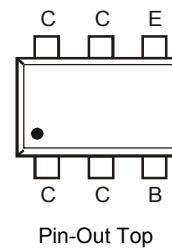
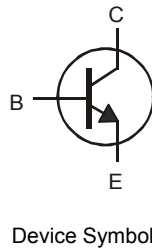
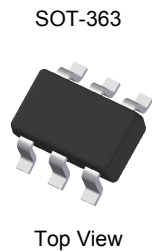


## Features

- $BV_{CEO} > 100V$
- $I_C = 1A$  high Continuous Collector Current
- $I_{CM} = 3A$  Peak Pulse Current
- $R_{CE(sat)} = 200m\Omega$  for a Low Equivalent On-Resistance
- Low Saturation Voltage  $V_{CE(sat)} < 200mV @ 1A$
- Complementary PNP Type Available (DSS9110Y)
- **Totally Lead-Free & Fully RoHS compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **Qualified to AEC-Q101 Standards for High Reliability**

## Mechanical Data

- Case: SOT363
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish - Matte Tin Plated Leads. Solderable per MIL-STD-202, Method 208 @3
- Weight: 0.006 grams (approximate)

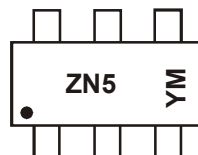


## Ordering Information (Note 4)

Product	Marking	Reel size (inches)	Tape width (mm)	Quantity per reel
DSS8110Y-7	ZN5	7	8	3,000

- Notes:
1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant.
  2. See [http://www.diodes.com/quality/lead\\_free.html](http://www.diodes.com/quality/lead_free.html) for more information about Diodes Incorporated's definitions of Halogen and Antimony free, "Green" and Lead-Free.
  3. Halogen and Antimony free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
  4. For packaging details, go to our website at <http://www.diodes.com/products/packages.html>.

## Marking Information



ZN5 = Product Type Marking Code  
 YM = Date Code Marking  
 Y = Year (ex: X = 2010)  
 M = Month (ex: 9 = September)

### Date Code Key

<b>Year</b>	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
<b>Code</b>	X	Y	Z	A	B	C	D	E	F	G	H	I
<b>Month</b>	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
<b>Code</b>	1	2	3	4	5	6	7	8	9	O	N	D

**Absolute Maximum Ratings** (@T<sub>A</sub> = +25°C, unless otherwise specified.)

Characteristic	Symbol	Value	Unit
Collector-Base Voltage	V <sub>CBO</sub>	120	V
Collector-Emitter Voltage	V <sub>CEO</sub>	100	V
Emitter-Base Voltage	V <sub>EBO</sub>	5	V
Collector Current - Continuous	I <sub>C</sub>	1	A
Peak Pulse Collector Current	I <sub>CM</sub>	3	A
Base Current – Continuous	I <sub>B</sub>	0.3	A

**Thermal Characteristics** (@T<sub>A</sub> = +25°C, unless otherwise specified.)

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 5)	P <sub>D</sub>	625	mW
Thermal Resistance, Junction to Ambient (Note 5)	R <sub>θJA</sub>	200	°C/W
Thermal Resistance, Junction to Lead (Note 6)	R <sub>θJL</sub>	81	°C/W
Operating and Storage Temperature Range	T <sub>J</sub> , T <sub>STG</sub>	-55 to +150	°C

**ESD Ratings** (Note 7)

Characteristic	Symbol	Value	Unit	JEDEC Class
Electrostatic Discharge - Human Body Model	ESD HBM	4,000	V	3A
Electrostatic Discharge - Machine Model	ESD MM	400	V	C

- Notes:
- 5. For a device mounted on minimum recommended pad layout that is on a single-sided 1.6mm FR4 PCB; device is measured under still air conditions whilst operating in a steady-state.
  - 6. Thermal resistance from junction to solder-point (at the end of collector lead).
  - 7. Refer to JEDEC specification JESD22-A114 and JESD22-A115.

**Thermal Characteristics and Derating Information**

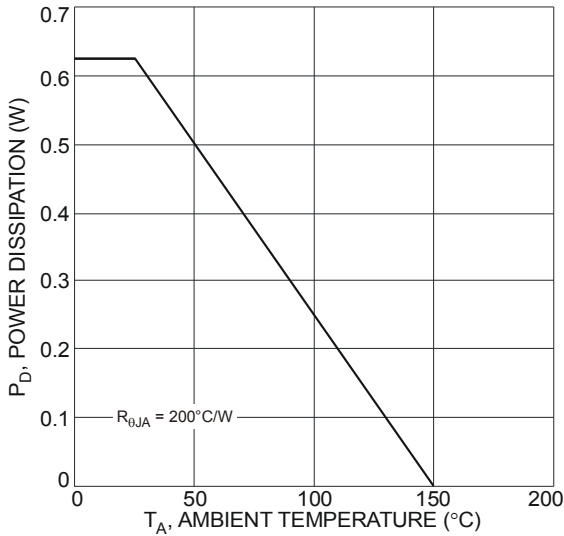


Fig. 1 Power Dissipation vs. Ambient Temperature

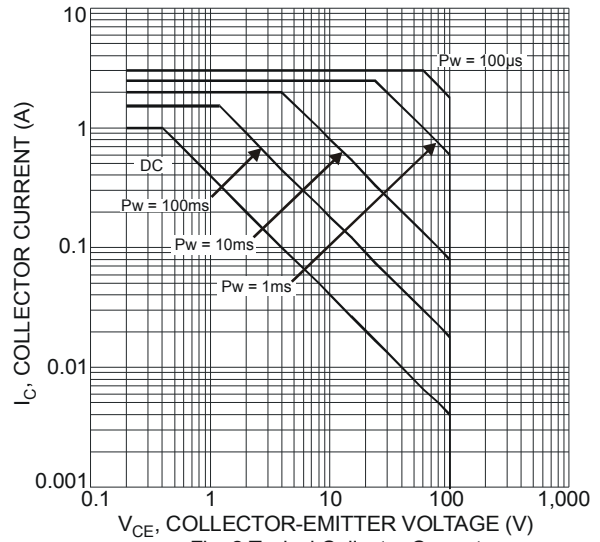


Fig. 2 Typical Collector Current vs. Collector-Emitter Voltage

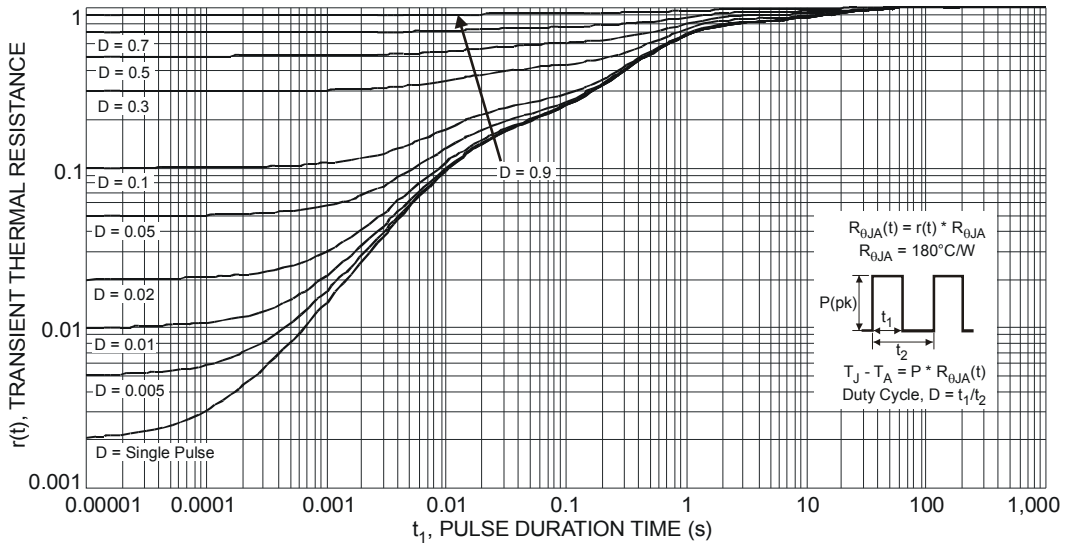


Fig. 3 Transient Thermal Response

**Electrical Characteristics** (@T<sub>A</sub> = +25°C, unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
<b>OFF CHARACTERISTICS (Note 8)</b>						
Collector-Base Breakdown Voltage	BV <sub>CBO</sub>	120	—	—	V	I <sub>C</sub> = 100μA, I <sub>E</sub> = 0
Collector-Emitter Breakdown Voltage	BV <sub>CEO</sub>	100	—	—	V	I <sub>C</sub> = 10mA, I <sub>B</sub> = 0
Emitter-Base Breakdown Voltage	BV <sub>EBO</sub>	5	—	—	V	I <sub>E</sub> = 100μA, I <sub>C</sub> = 0
Collector Cutoff Current	I <sub>CBO</sub>	—	—	100	nA	V <sub>CB</sub> = 80V, I <sub>E</sub> = 0
Collector Cutoff Current	I <sub>CES</sub>	—	—	50	μA	V <sub>CB</sub> = 80V, I <sub>E</sub> = 0, T <sub>A</sub> = 150°C
Collector Cutoff Current	I <sub>CES</sub>	—	—	100	nA	V <sub>CE</sub> = 80V, V <sub>BE</sub> = 0
Emitter Cutoff Current	I <sub>EBO</sub>	—	—	100	nA	V <sub>EB</sub> = 4V, I <sub>C</sub> = 0
<b>ON CHARACTERISTICS (Note 8)</b>						
DC Current Gain	h <sub>FE</sub>	150	—	—	V	V <sub>CE</sub> = 10V, I <sub>C</sub> = 1mA
		150	—	500		V <sub>CE</sub> = 10V, I <sub>C</sub> = 250mA
		100	—	—		V <sub>CE</sub> = 10V, I <sub>C</sub> = 500mA
		80	—	—		V <sub>CE</sub> = 10V, I <sub>C</sub> = 1A
Collector-Emitter Saturation Voltage	V <sub>CE(sat)</sub>	—	—	40	mV	I <sub>C</sub> = 100mA, I <sub>B</sub> = 10mA
		—	—	120		I <sub>C</sub> = 500mA, I <sub>B</sub> = 50mA
		—	—	200		I <sub>C</sub> = 1A, I <sub>B</sub> = 100mA
Collector-Emitter Saturation Resistance	R <sub>CE(sat)</sub>	—	—	200	mΩ	I <sub>C</sub> = 1A, I <sub>B</sub> = 100mA
Base-Emitter Saturation Voltage	V <sub>BE(sat)</sub>	—	—	1.05	V	I <sub>C</sub> = 1A, I <sub>B</sub> = 100mA
Base-Emitter Turn On Voltage	V <sub>BE(on)</sub>	—	—	0.9	V	V <sub>CE</sub> = 10V, I <sub>C</sub> = 1A
<b>SMALL SIGNAL CHARACTERISTICS</b>						
Output Capacitance	C <sub>obo</sub>	—	—	7.5	pF	V <sub>CB</sub> = 10V, f = 1.0MHz
Current Gain-Bandwidth Product	f <sub>T</sub>	100	—	—	MHz	V <sub>CE</sub> = 10V, I <sub>C</sub> = 50mA, f = 100MHz

Notes: 8. Measured under pulsed conditions. Pulse width ≤ 300μs. Duty cycle ≤ 2%.

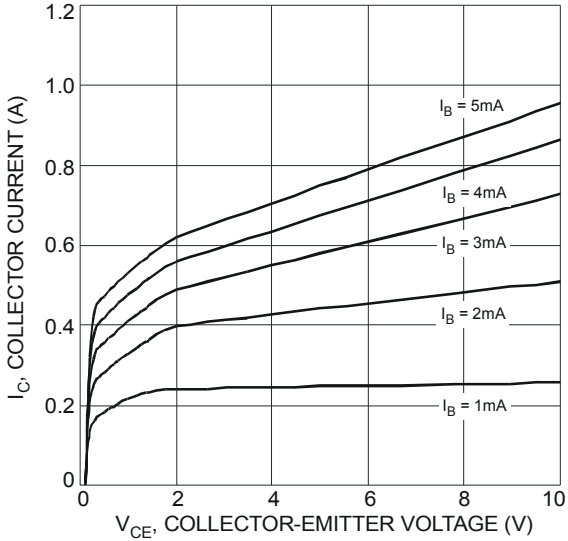


Fig. 4 Typical Collector Current vs. Collector-Emitter Voltage

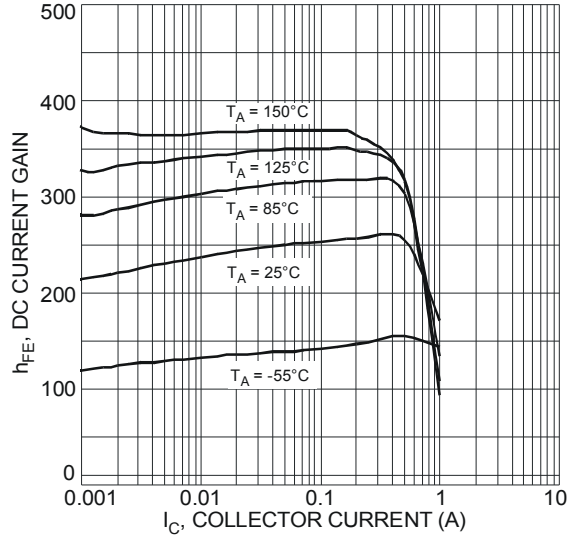


Fig. 5 Typical DC Current Gain vs. Collector Current

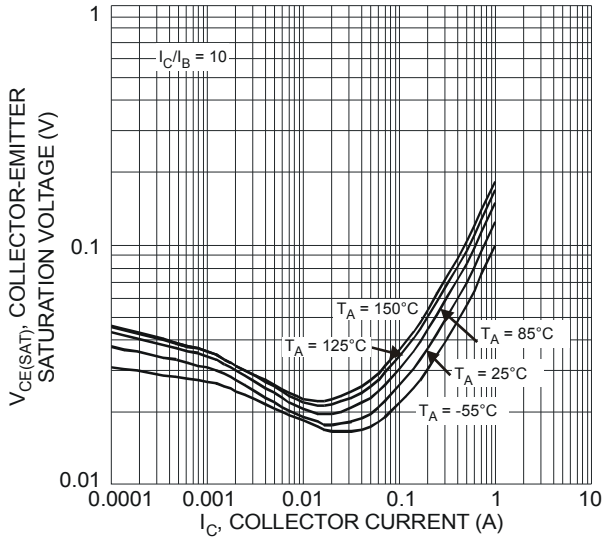


Fig. 6 Typical Collector-Emitter Saturation Voltage vs. Collector Current

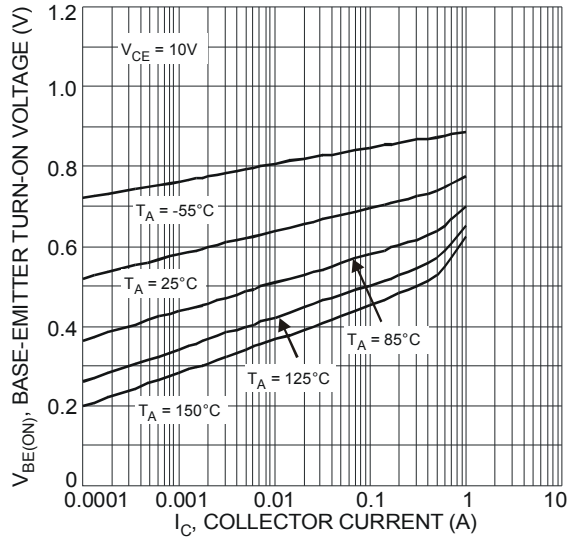


Fig. 7 Typical Base-Emitter Turn-On Voltage vs. Collector Current

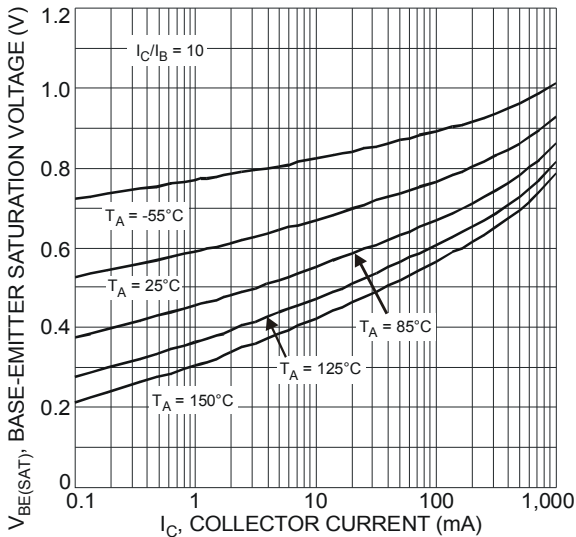
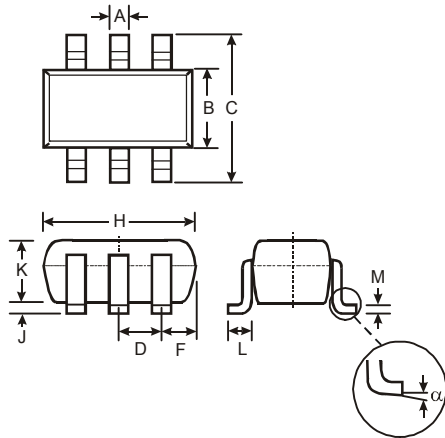


Fig. 8 Typical Base-Emitter Saturation Voltage vs. Collector Current

**Package Outline Dimensions**

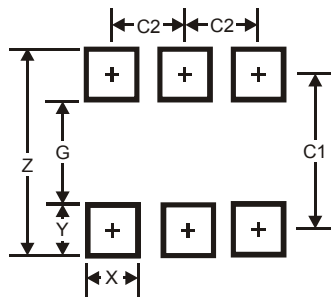
Please see AP02002 at <http://www.diodes.com/datasheets/ap02002.pdf> for latest version.



SOT363			
Dim	Min	Max	Typ
A	0.10	0.30	0.25
B	1.15	1.35	1.30
C	2.00	2.20	2.10
D	0.65 Typ		
F	0.40	0.45	0.425
H	1.80	2.20	2.15
J	0	0.10	0.05
K	0.90	1.00	1.00
L	0.25	0.40	0.30
M	0.10	0.22	0.11
α	0°	8°	-
All Dimensions in mm			

**Suggested Pad Layout**

Please see AP02001 at <http://www.diodes.com/datasheets/ap02001.pdf> for the latest version.



Dimensions	Value (in mm)
Z	2.5
G	1.3
X	0.42
Y	0.6
C1	1.9
C2	0.65

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