

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**

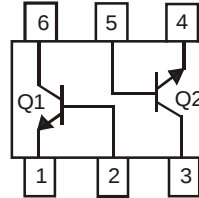
Mechanical Data

- 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_A = 25°C unless otherwise specified

Characteristic	Symbol	Value	Unit
Collector-Base Voltage	V _{CBO}	60	V
Collector-Emitter Voltage	V _{CEO}	50	V
Emitter-Base Voltage	V _{EBO}	5	V
Collector Current – Continuous	I _C	100	mA
Base Current	I _B	30	mA

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 3)	P _D	300	mW
Thermal Resistance, Junction to Ambient (Note 3)	R _{θJA}	417	°C/W
Operating and Storage Temperature Range	T _J , T _{STG}	-55 to +150	°C

Electrical Characteristics @T_A = 25°C unless otherwise specified

Characteristic		Symbol	Min	Typ	Max	Unit	Test Condition
OFF CHARACTERISTICS (Note 4)							
Collector-Base Breakdown Voltage		V _{(BR)CBO}	60	—	—	V	I _C = 10μA, I _E = 0
Collector-Emitter Breakdown Voltage		V _{(BR)CEO}	50	—	—	V	I _C = 1mA, I _B = 0
Emitter-Base Breakdown Voltage		V _{(BR)EBO}	5	—	—	V	I _E = 10μA, I _C = 0
Collector Cut-Off Current		I _{CBO}	—	—	0.1	μA	V _{CB} = 60V, I _E = 0
Emitter Cut-Off Current		I _{EBO}	—	—	0.1	μA	V _{EB} = 5V, I _C = 0
ON CHARACTERISTICS (Note 4)							
Collector-Emitter Saturation Voltage		V _{CE(SAT)}	—	0.10	0.25	V	I _C = 100mA, I _B = 10mA
DC Current Gain	DN0150ADJ	h _{FE}	120	—	240	—	V _{CE} = 6V, I _C = 2mA
	DN0150BDJ		200	—	400		
SMALL SIGNAL CHARACTERISTICS							
Transition Frequency		f _T	60	—	—	MHz	V _{CE} = 10V, I _E = -1mA f = 30MHz
Output Capacitance		C _{ob}	—	1.3	—	pF	V _{CB} = 10V, I _E = 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.
 3. Device mounted on FR-4 PCB with minimum recommended pad layout.
 4. Measured under pulsed conditions. Pulse width = 300μs. Duty cycle ≤2%

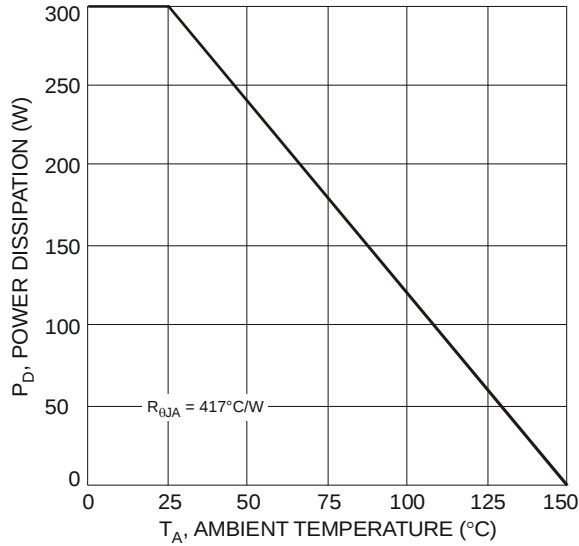


Fig. 1 Power Dissipation vs. Ambient Temperature (Note 3)

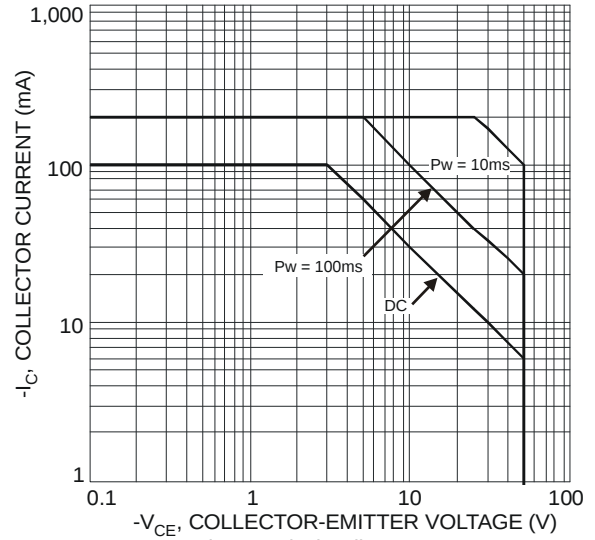


Fig. 2 Typical Collector Current vs. Collector-Emitter Voltage (Note 3)

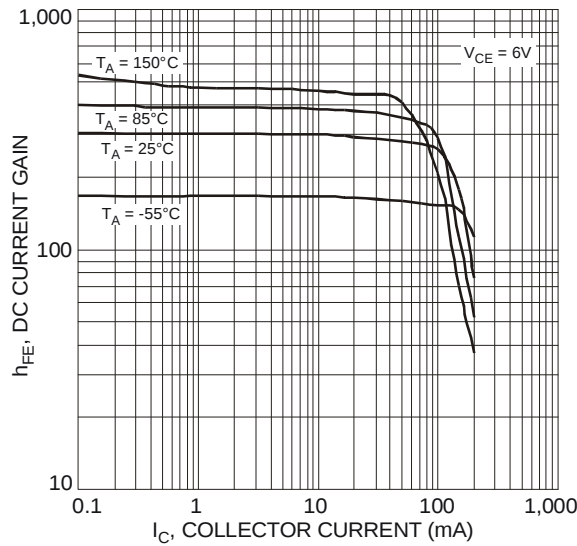


Fig. 3 Typical DC Current Gain vs. Collector Current (DN0150BDJ)

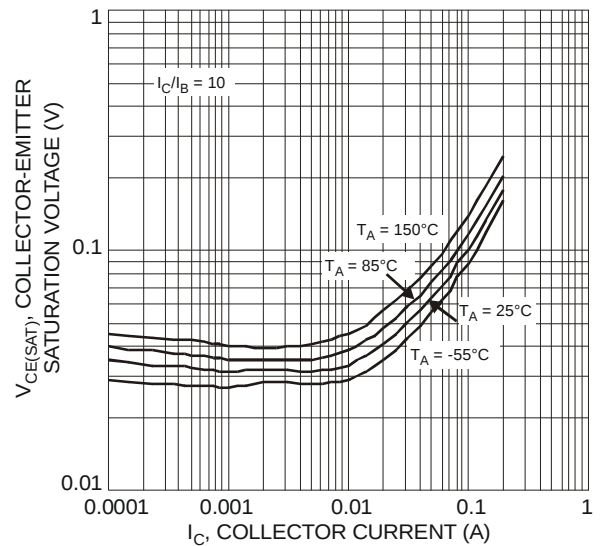


Fig. 4 Typical Collector-Emitter Saturation Voltage vs. Collector Current

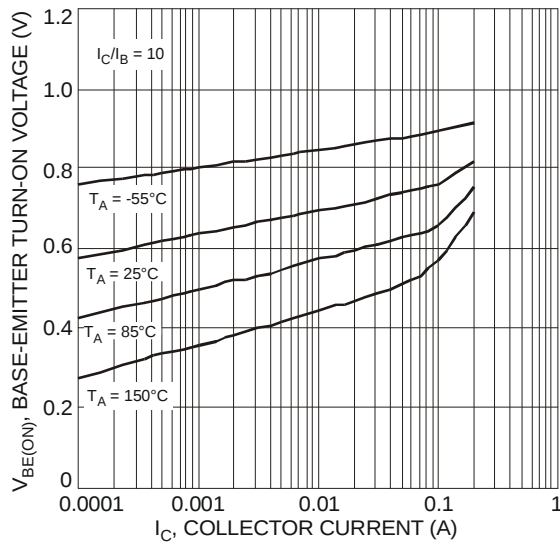


Fig. 5 Typical Base-Emitter Turn-On Voltage vs. Collector Current

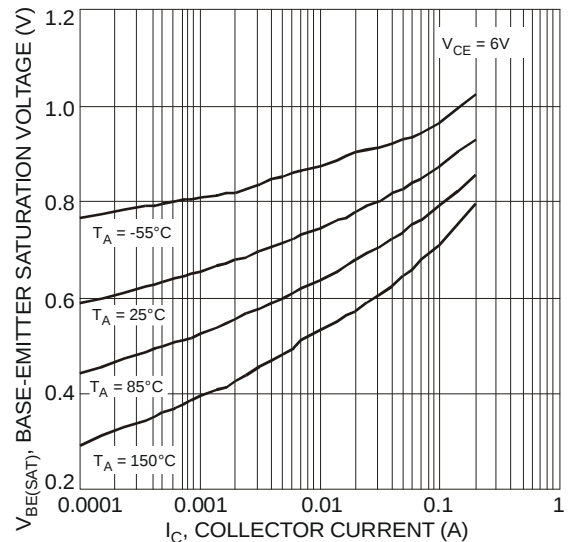


Fig. 6 Typical Base-Emitter Saturation Voltage vs. Collector Current

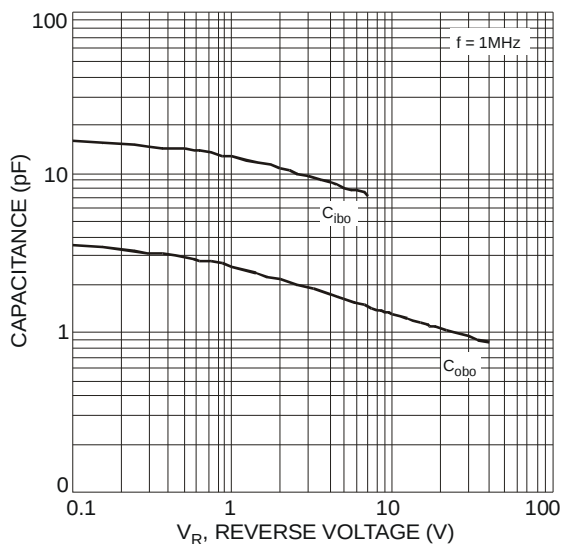


Fig. 7 Typical Capacitance Characteristics

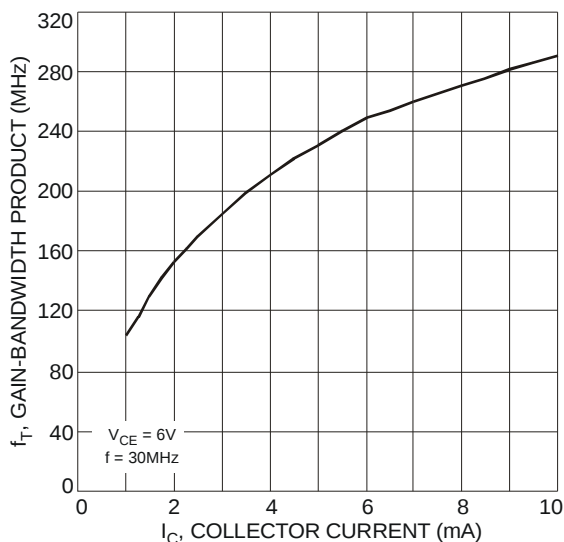


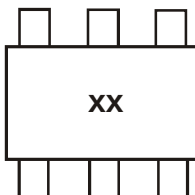
Fig. 8 Typical Gain-Bandwidth Product vs. Collector Current

Ordering Information (Note 5)

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

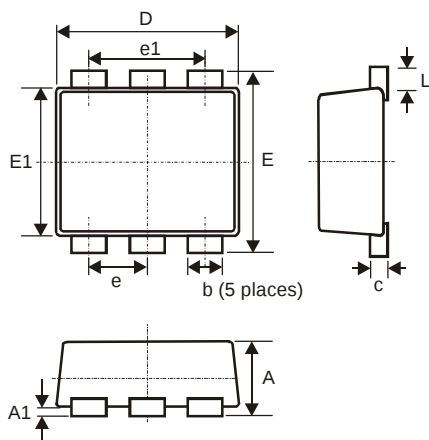
Notes: 5. For packaging details, go to our website at <http://www.diodes.com/datasheets/ap02007.pdf>.

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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