



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!



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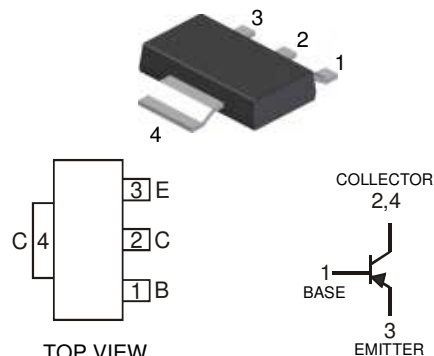
**NOT RECOMMENDED FOR NEW  
DESIGNS, USE DCP69/-16**

## Features

- Epitaxial Planar Die Construction
- Complementary NPN Type Available (DCP68)
- 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)

## 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-020C
- Terminals: Finish - Matte Tin annealed over Copper leadframe  
(Lead Free Plating). Solderable per MIL-STD -202, Method 208
- Marking & Type Code Information: See Page 3
- Ordering Information: See Page 3
- Weight: 0.115 grams (approximate)



TOP VIEW

Schematic and Pin Configuration

## Maximum Ratings @T<sub>A</sub> = 25°C unless otherwise specified

Characteristic	Symbol	Value	Units
Collector-Base Voltage	V <sub>CB0</sub>	-25	V
Collector-Emitter Voltage	V <sub>CEO</sub>	-20	V
Emitter-Base Voltage	V <sub>EBO</sub>	-5.0	V
Collector Current	I <sub>C</sub>	-1.0	A

## Thermal Characteristics

Characteristic	Symbol	Value	Unit
Total Power Dissipation @ T <sub>A</sub> = 25°C (Note 3)	P <sub>d</sub>	1	W
Thermal Resistance, Junction to Ambient Air @ T <sub>A</sub> = 25°C (Note 3)	R <sub>θJA</sub>	125	°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-Emitter Breakdown Voltage		V <sub>(BR)CES</sub>	-25	—	—	V	I <sub>C</sub> = -100μA, I <sub>E</sub> = 0
Collector-Emitter Breakdown Voltage		V <sub>(BR)CEO</sub>	-20	—	—	V	I <sub>C</sub> = -1.0mA, I <sub>B</sub> = 0
Collector-Base Breakdown Voltage		V <sub>(BR)CBO</sub>	-25	—	—	V	I <sub>C</sub> = -10μA, I <sub>E</sub> = 0
Emitter-Base Breakdown Voltage		V <sub>(BR)EBO</sub>	-5.0	—	—	V	I <sub>E</sub> = -10μA, I <sub>C</sub> = 0
Collector-Base Cutoff Current		I <sub>CBO</sub>	—	—	-100	nA	V <sub>CB</sub> = -25V, I <sub>E</sub> = 0
Emitter-Base Cutoff Current		I <sub>EBO</sub>	—	—	-10	μA	V <sub>EB</sub> = -5.0V, I <sub>C</sub> = 0
ON CHARACTERISTICS (Note 4)							
DC Current Gain	DCP69A, DCP69A-16	h <sub>FE</sub>	50	—	—	—	I <sub>C</sub> = -5.0mA, V <sub>CE</sub> = -10V
			85	—	375		I <sub>C</sub> = -500mA, V <sub>CE</sub> = -1.0V
			40	—	—		I <sub>C</sub> = -1.0A, V <sub>CE</sub> = -1.0V
	DCP69A-16		100	—	250		I <sub>C</sub> = -500mA, V <sub>CE</sub> = -1.0V
Collector-Emitter Saturation Voltage		V <sub>CE(SAT)</sub>	—	—	-0.5	V	I <sub>C</sub> = -1.0A, I <sub>B</sub> = -100mA
Base-Emitter Turn-On Voltage		V <sub>BE (ON)</sub>	—	-0.6	—	V	I <sub>C</sub> = -5mA, V <sub>CE</sub> = 10V
			—	—	-1.0		I <sub>C</sub> = -1.0A, V <sub>CE</sub> = -1.0V
SMALL SIGNAL CHARACTERISTICS							
Current Gain-Bandwidth Product		f <sub>T</sub>	—	250	—	MHz	I <sub>C</sub> = -100mA, V <sub>CE</sub> = -5.0V f = 100MHz

- 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; 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>.
  4. Measured under pulsed conditions. Pulse width = 300μs. Duty cycle ≤ 2%.

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

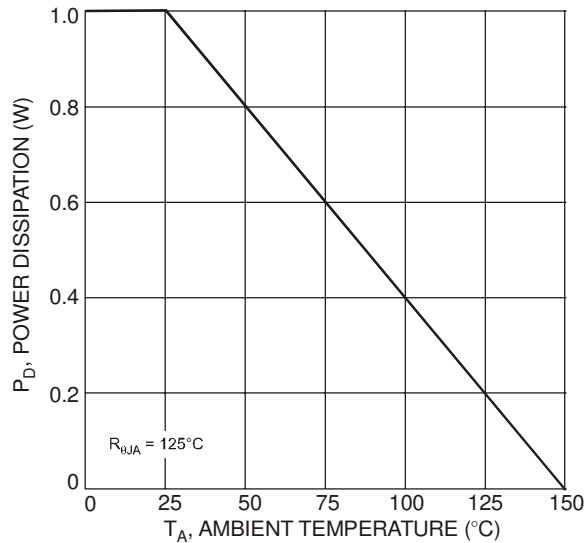


Fig. 1 Power Dissipation vs. Ambient Temperature (Note 3)

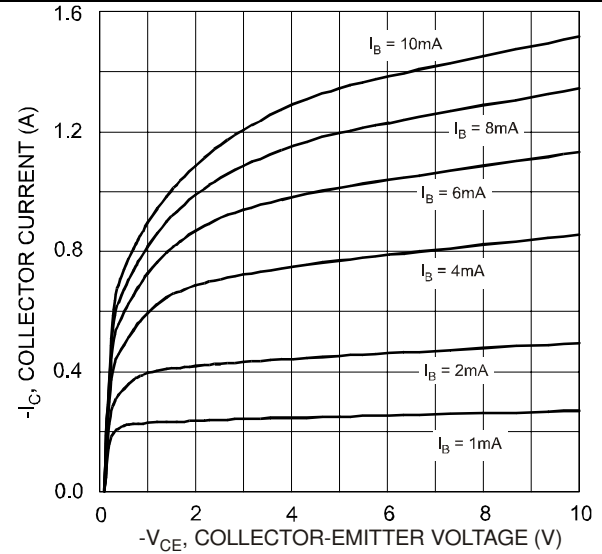


Fig. 2 Typical Collector Current vs. Collector-Emitter Voltage

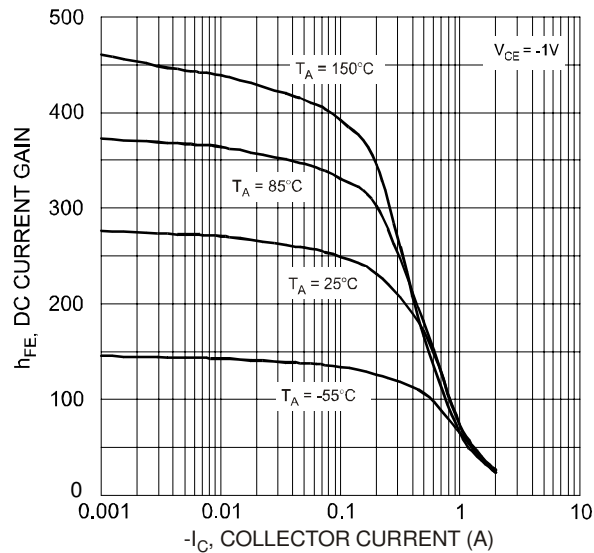


Fig. 3 Typical DC Current Gain vs. Collector Current

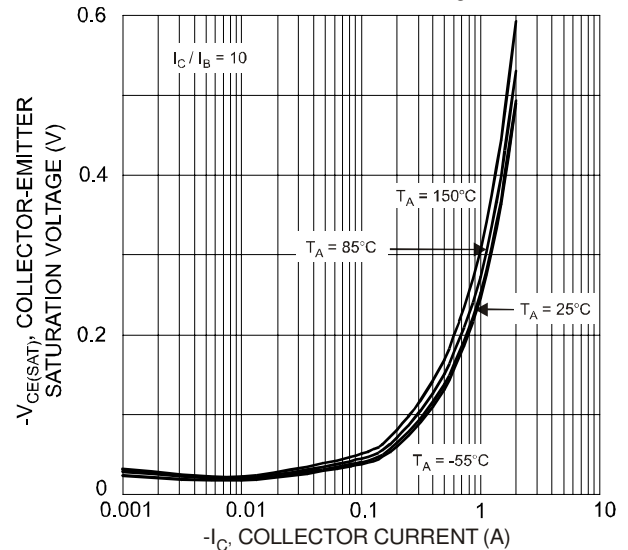


Fig. 4 Typical Collector-Emitter Saturation Voltage vs. Collector Current

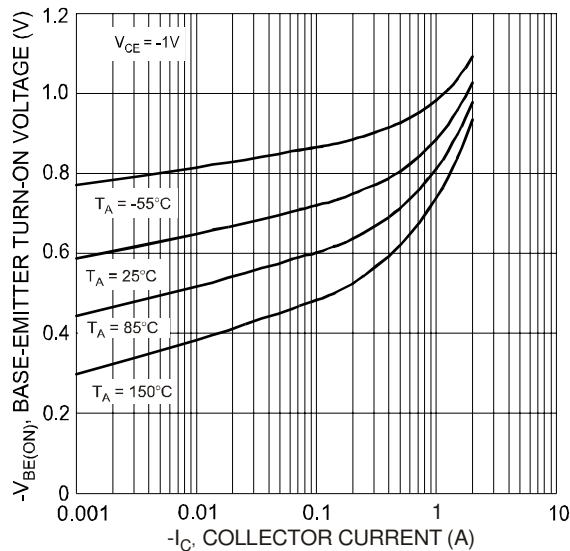


Fig. 5 Typical Base-Emitter Turn-On Voltage vs. Collector Current

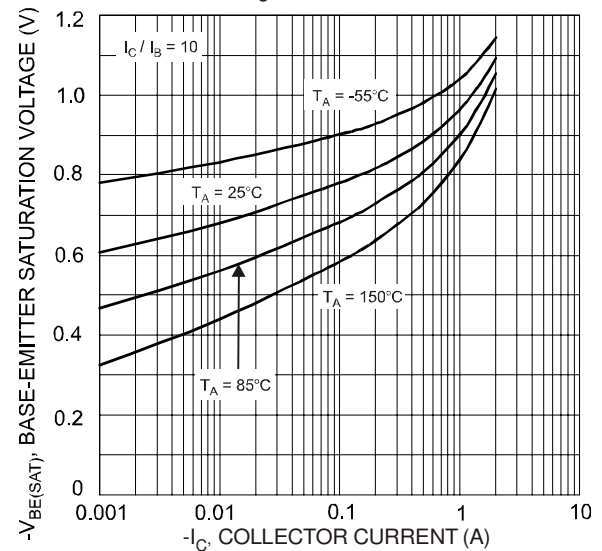


Fig. 6 Typical Base-Emitter Saturation Voltage vs. Collector Current



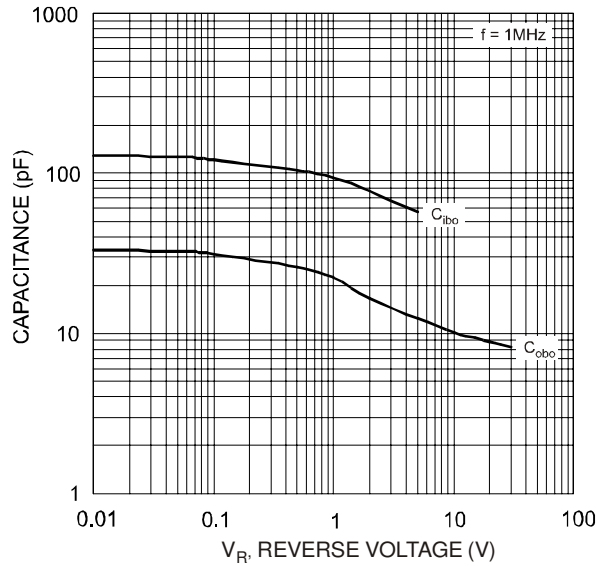


Fig. 7 Typical Capacitance Characteristics

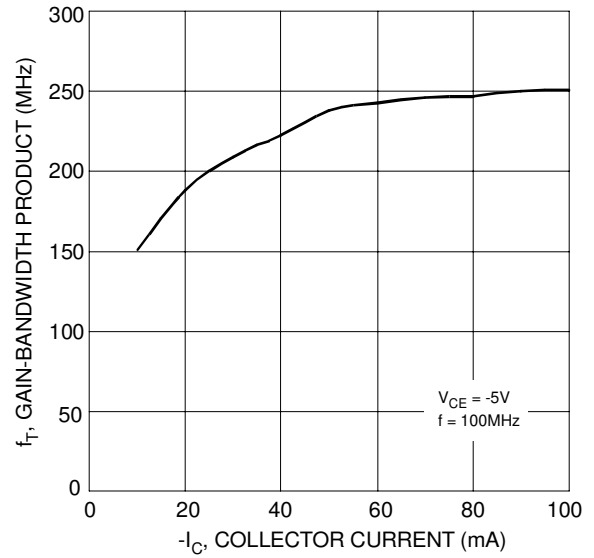


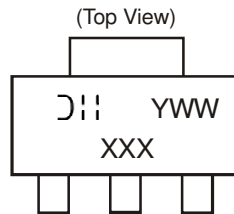
Fig. 8 Typical Gain-Bandwidth Product vs. Collector Current

## Ordering Information (Note 5)

Device	Packaging	Shipping
DCP69A-13	SOT-223	2500/Tape & Reel
DCP69A-16-13	SOT-223	2500/Tape & Reel

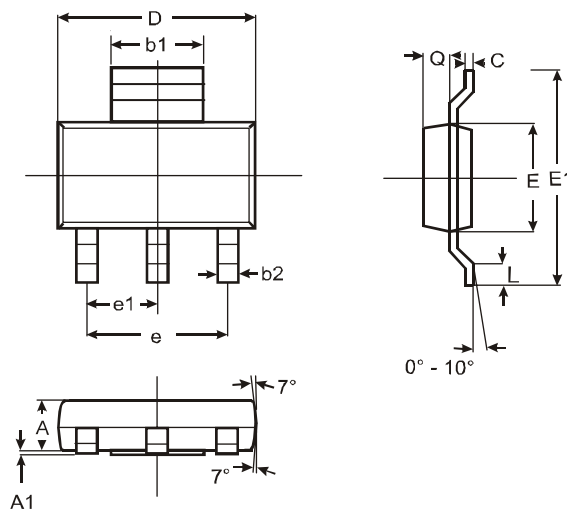
Notes: 5. For packaging details, go to our website at <http://www.diodes.com/datasheets/ap02007.pdf>.

## Marking Information

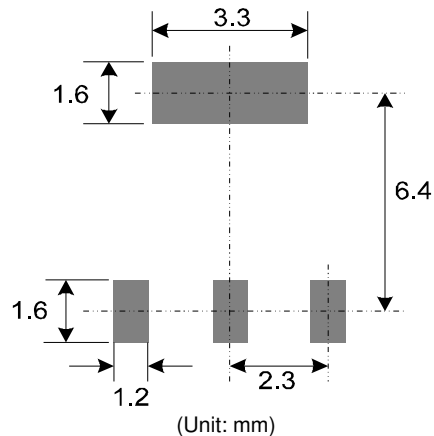


XXX = Product type marking code ex. P12A = DCP69A  
P12A-16 = DCP69A-16  
DII = Manufacturer's code marking  
YWW = Date code marking  
Y = Last digit of year ex: 7 = 2007  
WW = Week code 01 - 52

## 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 (Based on IPC-SM-782)****IMPORTANT NOTICE**

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