

## 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**

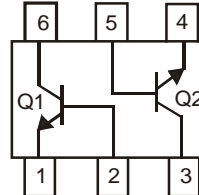
## Mechanical Data

- 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)

SOT-963



Top View



Device Schematic

## 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
OFF CHARACTERISTICS (Note 4)						
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
ON CHARACTERISTICS (Note 4)						
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	DN0150ADJ DN0150BDJ	h <sub>FE</sub>	120	—	240	V <sub>CE</sub> = 6V, I <sub>C</sub> = 2mA
			200	—	400	
SMALL SIGNAL CHARACTERISTICS						
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%

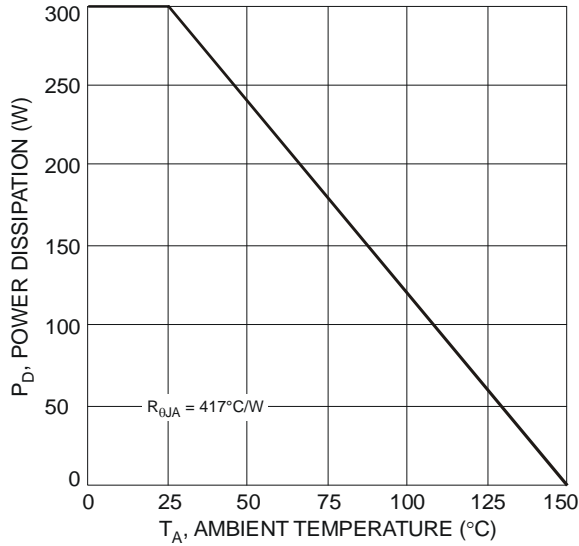


Fig. 1 Power Dissipation vs. Ambient Temperature (Note 3)

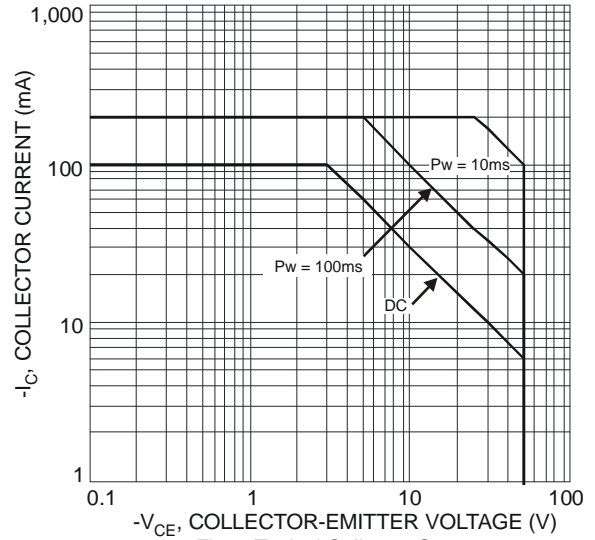


Fig. 2 Typical Collector Current vs. Collector-Emitter Voltage (Note 3)

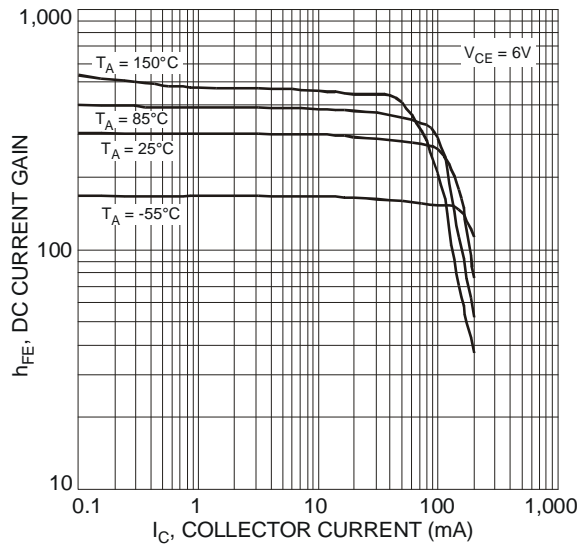


Fig. 3 Typical DC Current Gain vs. Collector Current (DN0150BDJ)

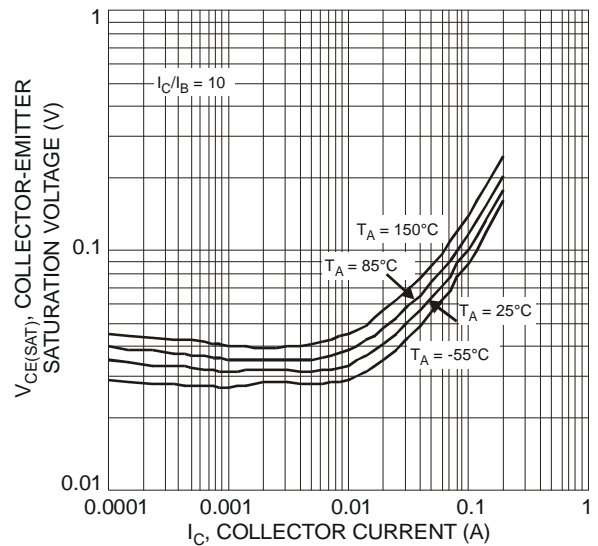


Fig. 4 Typical Collector-Emitter Saturation Voltage vs. Collector Current

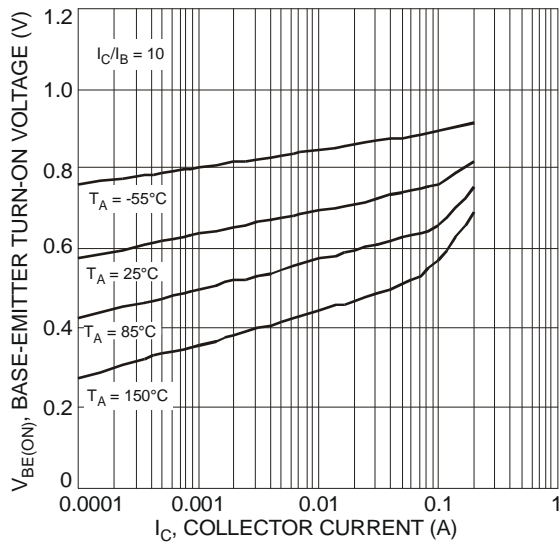


Fig. 5 Typical Base-Emitter Turn-On Voltage vs. Collector Current

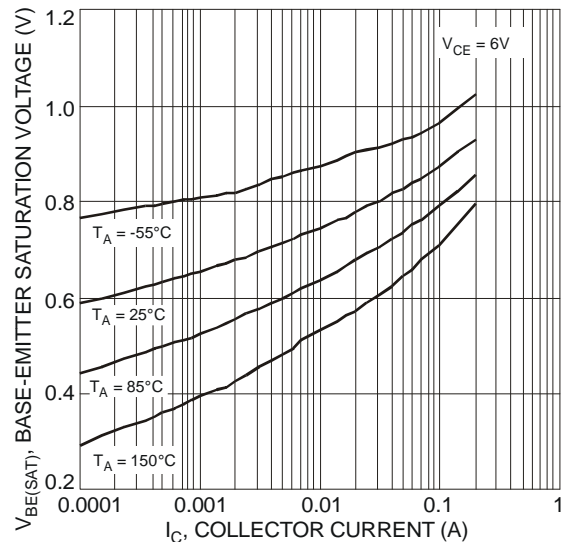


Fig. 6 Typical Base-Emitter Saturation Voltage vs. Collector Current

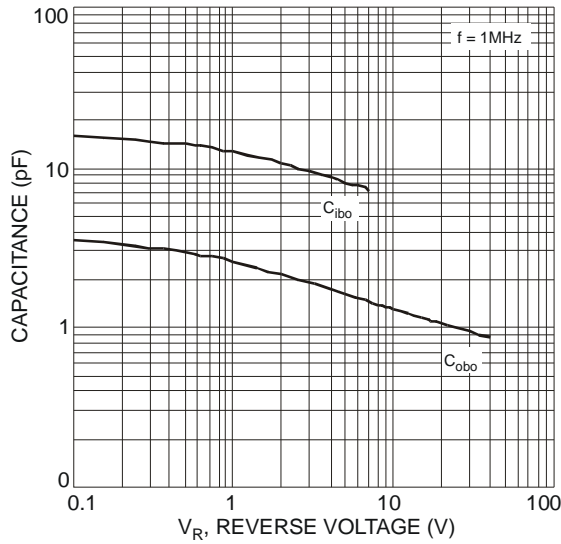


Fig. 7 Typical Capacitance Characteristics

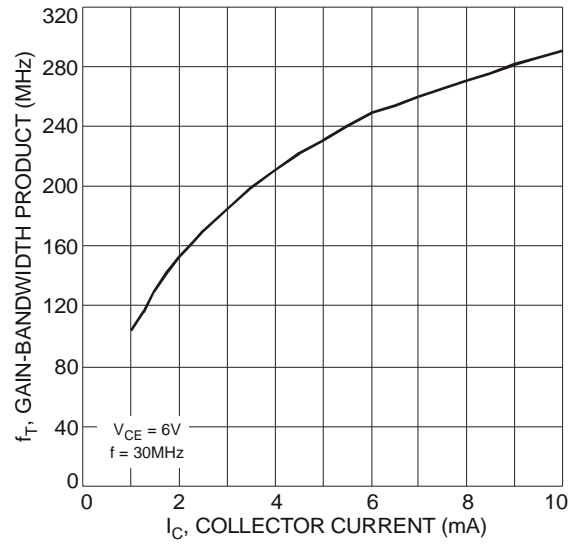


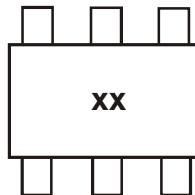
Fig. 8 Typical Gain-Bandwidth Product vs. Collector Current

## 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

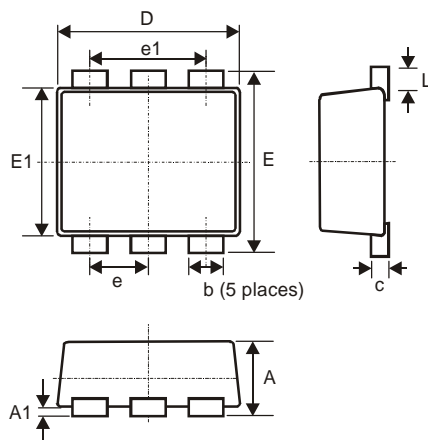


xx= Product Type Marking Code:

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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