHz		
Output Capacitance	C _{obo}	_	_	50	pF	$V_{CB} = 10V, I_{E} = 0, f = 1MHz$		

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

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

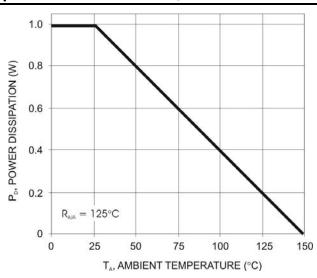


Fig. 1 Power Dissipation vs. Ambient Temperature (Note 3)

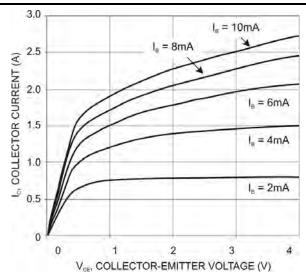


Fig. 2 Collector Current vs. Collector Emitter-Voltage

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



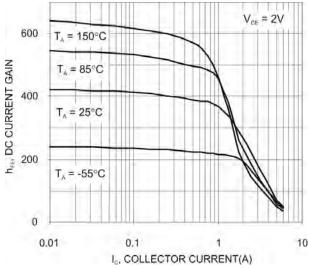


Fig. 3 Typical DC Current Gain vs. Collector Current

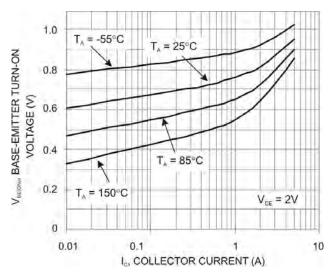


Fig. 5 Base-Emitter Turn-On Voltage vs. Collector Current

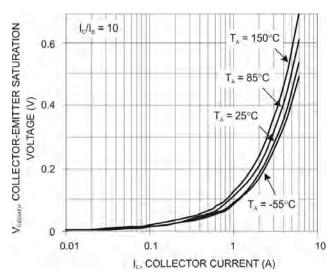


Fig. 4 Collector-Emitter Saturation Voltage vs. Collector Current

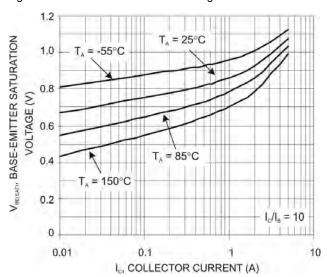


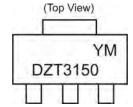
Fig. 6 Base-Emitter Saturation Voltage vs. Collector Current

Ordering Information (Note 5)

Device	Packaging	Shipping		
DZT3150-13	SOT-223	2500/Tape & Reel		

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

Marking Information



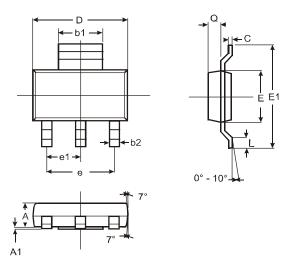
DZT3150 = Product Type Marking Code YM = Date Code Marking Y = Year ex: T = 2006 M = Month ex: 9 = September

Date Code Key

Year 2006		6	2007 2008		2009		2010		2011	2	2012	
Code	Т		U		V	\	N	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

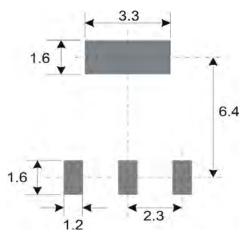


Package Outline Dimensions



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	_	_	4.60						
e1	_	_	2.30						
L	0.85	1.05	0.95						
Q	0.84	0.94	0.89						
All Dimensions in mm									

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



(Unit:mm)

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