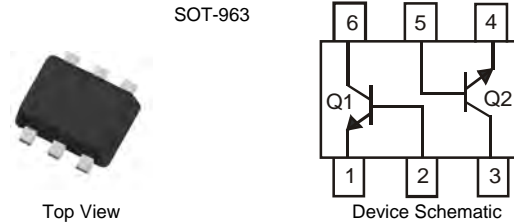


## Features

- Epitaxial Planar Die Construction
- Ideally Suited for Automated Assembly Processes
- **Lead Free By Design/RoHS Compliant (Note 1)**
- **"Green" Device (Note 2)**
- **Ultra Small Package**

## Mechanical Data

- Case: SOT-963
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020D
- Terminals: Finish — Matte Tin annealed over Copper leadframe. Solderable per MIL-STD-202, Method 208
- Marking Information: See Page 3
- Ordering Information: See Page 3
- Weight: 0.0027 grams (approximate)



## Maximum Ratings @T<sub>A</sub> = 25°C unless otherwise specified

Characteristic	Symbol	Value	Unit
Collector-Base Voltage	V <sub>CBO</sub>	60	V
Collector-Emitter Voltage	V <sub>CEO</sub>	50	V
Emitter-Base Voltage	V <sub>EBO</sub>	5	V
Collector Current – Continuous	I <sub>C</sub>	100	mA
Base Current	I <sub>B</sub>	30	mA

## Thermal Characteristics

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 3)	P <sub>D</sub>	300	mW
Thermal Resistance, Junction to Ambient (Note 3)	R <sub>θJA</sub>	417	°C/W
Operating and Storage Temperature Range	T <sub>J</sub> , T <sub>STG</sub>	-55 to +150	°C

## Electrical Characteristics @T<sub>A</sub> = 25°C unless otherwise specified

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition	
<b>OFF CHARACTERISTICS (Note 4)</b>							
Collector-Base Breakdown Voltage	V <sub>(BR)CBO</sub>	60	—	—	V	I <sub>C</sub> = 10μA, I <sub>E</sub> = 0	
Collector-Emitter Breakdown Voltage	V <sub>(BR)CEO</sub>	50	—	—	V	I <sub>C</sub> = 1mA, I <sub>B</sub> = 0	
Emitter-Base Breakdown Voltage	V <sub>(BR)EBO</sub>	5	—	—	V	I <sub>E</sub> = 10μA, I <sub>C</sub> = 0	
Collector Cut-Off Current	I <sub>CBO</sub>	—	—	0.1	μA	V <sub>CB</sub> = 60V, I <sub>E</sub> = 0	
Emitter Cut-Off Current	I <sub>EBO</sub>	—	—	0.1	μA	V <sub>EB</sub> = 5V, I <sub>C</sub> = 0	
<b>ON CHARACTERISTICS (Note 4)</b>							
Collector-Emitter Saturation Voltage	V <sub>CE(SAT)</sub>	—	0.10	0.25	V	I <sub>C</sub> = 100mA, I <sub>B</sub> = 10mA	
DC Current Gain	h <sub>FE</sub>	DN0150ADJ	120	—	240	—	V <sub>CE</sub> = 6V, I <sub>C</sub> = 2mA
		DN0150BDJ	200	—	400		
<b>SMALL SIGNAL CHARACTERISTICS</b>							
Transition Frequency	f <sub>T</sub>	60	—	—	MHz	V <sub>CE</sub> = 10V, I <sub>E</sub> = -1mA f = 30MHz	
Output Capacitance	C <sub>ob</sub>	—	1.3	—	pF	V <sub>CB</sub> = 10V, I <sub>E</sub> = 0, f = 1MHz	

- 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](http://www.diodes.com/products/lead_free/index.php).
  3. Device mounted on FR-4 PCB with minimum recommended pad layout.
  4. Measured under pulsed conditions. Pulse width = 300μs. Duty cycle ≤2%

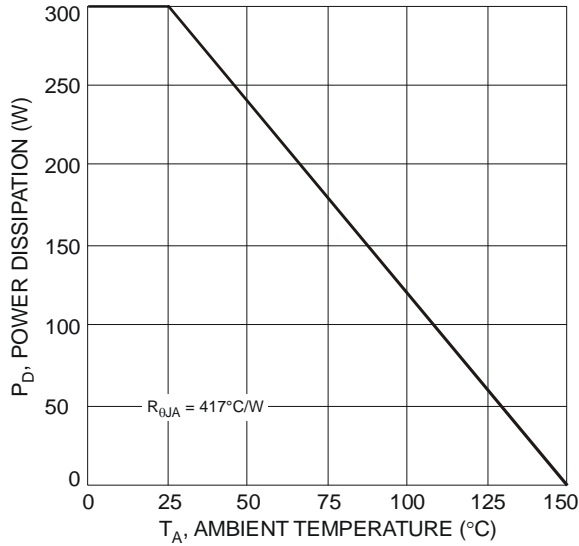


Fig. 1 Power Dissipation vs. Ambient Temperature (Note 3)

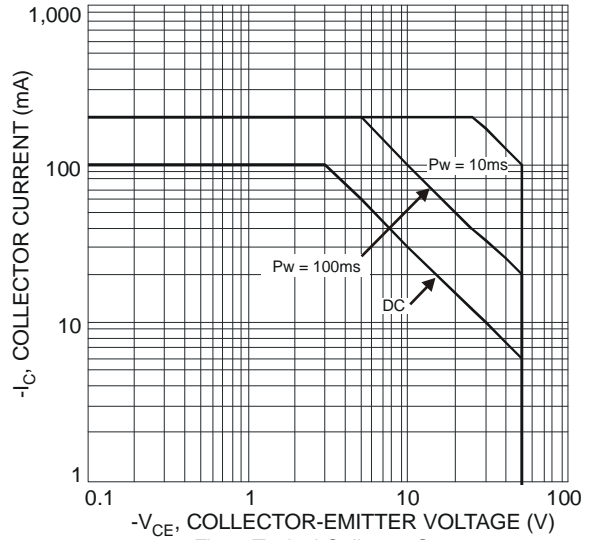


Fig. 2 Typical Collector Current vs. Collector-Emitter Voltage (Note 3)

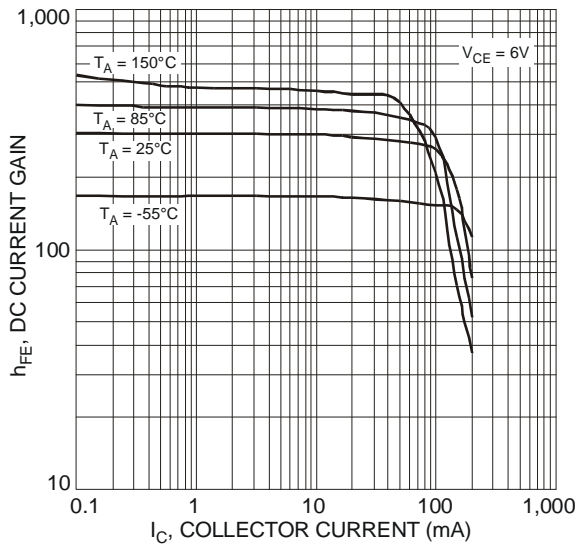


Fig. 3 Typical DC Current Gain vs. Collector Current (DN0150BDJ)

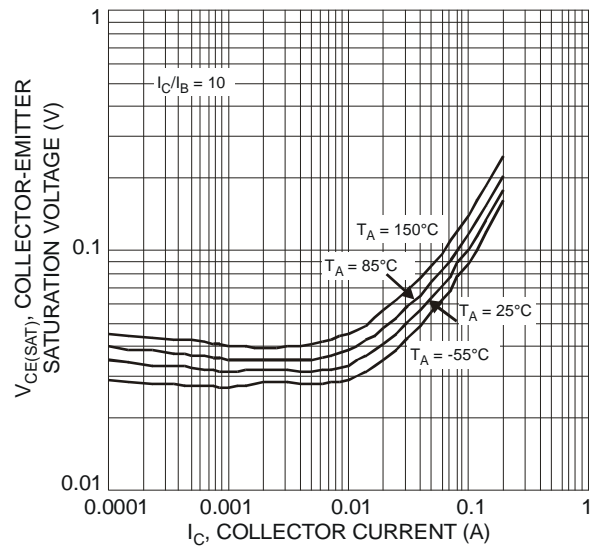


Fig. 4 Typical Collector-Emitter Saturation Voltage vs. Collector Current

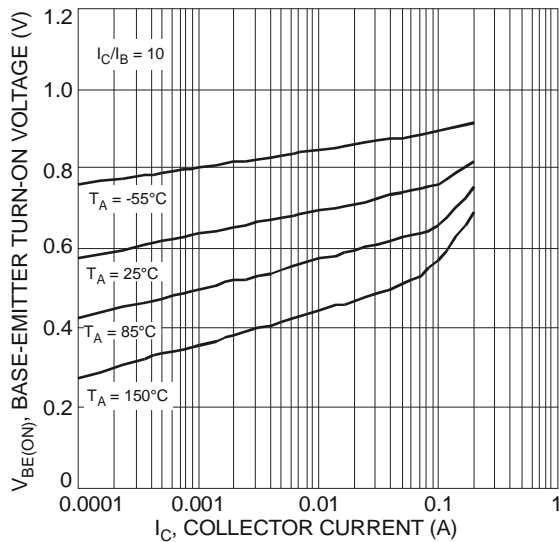


Fig. 5 Typical Base-Emitter Turn-On Voltage vs. Collector Current

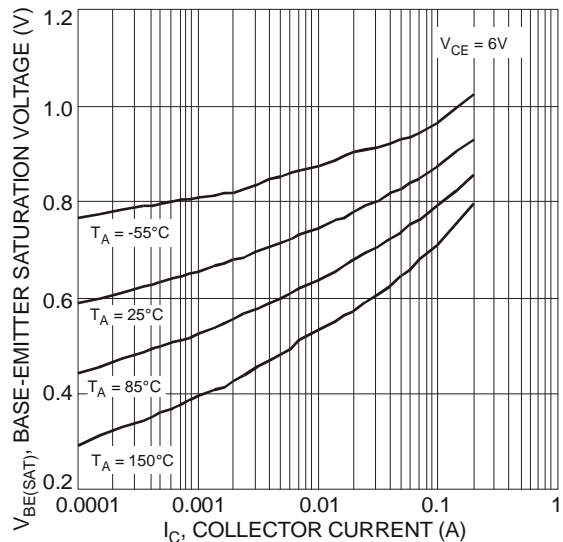


Fig. 6 Typical Base-Emitter Saturation Voltage vs. Collector Current

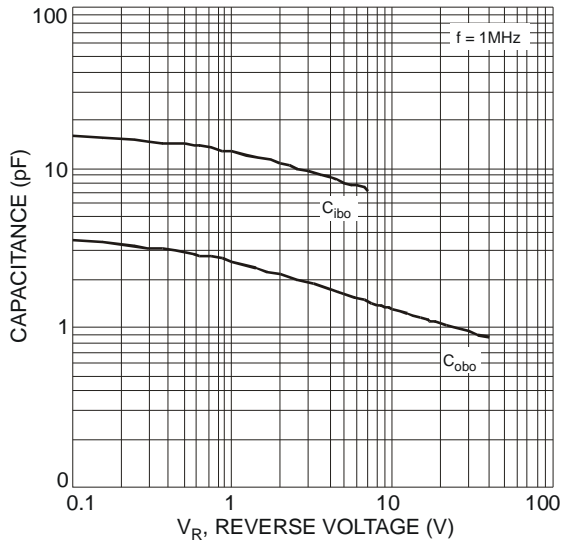


Fig. 7 Typical Capacitance Characteristics

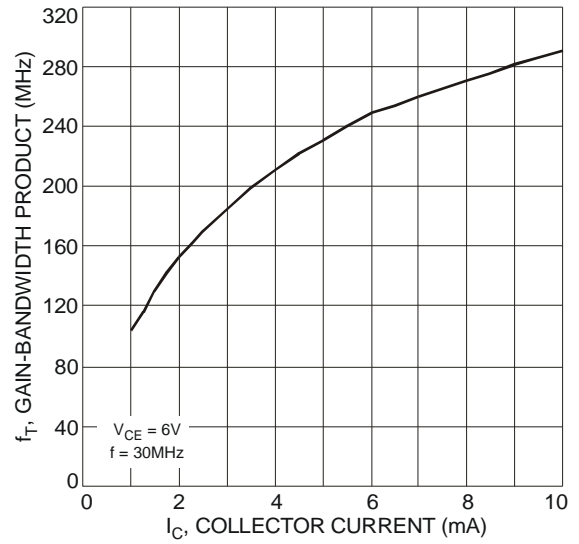


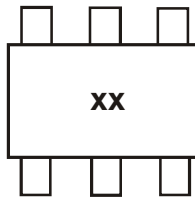
Fig. 8 Typical Gain-Bandwidth Product vs. Collector Current

**Ordering Information** (Note 5)

Device	Packaging	Shipping
DN0150ADJ-7	SOT-963	10,000/Tape & Reel
DN0150BDJ-7	SOT-963	10,000/Tape & Reel

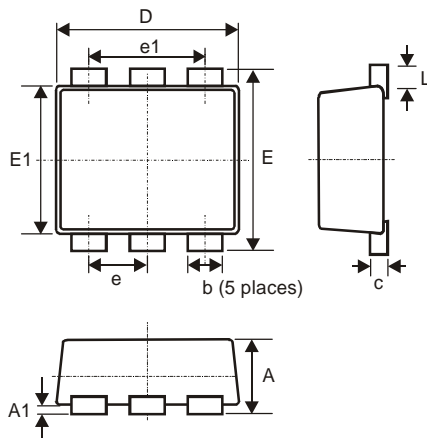
Notes: 5. For packaging details, go to our website at <http://www.diodes.com/datasheets/ap02007.pdf>.

**Marking Information**



xx= Product Type Marking Code:  
T3 = DN0150ADJ  
T4 = DN0150BDJ

**Package Outline Dimensions**



SOT-963			
Dim	Min	Max	Typ
A	0.40	0.50	0.45
A1	0	0.05	-
c	0.077	0.177	0.127
D	0.95	1.05	1.00
E	0.95	1.05	1.00
E1	0.75	0.85	0.80
L	0.05	0.15	0.10
b	0.10	0.20	0.15
e	0.35 Typ		
e1	0.70 Typ		
All Dimensions in mm			

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2. support or sustain life and whose failure to perform when properly used in accordance with instructions for use provided in the labeling can be reasonably expected to result in significant injury to the user.

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