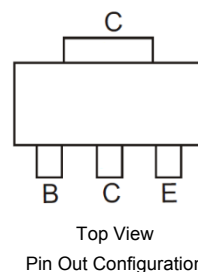
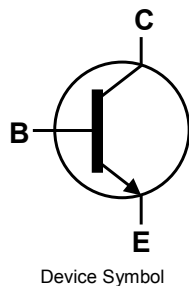
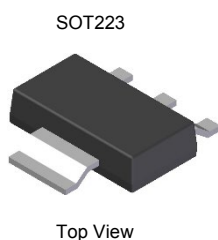


Features

- Epitaxial Planar Die Construction
- Complementary PNP Type Available (DCP69)
- Ideally Suited for Automated Assembly Processes
- Ideal for Medium Power Switching or Amplification Applications
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen, Antimony and Beryllium Free. "Green" Device (Note 3)**
- **For automotive applications requiring specific change control (i.e. parts qualified to AEC-Q100/101/200, PPAP capable, and manufactured in IATF 16949 certified facilities), please [contact us](mailto:contact@diodes.com) or your local Diodes representative. <https://www.diodes.com/quality/product-definitions/>**

Mechanical Data

- Case: SOT223
- 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
- Solderable per MIL-STD -202, Method 208
- Weight: 0.112 grams (Approximate)



Ordering Information (Note 4)

Part Number	Status	Compliance	Marking	Reel Size (inches)	Tape Width (mm)	Quantity per Reel
DCP68-13	Active	Standard	N12	13	12	2,500
DCP68-25-13	Obsolete	Standard	N12-25	13	12	2,500

- Notes:
1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant.
 2. See <https://www.diodes.com/quality/lead-free/> for more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "Green" and Lead-free.
 3. Halogen, Antimony and Beryllium-free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl), <1000ppm antimony compounds and <1000ppm Beryllium.
 4. For packaging details, go to our website at <https://www.diodes.com/design/support/packaging/diodes-packaging/>.

Marking Information



- xxx = Product Type Marking Code:
 N12 = DCP68
 N12-25 = DCP68-25
 DII = Manufacturer's code marking
 YWW = Date Code Marking
 Y = Last digit of year (ex: 1 = 2021)
 WW = Week code (01 – 53)

Maximum Ratings @ $T_A = 25^\circ\text{C}$ unless otherwise specified

Characteristic	Symbol	Value	Units
Collector-Base Voltage	V_{CBO}	25	V
Collector-Emitter Voltage	V_{CEO}	20	V
Emitter-Base Voltage	V_{EBO}	5.0	V
Continuous Collector Current	I_C	1.0	A

Thermal Characteristics @ $T_A = 25^\circ\text{C}$ unless otherwise specified

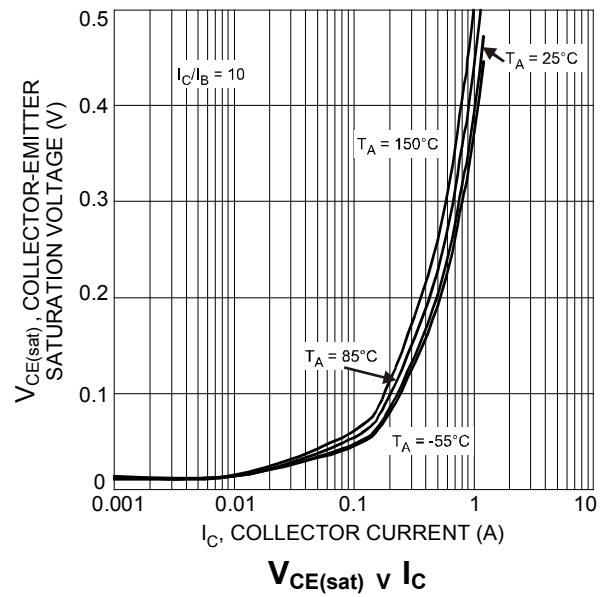
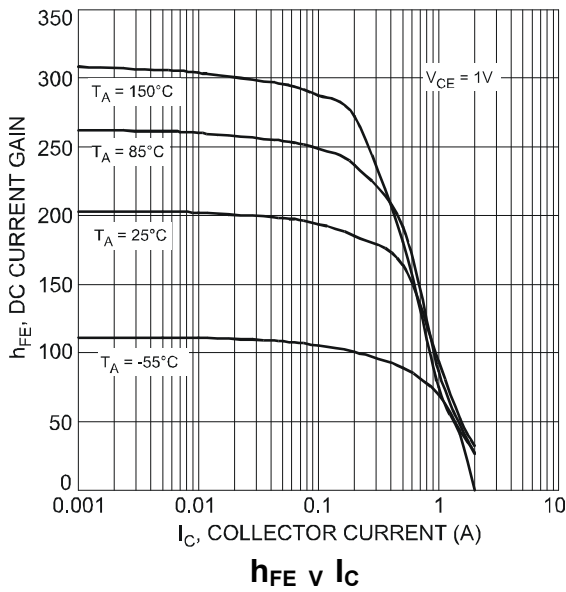
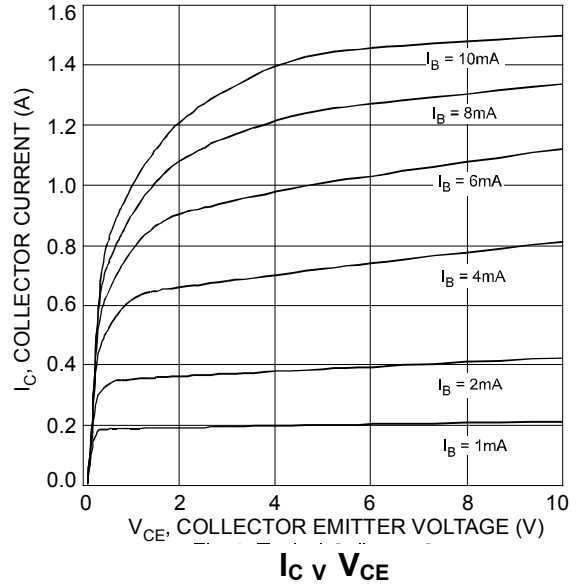
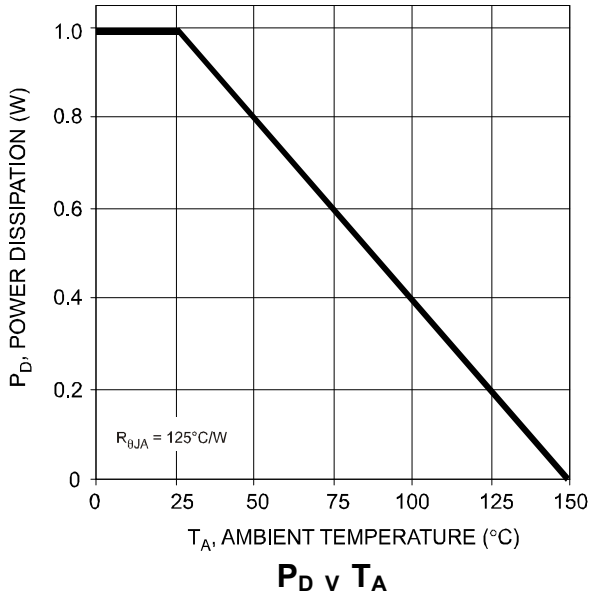
Characteristic	Symbol	Value	Unit
Power Dissipation (Note 5)	P_D	1	W
Thermal Resistance, Junction to Ambient Air (Note 5)	$R_{\theta JA}$	125	$^\circ\text{C/W}$
Operating and Storage Temperature Range	T_J, T_{STG}	-55 to 150	$^\circ\text{C}$

Electrical Characteristics @ $T_A = 25^\circ\text{C}$ unless otherwise specified

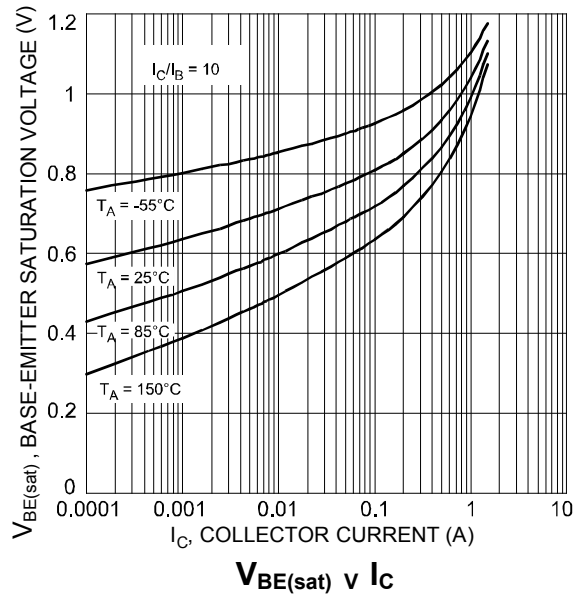
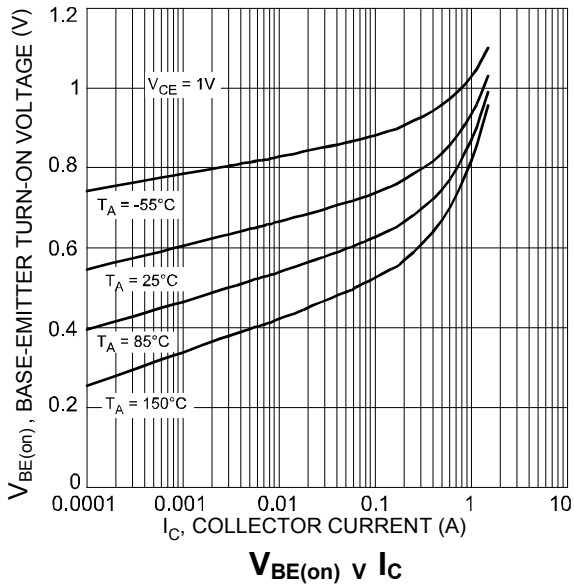
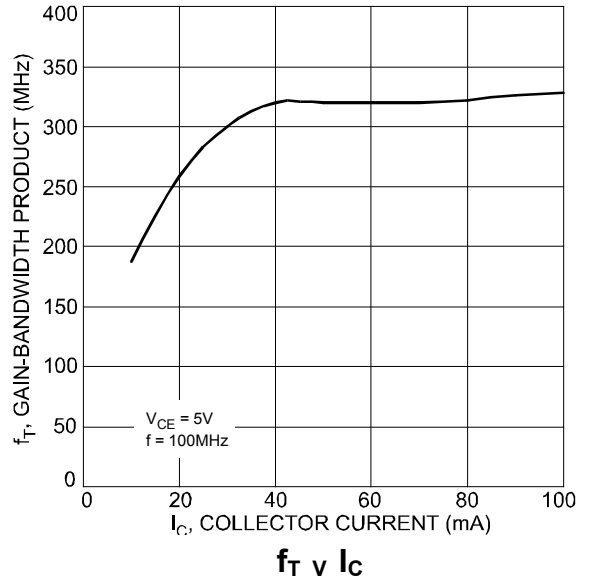
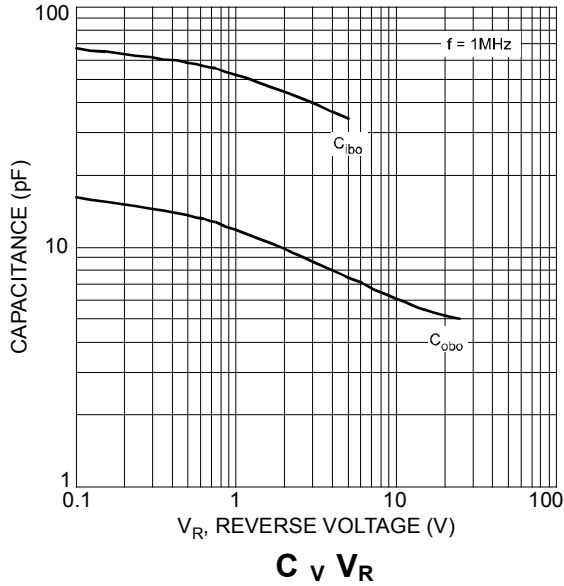
Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition	
OFF CHARACTERISTICS (Note 6)							
Collector-Emitter Breakdown Voltage	BV_{CES}	25	—	—	V	$I_C = 100\mu\text{A}, I_E = 0$	
Collector-Emitter Breakdown Voltage	BV_{CEO}	20	—	—	V	$I_C = 1.0\text{mA}, I_B = 0$	
Collector-Base Breakdown Voltage	BV_{CBO}	25	—	—	V	$I_C = 10\mu\text{A}, I_E = 0$	
Emitter-Base Breakdown Voltage	BV_{EBO}	5.0	—	—	V	$I_E = 10\mu\text{A}, I_C = 0$	
Collector-Base Cut-Off Current	I_{CBO}	—	—	100	nA	$V_{CB} = 25\text{V}, I_E = 0$	
Emitter-Base Cut-Off Current	I_{EBO}	—	—	10	μA	$V_{EB} = 5.0\text{V}, I_C = 0$	
ON CHARACTERISTICS (Note 6)							
DC Current Gain	DCP68, DCP68-25	h_{FE}	50	—	—	—	$V_{CE} = 10\text{V}, I_C = 5.0\text{mA}$
			60	—	—		$V_{CE} = 1.0\text{V}, I_C = 1.0\text{A}$
	DCP68		85	—	375		$V_{CE} = 1.0\text{V}, I_C = 500\text{mA}$
	DCP68-25		160	—	375		$V_{CE} = 1.0\text{V}, I_C = 500\text{mA}$
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	—	—	0.5	V	$I_C = 1.0\text{A}, I_B = 100\text{mA}$	
Base-Emitter Turn-On Voltage	$V_{BE(on)}$	—	—	1.0	V	$V_{CE} = 1.0\text{V}, I_C = 1.0\text{A}$	
SMALL SIGNAL CHARACTERISTICS							
Transition frequency	f_T	—	330	—	MHz	$I_C = 100\text{mA}, V_{CE} = 5.0\text{V}$ $f = 100\text{MHz}$	

- Notes:
- For a device mounted on minimum recommended pad layout 1oz weight copper that is on a single-sided FR4 PCB; device is measured under still air conditions whilst operating in a steady-state.
 - Measured under pulsed conditions. Pulse width $\leq 300\mu\text{s}$. Duty cycle $\leq 2\%$.

Typical Electrical Characteristics (@ $T_A = +25^\circ\text{C}$, unless otherwise specified.)



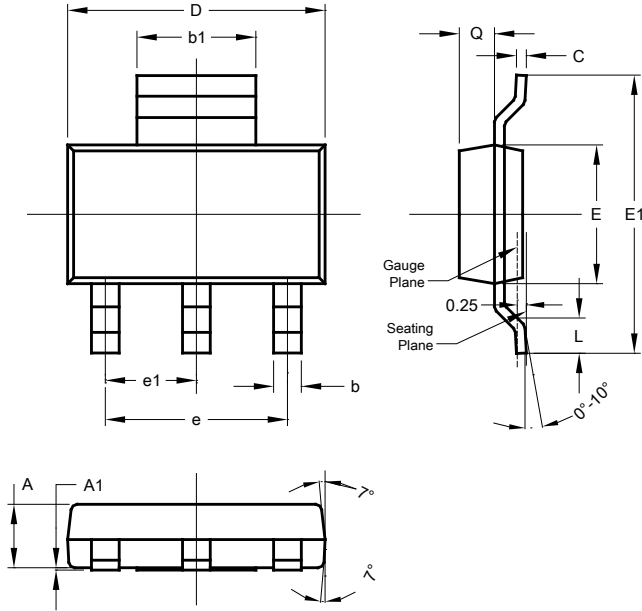
Typical Electrical Characteristics (@ $T_A = +25^\circ\text{C}$, unless otherwise specified.)



Package Outline Dimensions

Please see <http://www.diodes.com/package-outlines.html> for the latest version.

SOT223

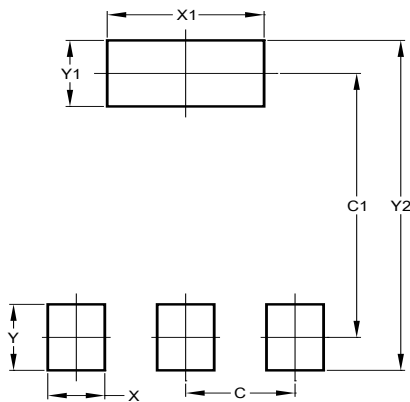


SOT223			
Dim	Min	Max	Typ
A	1.55	1.65	1.60
A1	0.010	0.15	0.05
b	0.60	0.80	0.70
b1	2.90	3.10	3.00
C	0.20	0.30	0.25
D	6.45	6.55	6.50
E	3.45	3.55	3.50
E1	6.90	7.10	7.00
e	—	—	4.60
e1	—	—	2.30
L	0.85	1.05	0.95
Q	0.84	0.94	0.89
All Dimensions in mm			

Suggested Pad Layout

Please see <http://www.diodes.com/package-outlines.html> for the latest version.

SOT223



Dimensions	Value (in mm)
C	2.30
C1	6.40
X	1.20
X1	3.30
Y	1.60
Y1	1.60
Y2	8.00

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