



DN350T05

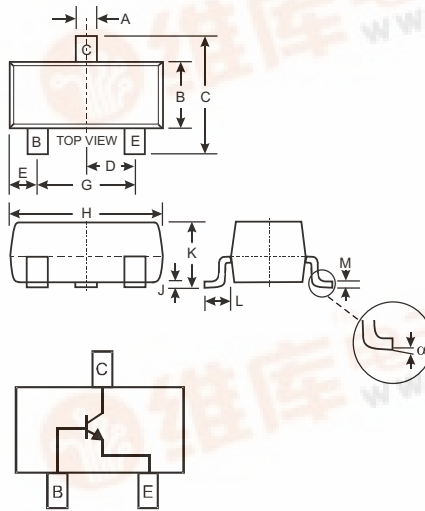
NPN SMALL SIGNAL SURFACE MOUNT TRANSISTOR

Features

- Epitaxial Planar Die Construction
- Complementary PNP Type Available (DP350T05)
- Ideal for Medium Power Amplification and Switching
- Lead Free By Design/RoHS Compliant (Note 2)
- "Green" Device (Note 3)
- Qualified to AEC-Q101 Standards for High Reliability

Mechanical Data

- Case: SOT-23
- Case Material: Molded Plastic. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020C
- Terminal Connections: See Diagram
- Terminals: Finish Matte Tin Finish annealed over Alloy 42 leadframe. Solderable per MIL-STD-202, Method 208
- Marking (See Page 2): K3S
- Ordering & Date Code Information: See Page 2
- Weight: 0.008 grams (approximate)



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
	0	8
All Dimensions in mm		

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 _{JA}	417	°C/W
Operating and Storage and Temperature Range	T _j , T _{STG}	-55 to +150	C

- Notes:
- 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>.
 - 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.



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

Characteristic	Symbol	Min	Max	Unit	Test Condition
OFF CHARACTERISTICS (Note 4)					
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	350		V	$I_C = 100\text{ A}, I_E = 0$
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	350		V	$I_C = 1.0\text{mA}, I_B = 0$
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	5.0		V	$I_E = 10\text{ A}, I_C = 0$
Collector Cutoff Current	I_{CBO}		50	nA	$V_{CB} = 250\text{V}, I_E = 0$
Collector Cutoff Current	I_{EBO}		50	nA	$V_{CE} = 5\text{V}, I_C = 0$
ON CHARACTERISTICS (Note 4)					
DC Current Gain	h_{FE}	20 30 30 20 15	200 200		$I_C = 1.0\text{mA}, V_{CE} = 10\text{V}$ $I_C = 10\text{mA}, V_{CE} = 10\text{V}$ $I_C = 30\text{mA}, V_{CE} = 10\text{V}$ $I_C = 50\text{mA}, V_{CE} = 10\text{V}$ $I_C = 100\text{mA}, V_{CE} = 10\text{V}$
Collector-Emitter Saturation Voltage	$V_{CE(SAT)}$		0.30 0.35 0.50 1.0	V	$I_C = 10\text{mA}, I_B = 1.0\text{mA}$ $I_C = 20\text{mA}, I_B = 2.0\text{mA}$ $I_C = 30\text{mA}, I_B = 3.0\text{mA}$ $I_C = 50\text{mA}, I_B = 5.0\text{mA}$
Base-Emitter Saturation Voltage	$V_{BE(SAT)}$		0.75 0.80 0.90	V	$I_C = 10\text{mA}, I_B = 1.0\text{mA}$ $I_C = 20\text{mA}, I_B = 2.0\text{mA}$ $I_C = 30\text{mA}, I_B = 3.0\text{mA}$
Base-Emitter On Voltage	$V_{BE(ON)}$		2.0	V	$I_C = 100\text{mA}, V_{CE} = 10\text{V}$
SMALL SIGNAL CHARACTERISTICS					
Output Capacitance	C_{obo}		7.0	pF	$V_{CB} = 20\text{V}, f = 1.0\text{MHz}, I_E = 0$
Transition Frequency	f_T	50		MHz	$V_{CE} = 10\text{V}, I_C = 20\text{mA}$

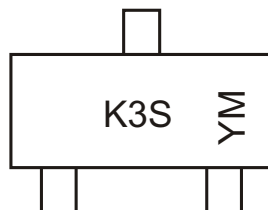
Note: 4. Short duration pulse test used to minimize self-heating effect.

Ordering Information (Note 5)

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

Note: 5. 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	March	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Code	1	2	3	4	5	6	7	8	9	O	N	D

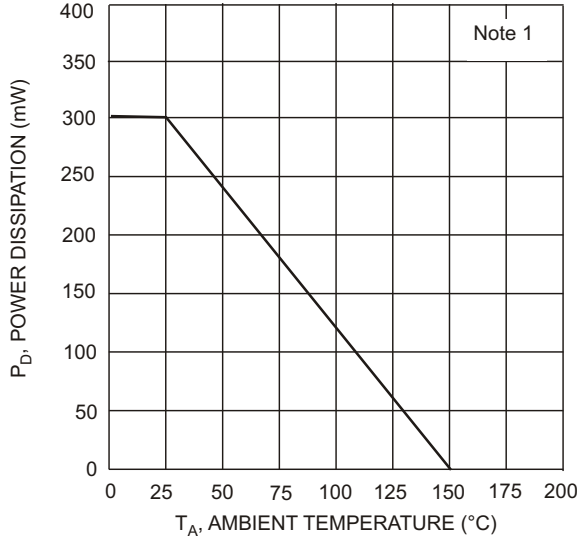


Fig. 1, Max Power Dissipation vs. Ambient Temperature

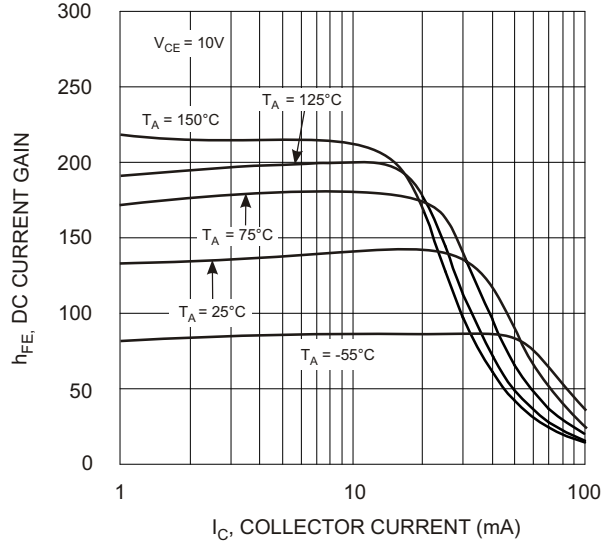


Fig. 2, DC Current Gain vs. Collector Current

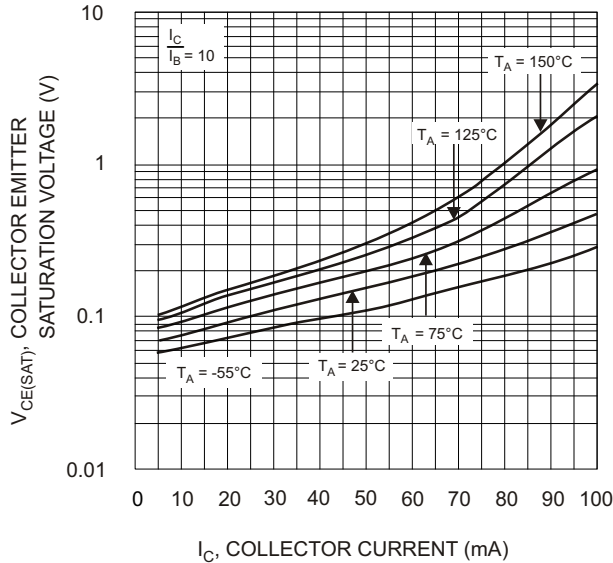


Fig. 3, Collector-Emitter Saturation Voltage vs. Collector Current

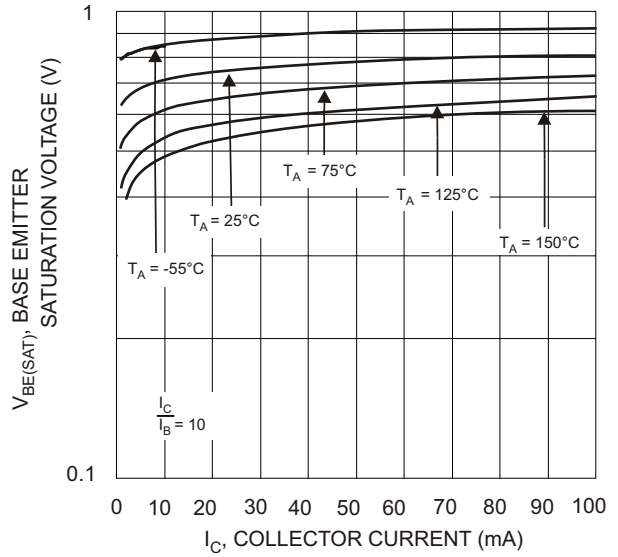


Fig. 4, Base Emitter Saturation Voltage vs. Collector Current

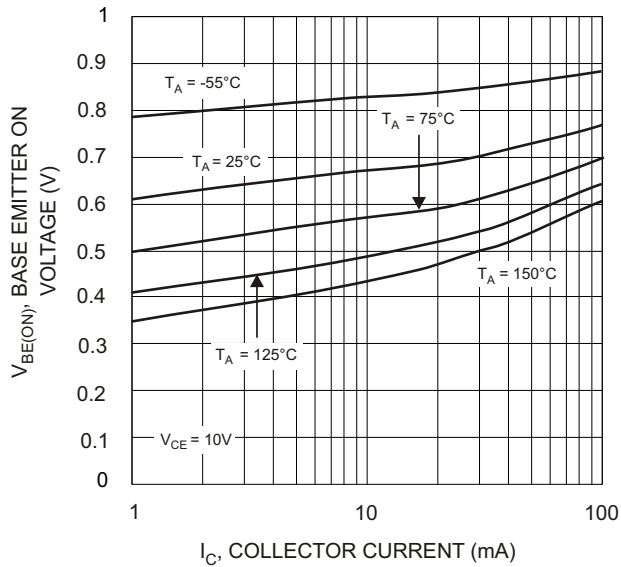


Fig. 5, Base-Emitter On Voltage vs. Collector Current

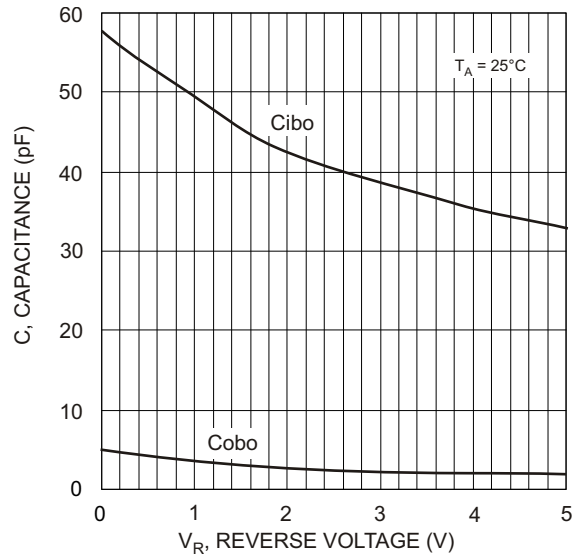


Fig. 6, Capacitance vs. Reverse Voltage



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