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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.

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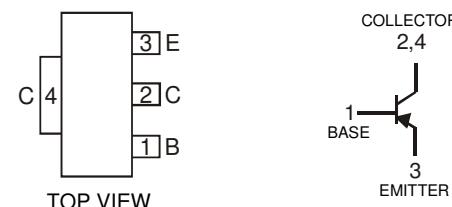
Features

- Epitaxial Planar Die Construction
- Complementary NPN Type Available (DCP56)
- 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)



Schematic and Pin Configuration

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

Characteristic	Symbol	Value	Units
Collector-Base Voltage	V_{CBO}	-100	V
Collector-Emitter Voltage	V_{CEO}	-80	V
Emitter-Base Voltage	V_{EBO}	-5	V
Peak Pulse Current	I_{CM}	-1.5	A
Continuous Collector Current	I_C	-1	A

Thermal Characteristics

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

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

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
OFF CHARACTERISTICS (Note 4)						
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	-100	—	—	V	$I_C = -100\mu\text{A}, I_E = 0$
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	-80	—	—	V	$I_C = -10\text{mA}, I_B = 0$
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	-5	—	—	V	$I_E = -10\mu\text{A}, I_C = 0$
Collector Cutoff Current	I_{CBO}	—	—	-100 -20	nA μA	$V_{CB} = -30\text{V}, I_E = 0$ $V_{CB} = -30\text{V}, I_E = 0,$ $T_A = 150^\circ\text{C}$
Emitter Cutoff Current	I_{EBO}	—	—	-10	μA	$V_{EB} = -5\text{V}, I_C = 0$
ON CHARACTERISTICS (Note 4)						
Collector-Emitter Saturation Voltage	$V_{CE(SAT)}$	—	—	-0.5	V	$I_C = -500\text{mA}, I_B = -50\text{mA}$
Base-Emitter Turn-On Voltage	$V_{BE(ON)}$	—	—	-1.0	V	$I_C = -500\text{mA}, V_{CE} = -2\text{V}$
DC Current Gain	h_{FE}	40	—	250	—	$I_C = -150\text{mA}, V_{CE} = -2\text{V}$
		25	—	—		$I_C = -500\text{mA}, V_{CE} = -2\text{V}$
	DCP53-16	100	—	250	—	$I_C = -150\text{mA}, V_{CE} = -2\text{V}$
		—	—	—		
SMALL SIGNAL CHARACTERISTICS						
Current Gain-Bandwidth Product	f_T	—	200	—	MHz	$I_C = -50\text{mA}, V_{CE} = -5\text{V},$ $f = 100\text{MHz}$

- 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%.

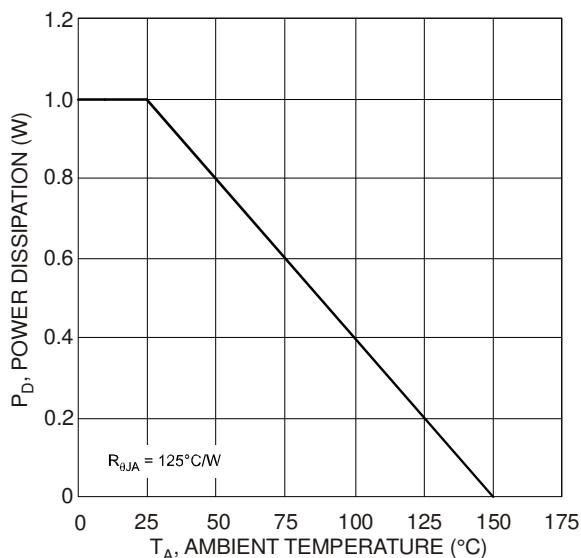


Fig. 1 Power Dissipation vs. Ambient Temperature (Note 3)

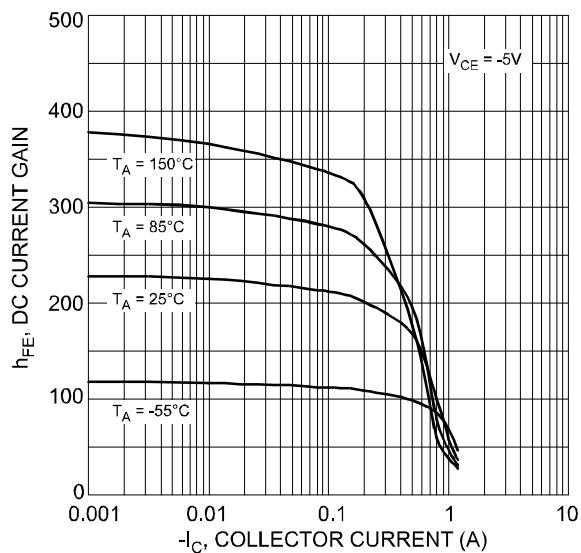


Fig. 3 Typical DC Current Gain vs. Collector Current

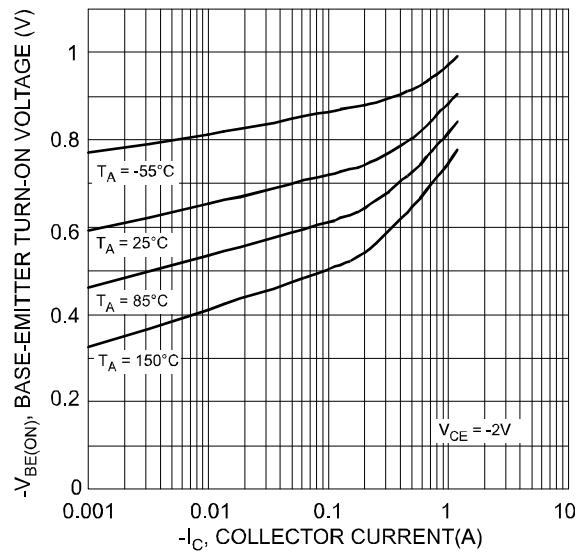


Fig. 5. Typical Base-Emitter Turn-On Voltage
vs. Collector Current

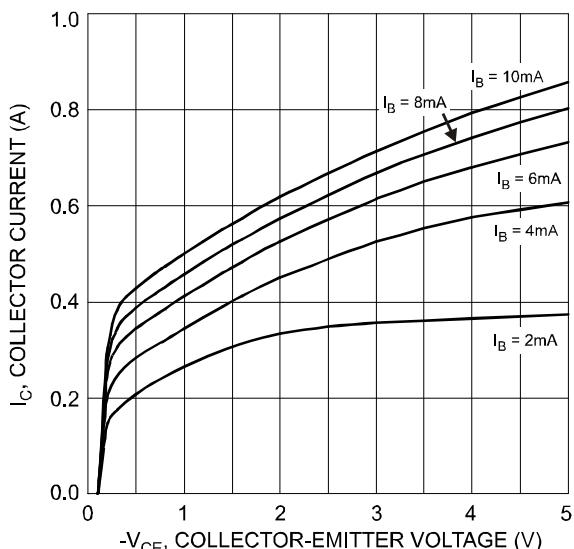


Fig. 2 Typical Collector Current vs. Collector-Emitter Voltage

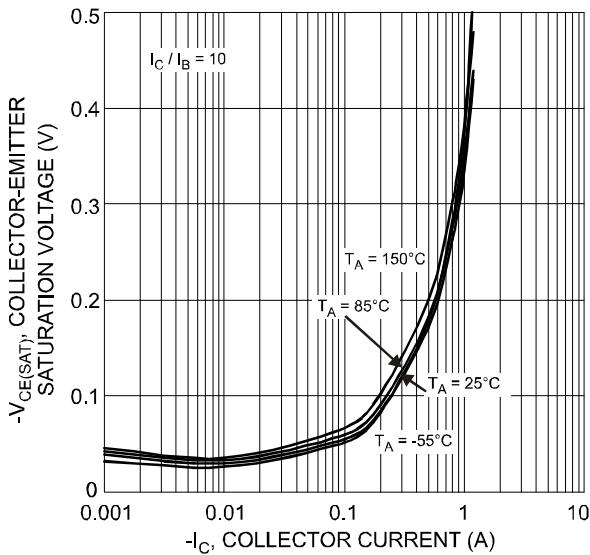


Fig. 4 Typical Collector-Emitter Saturation Voltage
vs. Collector Current

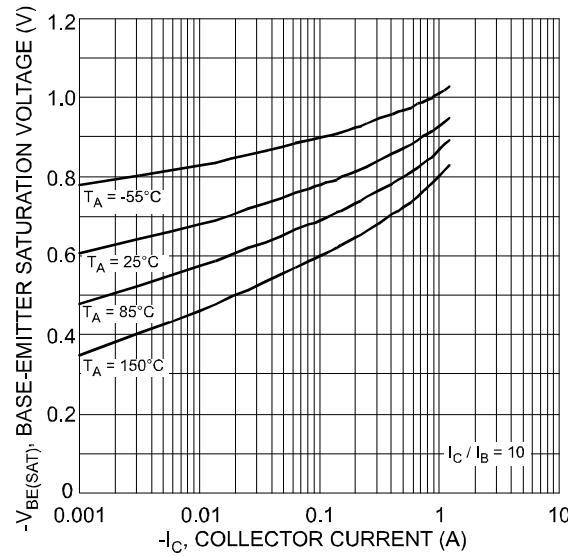


Fig. 6 Typical Base-Emitter Saturation Voltage
vs. Collector Current

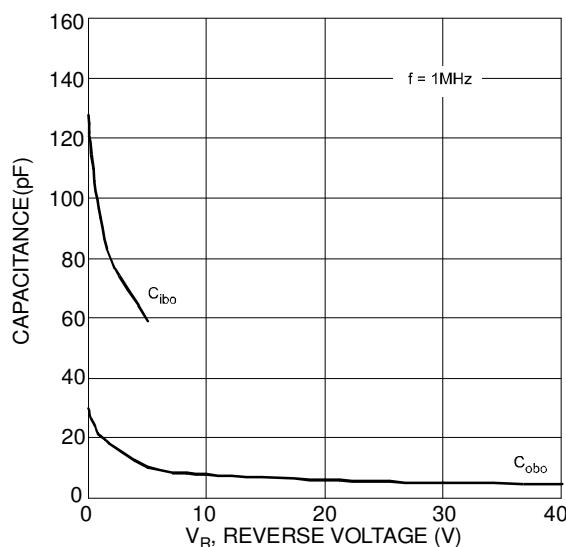


Fig. 7 Typical Capacitance Characteristics

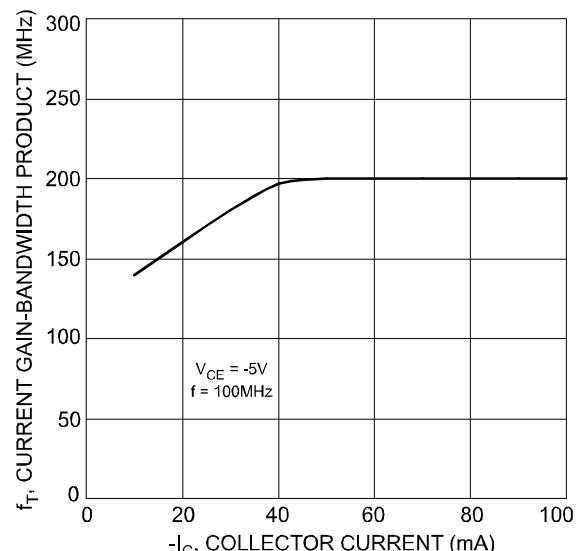


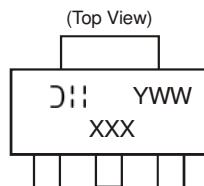
Fig. 8 Typical Gain-Bandwidth Product vs. Collector Current

Ordering Information (Note 5)

Device	Packaging	Shipping
DCP53-13	SOT-223	2500/Tape & Reel
DCP53-16-13	SOT-223	2500/Tape & Reel

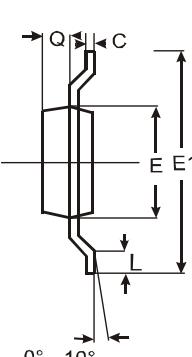
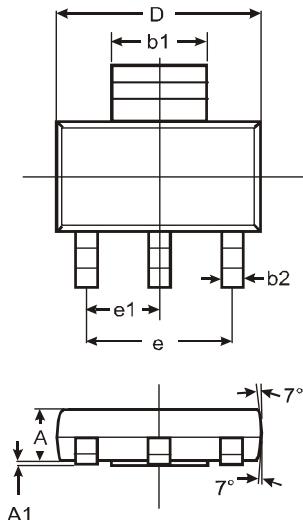
Notes: 5. For packaging details, go to our website at <http://www.diodes.com/datasheets/ap02007.pdf>.

Marking Information



DII = Manufacturer's code marking
 XXX = Product type marking code Ex: P18 = DCP53
 P18-16 = DCP53-16
 YWW = Date code marking
 Y = Last digit of year ex: 7 = 2007
 WW = Week code 01 - 52

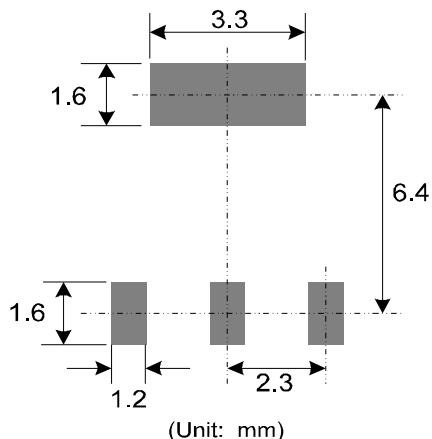
Package Outline Dimensions



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)



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