



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from Europe, America and south Asia, supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of "Quality Parts, Customers Priority, Honest Operation, and Considerate Service", our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip, ALPS, ROHM, Xilinx, Pulse, ON, Everlight and Freescale. Main products comprise IC, Modules, Potentiometer, IC Socket, Relay, Connector. Our parts cover such applications as commercial, industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



Contact us

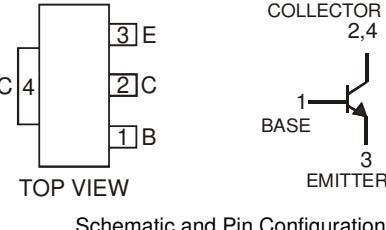
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Features

- Epitaxial Planar Die Construction
- Complementary PNP Type Available (DCP69)
- Ideally Suited for Automated Assembly Processes
- Ideal for Medium Power Switching or Amplification Applications
- Lead Free By Design/RoHS Compliant (Note 1)**
- "Green" Device (Note 2)



Schematic and Pin Configuration

Mechanical Data

- Case: SOT-223
- 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 (Lead Free Plating). Solderable per MIL-STD-202, Method 208
- Marking Information: See Page 3
- Ordering Information: See Page 3
- Weight: 0.115 grams

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
Collector Current	I_C	1.0	A

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Power Dissipation @ $T_A = 25^\circ\text{C}$ (Note 3)	P_D	1	W
Thermal Resistance, Junction to Ambient Air @ $T_A = 25^\circ\text{C}$ (Note 3)	$R_{\theta JA}$	125	°C/W
Operating and Storage Temperature Range	T_J, T_{STG}	-55 to 150	°C

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

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition	
OFF CHARACTERISTICS (Note 4)							
Collector-Emitter Breakdown Voltage	$V_{(BR)CES}$	25	—	—	V	$I_C = 100\mu\text{A}, I_E = 0$	
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	20	—	—	V	$I_C = 1.0\text{mA}, I_B = 0$	
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	25	—	—	V	$I_C = 10\mu\text{A}, I_E = 0$	
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	5.0	—	—	V	$I_E = 10\mu\text{A}, I_C = 0$	
Collector-Base Cutoff Current	I_{CBO}	—	—	100	nA	$V_{CB} = 25\text{V}, I_E = 0$	
Emitter-Base Cutoff Current	I_{EBO}	—	—	10	μA	$V_{EB} = 5.0\text{V}, I_C = 0$	
ON CHARACTERISTICS (Note 4)							
DC Current Gain	DCP68, DCP68-25	h_{FE}	50	—	—	$V_{CE} = 10\text{V}, I_C = 5.0\text{mA}$ $V_{CE} = 1.0\text{V}, I_C = 1.0\text{A}$	
			60	—	—		
			85	—	375		
	DCP68		160	—	375	$V_{CE} = 1.0\text{V}, I_C = 500\text{mA}$ $V_{CE} = 1.0\text{V}, I_C = 500\text{mA}$	
			—	—	—		
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							
Current Gain-Bandwidth Product	f_T	—	330	—	MHz	$I_C = 100\text{mA}, V_{CE} = 5.0\text{V}$ $f = 100\text{MHz}$	

Notes:

- No purposefully added lead.
- Diodes Inc.'s "Green" Policy can be found on our website at http://www.diodes.com/products/lead_free/index.php.
- Device mounted on FR-4 PCB; pad layout as shown on page 4 or in Diodes Inc. suggested pad layout document AP02001, which can be found on our website at <http://www.diodes.com/datasheets/ap02001.pdf>.
- Measured under pulsed conditions. Pulse width = 300μs. Duty cycle ≤2%.

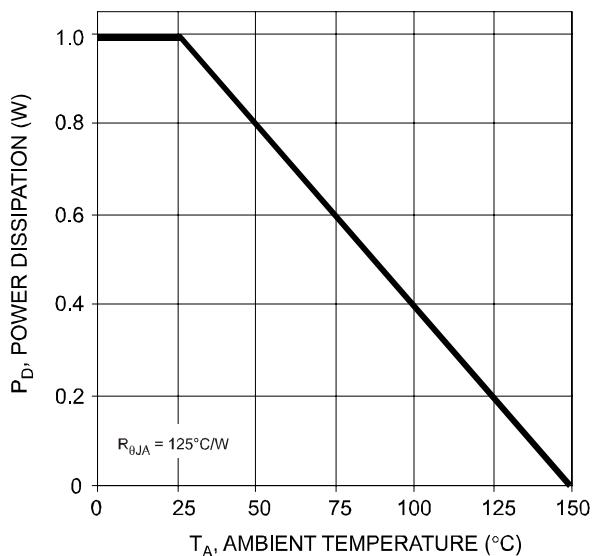


Fig. 1 Power Dissipation vs. Ambient Temperature

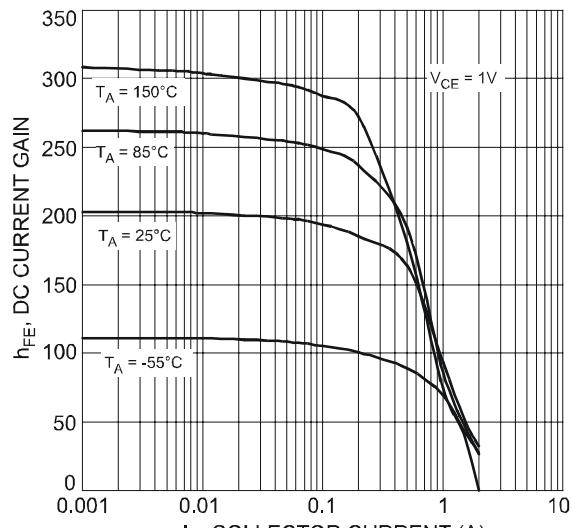


Fig. 3 Typical DC Current Gain vs. Collector Current (DCP68)

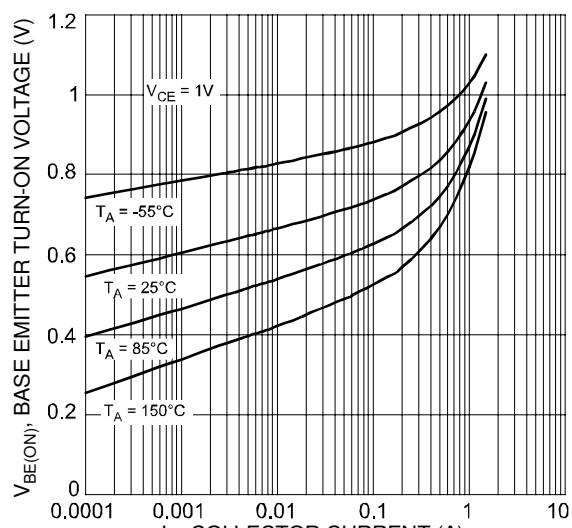


Fig. 5 Typical Base Emitter Turn-On Voltage vs. Collector Current

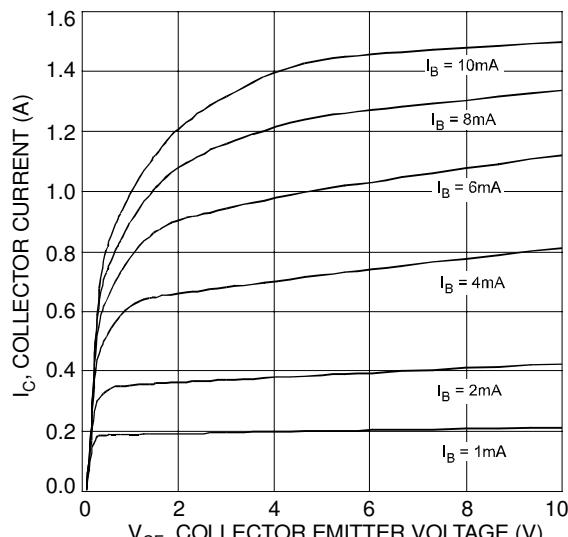


Fig. 2 Typical Collector Current vs. Collector Emitter Voltage

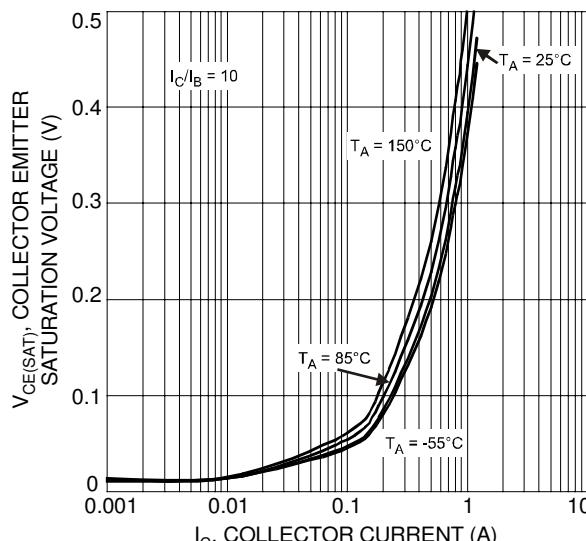


Fig. 4 Typical Collector Emitter Saturation Voltage vs. Collector Current

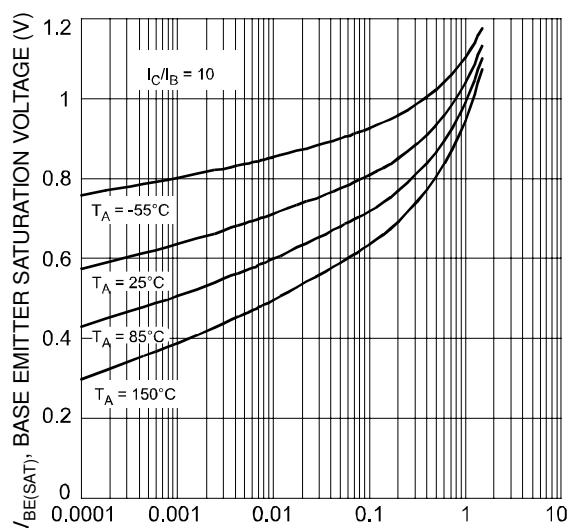


Fig. 6 Typical Base Emitter Saturation Voltage vs. Collector Current

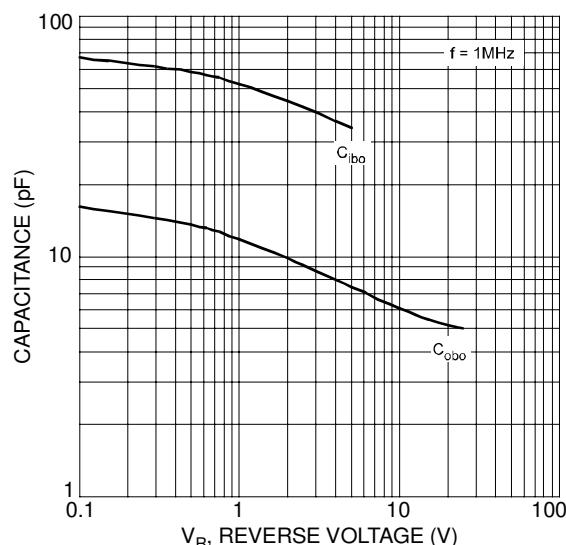


Fig. 7 Typical Capacitance Characteristics

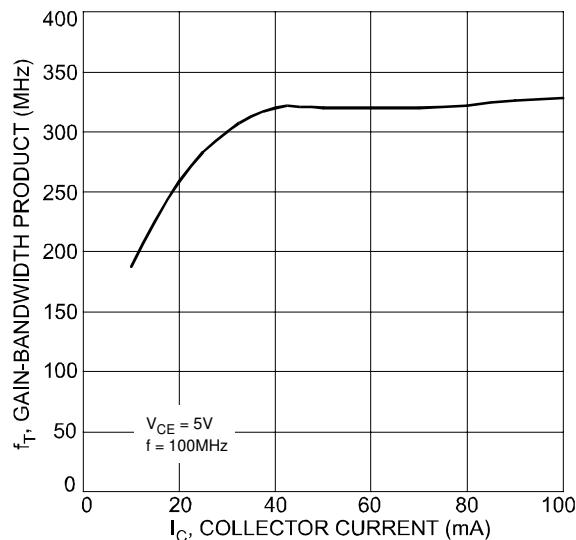


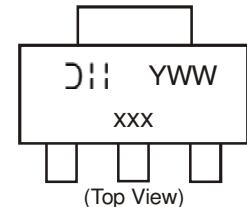
Fig. 8 Typical Gain-Bandwidth Product vs. Collector Current

Ordering Information (Note 5)

Device	Packaging	Shipping
DCP68-13	SOT-223	2500/Tape & Reel
DCP68-25-13	SOT-223	2500/Tape & Reel

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

Marking Information



xxx = Product Type Marking Code:

N12 = DCP68

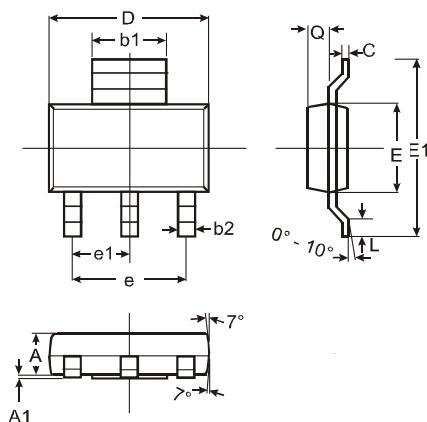
N12-25 = DCP68-25

YWW = Date Code Marking

Y = Last digit of year ex: 7 = 2007

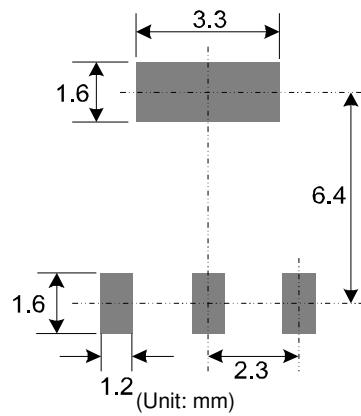
WW = Week code 01 - 52

Package Outline Dimensions



SOT-223			
Dim	Min	Max	Typ
A	1.55	1.65	1.60
A1	0.010	0.15	0.05
b1	2.90	3.10	3.00
b2	0.60	0.80	0.70
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:**IMPORTANT NOTICE**

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