DZT3150

NPN SURFACE MOUNT TRANSISTOR

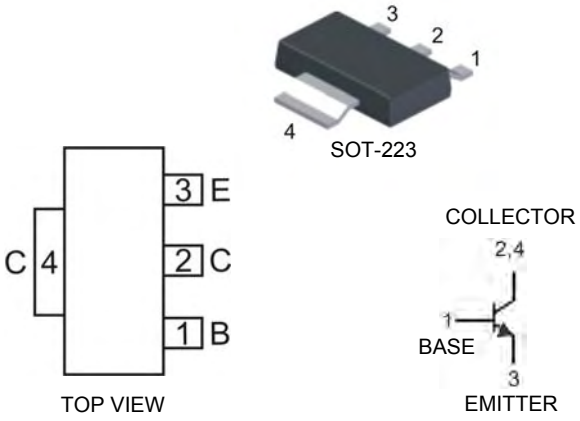
NEW PRODUCT

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	I_C	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:
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. Device mounted on Polyimide PCB with a copper area of 1.8cm^2.

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Electrical Characteristics @T_A = 25°C unless otherwise specified

Characteristic	Symbol	Min	Typ	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	μA	V_{CB} = 50V, I_E = 0
Emitter Cutoff Current	I_{EBO}	—	—	1.0	μA	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 — —	—	I_C = 500mA, V_{CE} = 2.0V* I_C = 2.0A, V_{CE} = 2.0V* I_C = 5.0A, V_{CE} = 2.0V*
SMALL SIGNAL CHARACTERISTICS						
Current Gain-Bandwidth Product	f_T	—	150	—	MHz	I_C = 50mA, V_{CE} = 6.0V, f = 200MHz
Output Capacitance	C_{obo}	—	—	50	pF	V_{CB} = 10V, I_E = 0, f = 1MHz

* Measured under pulsed conditions. Pulse width = 300μs. Duty cycle ≤2%

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

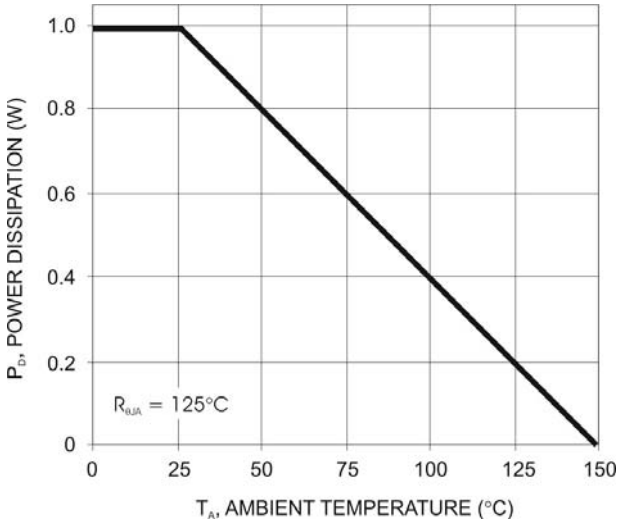

Fig. 1 Power Dissipation vs. Ambient Temperature (Note 3)

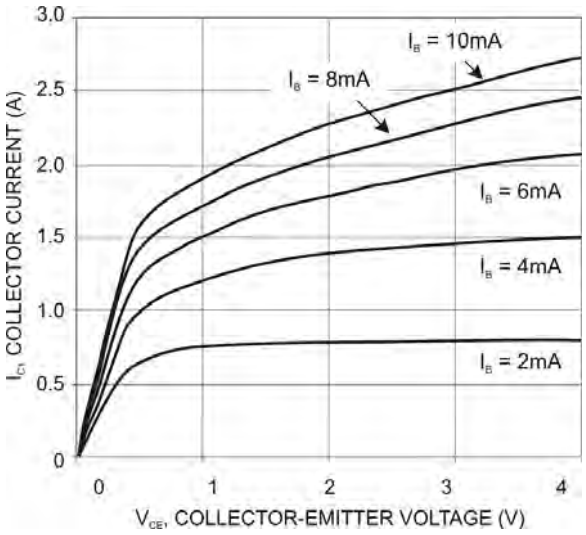

Fig. 2 Collector Current vs. Collector Emitter-Voltage

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

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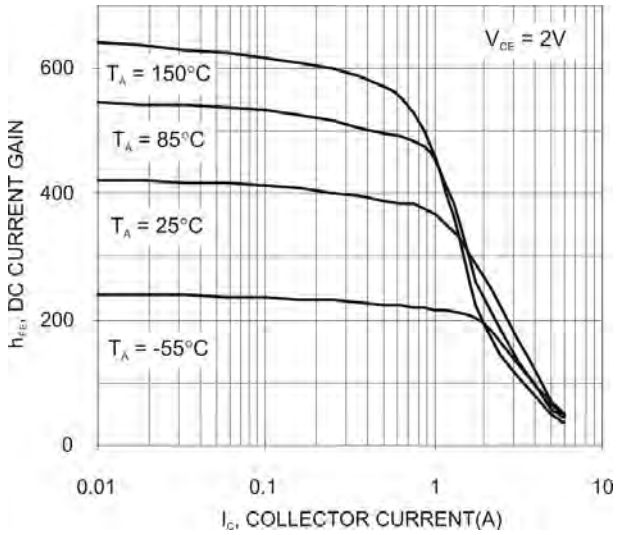


Fig. 3 Typical DC Current Gain vs. Collector Current

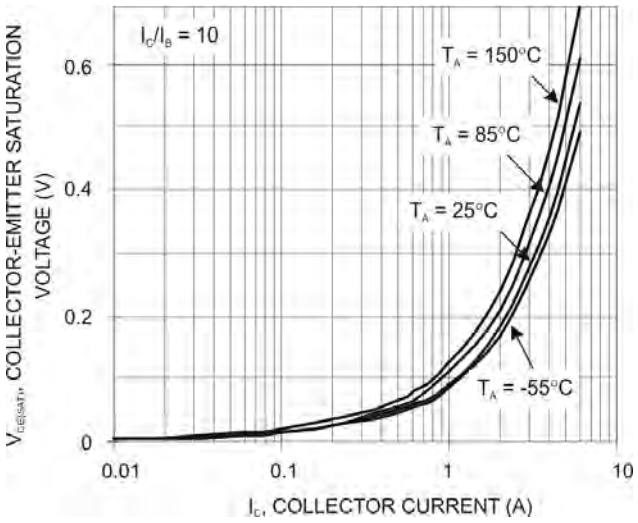


Fig. 4 Collector-Emitter Saturation Voltage vs. Collector Current

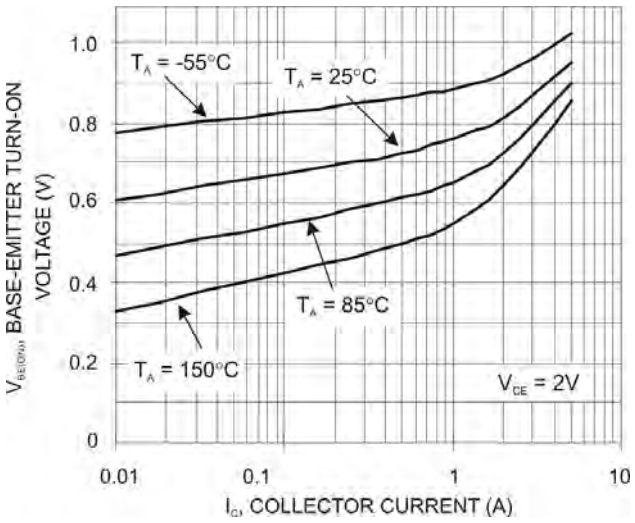


Fig. 5 Base-Emitter Turn-On Voltage vs. Collector Current

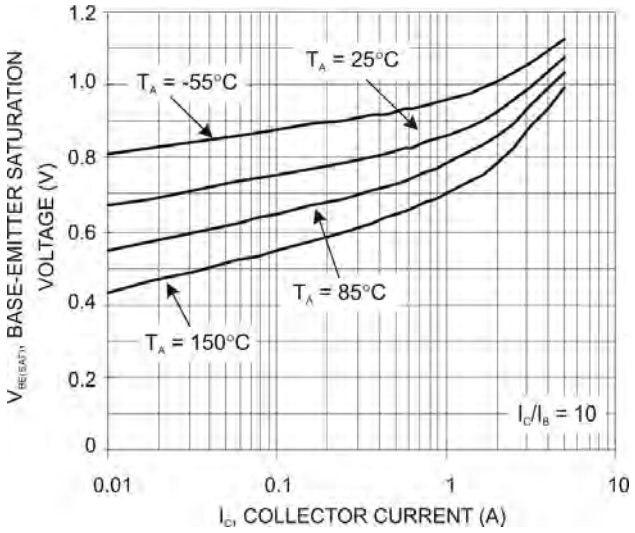


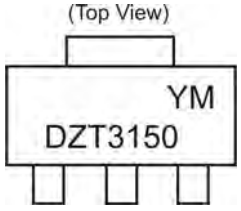
Fig. 6 Base-Emitter Saturation Voltage vs. Collector Current

Ordering Information (Note 5)

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

Notes: 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	2007	2008	2009	2010	2011	2012
Code	T	U	V	W	X	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	O	N	D

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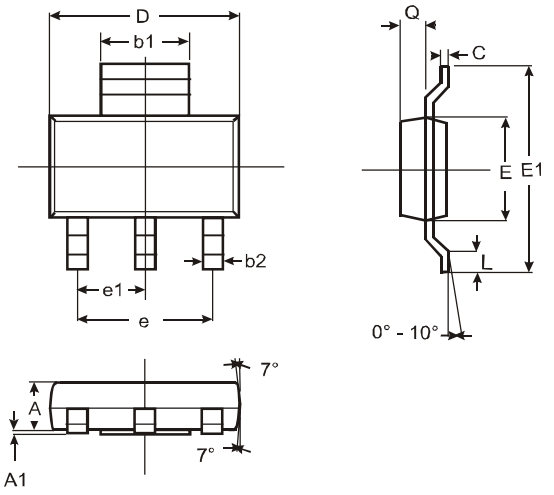
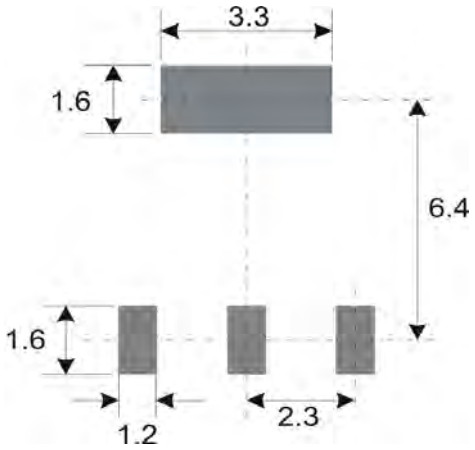
Package Outline Dimensions



SOT-223			
Dim	**Min**	**Max**	**Typ**
A	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
C	0.20	0.30	0.25
D	6.45	6.55	6.50
E	3.45	3.55	3.50
E1	6.90	7.10	7.00
e	—	—	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)