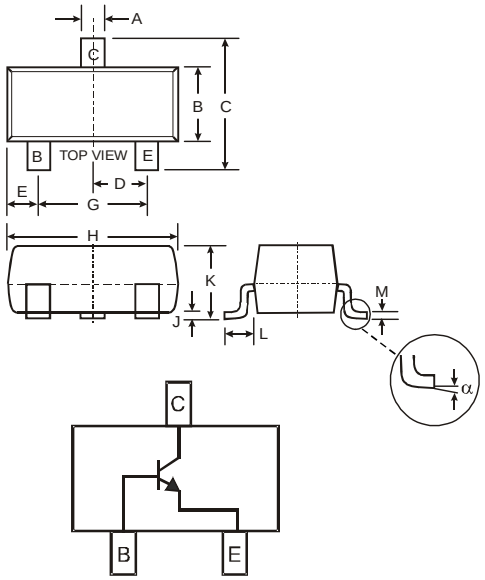
DN350T05

NPN SMALL SIGNAL SURFACE MOUNT TRANSISTOR

Features

- Epitaxial Planar Die Construction
- Complementary PNP Type Available (DP350T05)
- Ideal for Medium Power Amplification and Switching
- **Lead, Halogen and Antimony Free, RoHS Compliant "Green" Device (Notes 2, 3 and 4)**
- **Qualified to AEC-Q101 Standards for High Reliability**



SOT-23		
Dim	**Min**	**Max**
A	0.37	0.51
B	1.20	1.40
C	2.30	2.50
D	0.89	1.03
E	0.45	0.60
G	1.78	2.05
H	2.80	3.00
J	0.013	0.10
K	0.903	1.10
L	0.45	0.61
M	0.085	0.180
α	0°	8°
All Dimensions in mm		

Mechanical Data

- Case: SOT-23
- Case Material: Molded Plastic. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020D
- Terminal Connections: See Diagram
- Terminals: Finish — Matte Tin Finish annealed over Alloy 42 leadframe. Solderable per MIL-STD-202, Method 208
- Marking Information: K3S, See Page 3
- Ordering & Date Code Information: See Page 3
- Weight: 0.008 grams (approximate)

Maximum Ratings @T_A = 25°C unless otherwise specified

Characteristic	Symbol	Value	Unit
Collector-Base Voltage	V_{CBO}	350	V
Collector-Emitter Voltage	V_{CEO}	350	V
Emitter-Base Voltage	V_{EBO}	5.0	V
Continuous Collector Current	I_C	500	mA
Power Dissipation (Note 1)	P_D	300	mW
Thermal Resistance, Junction to Ambient (Note 1)	$R_{\theta JA}$	417	°C/W
Operating and Storage Temperature Range	T_J, T_{STG}	-55 to +150	°C

Notes:
1. Device mounted on FR-4 PCB, 1 inch x 0.85 inch x 0.062 inch; pad layout as shown on Diodes Inc. suggested pad layout document AP02001, which can be found on our website at http://www.diodes.com/datasheets/ap02001.pdf.
2. No purposefully added lead. Halogen and Antimony Free.
3. Diode's Inc.'s "Green" policy can be found on our website at http://www.diodes.com/products/lead_free/index.php.
4. Product is manufactured with Green Molding Compound and does not contain Halogens or Sb_2O_3 Fire Retardants.

Electrical Characteristics @T_A = 25°C unless otherwise specified

Characteristic	Symbol	Min	Max	Unit	Test Condition
OFF CHARACTERISTICS (Note 5)					
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	350	—	V	I_C = 100μA, I_E = 0
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	350	—	V	I_C = 1.0mA, I_B = 0
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	5.0	—	V	I_E = 10μA, I_C = 0
Collector Cutoff Current	I_{CBO}	—	50	nA	V_{CB} = 250V, I_E = 0
Collector Cutoff Current	I_{EBO}	—	50	nA	V_{CE} = 5V, I_C = 0
ON CHARACTERISTICS (Note 5)					
DC Current Gain	h_{FE}	20 30 30 20 15	— — 200 200 —	—	I_C = 1.0mA, V_{CE} = 10V I_C = 10mA, V_{CE} = 10V I_C = 30mA, V_{CE} = 10V I_C = 50mA, V_{CE} = 10V I_C = 100mA, V_{CE} = 10V
Collector-Emitter Saturation Voltage	$V_{CE(SAT)}$	— — — —	0.30 0.35 0.50 1.0	V	I_C = 10mA, I_B = 1.0mA I_C = 20mA, I_B = 2.0mA I_C = 30mA, I_B = 3.0mA I_C = 50mA, I_B = 5.0mA
Base-Emitter Saturation Voltage	$V_{BE(SAT)}$	— — —	0.75 0.80 0.90	V	I_C = 10mA, I_B = 1.0mA I_C = 20mA, I_B = 2.0mA I_C = 30mA, I_B = 3.0mA
Base-Emitter On Voltage	$V_{BE(ON)}$	—	2.0	V	I_C = 100mA, V_{CE} = 10V
SMALL SIGNAL CHARACTERISTICS					
Output Capacitance	C_{obo}	—	7.0	pF	V_{CB} = 20V, f = 1.0MHz, I_E = 0
Transition Frequency	f_T	50	—	MHz	V_{CE} = 10V, I_C = 20mA

Notes: 5. Short duration pulse test used to minimize self-heating effect.

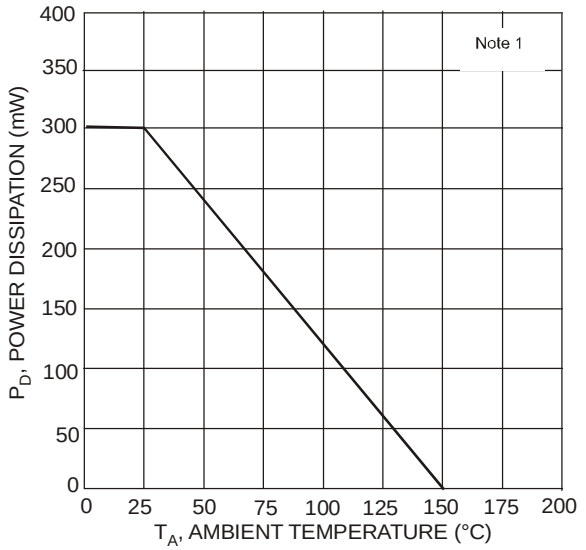


Fig. 1, Max Power Dissipation vs. Ambient Temperature

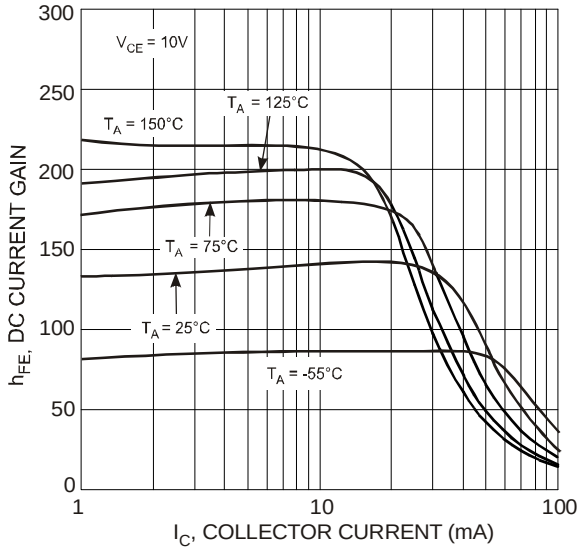


Fig. 2, DC Current Gain vs. Collector Current

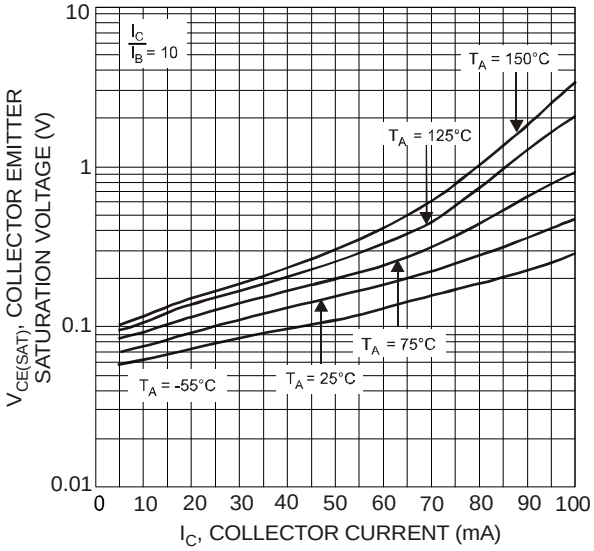


Fig. 3, Collector-Emitter Saturation Voltage vs. Collector Current

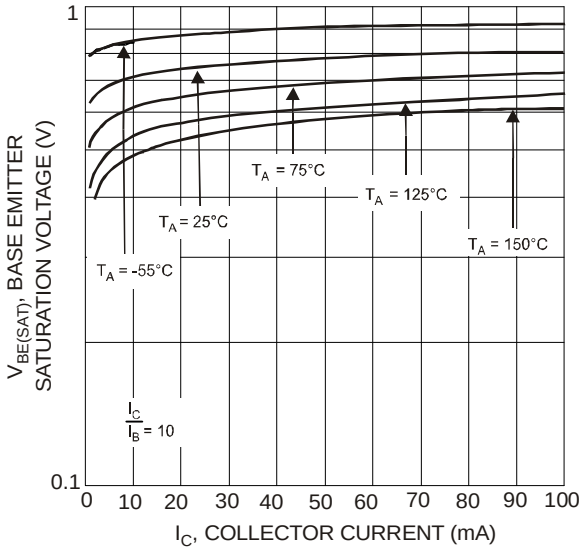


Fig. 4, Base Emitter Saturation Voltage vs. Collector Current

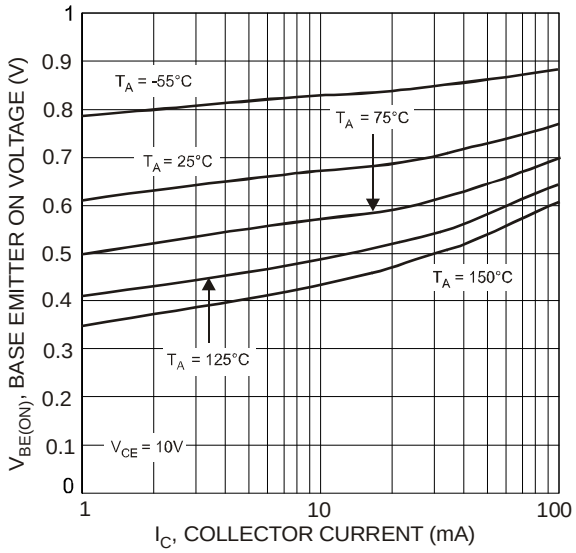


Fig. 5, Base-Emitter On Voltage vs. Collector Current

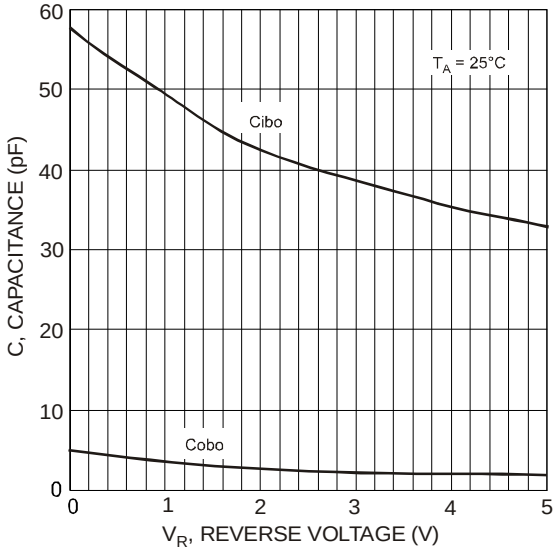


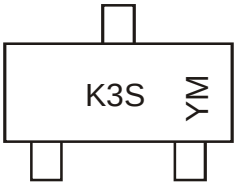
Fig. 6, Capacitance vs. Reverse Voltage

Ordering Information (Note 6)

Device	Packaging	Shipping
DN350T05-7	SOT-23	3000/Tape & Reel

Notes: 6. For packaging details, go to our website at http://www.diodes.com/datasheets/ap02007.pdf.

Marking Information



K3S = Product Type Marking Code
YM = Date Code Marking
Y = Year ex: S = 2005
M = Month ex: 9 = September

Date Code Key

Year	2005	2006	2007	2008	2009	2010	2011	2012
Code	S	T	U	V	W	X	Y	Z

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Code	1	2	3	4	5	6	7	8	9	O	N	D

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