

Features

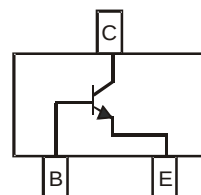
- Epitaxial Planar Die Construction
- Ideal for Medium Power Amplification and Switching
- **Lead Free By Design/RoHS Compliant (Note 1)**
- "Green" Device (Note 2)

Mechanical Data

- Case: SOT-23
- 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 Alloy 42 leadframe. Solderable per MIL-STD-202, Method 208
- Marking & Type Code Information: See Page 2
- Ordering Information: See Page 2
- Weight: 0.008 grams (approximate)



SOT-23



Schematic and Pin Configuration

Maximum Ratings @T_A = 25°C unless otherwise specified

Characteristic	Symbol	Value	Unit
Collector-Base Voltage	V _{CB0}	60	V
Collector-Emitter Voltage	V _{CEO}	50	V
Emitter-Base Voltage	V _{EBO}	7.0	V
Collector Current - Continuous (Note 1)	I _C	150	mA

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 3) @T _A = 25°C	P _D	300	mW
Thermal Resistance, Junction to Ambient (Note 3) @T _A = 25°C	R _{θJA}	417	°C/W
Operating and Storage Temperature Range	T _J , T _{STG}	-55 to +150	°C

Electrical Characteristics @T_A = 25°C unless otherwise specified

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
OFF CHARACTERISTICS (Note 4)						
Collector-Base Breakdown Voltage	V _{(BR)CBO}	60	—	—	V	I _C = 100μA, I _E = 0
Collector-Emitter Breakdown Voltage	V _{(BR)CEO}	50	—	—	V	I _C = 1.0mA, I _B = 0
Emitter-Base Breakdown Voltage	V _{(BR)EBO}	7.0	—	—	V	I _E = 50μA, I _C = 0
Collector Cutoff Current	I _{CBO}	—	—	100	nA	V _{CB} = 60V, I _E = 0
Emitter Cutoff Current	I _{EBO}	—	—	100	nA	V _{EB} = 7.0V, I _C = 0
ON CHARACTERISTICS (Note 4)						
DC Current Gain	h _{FE}	180	—	390	—	V _{CE} = 6.0V, I _C = 1.0mA
Collector-Emitter Saturation Voltage	V _{CE(SAT)}	—	0.2	0.4	V	I _C = 50mA, I _B = 5.0mA
SMALL SIGNAL CHARACTERISTICS						
Output Capacitance	C _{ob0}	—	2.0	3.5	pF	V _{CB} = 5V, f = 1.0MHz, I _E = 0
Current Gain-Bandwidth Product	f _T	80	180	—	MHz	V _{CE} = 12V, I _C = 2mA, 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.
 3. Device mounted on FR-4 PCB; pad layout as shown on page 2 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%.

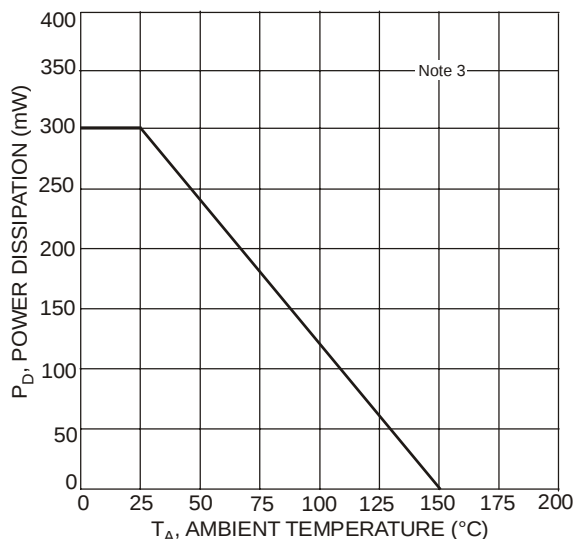


Fig. 1, Max Power Dissipation vs. Ambient Temperature

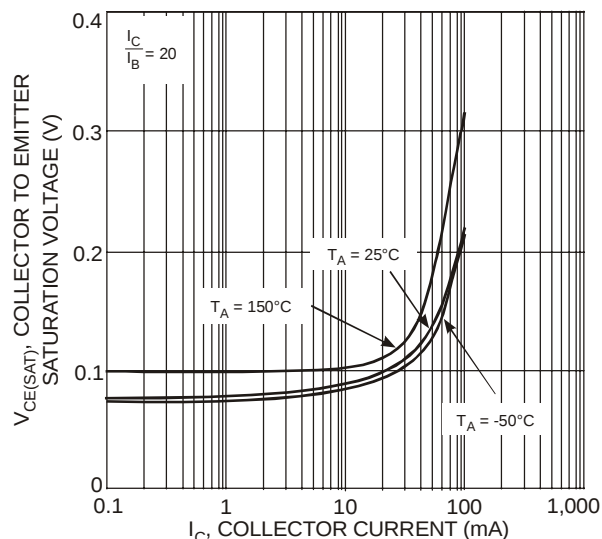


Fig. 2 Collector Emitter Saturation Voltage vs. Collector Current

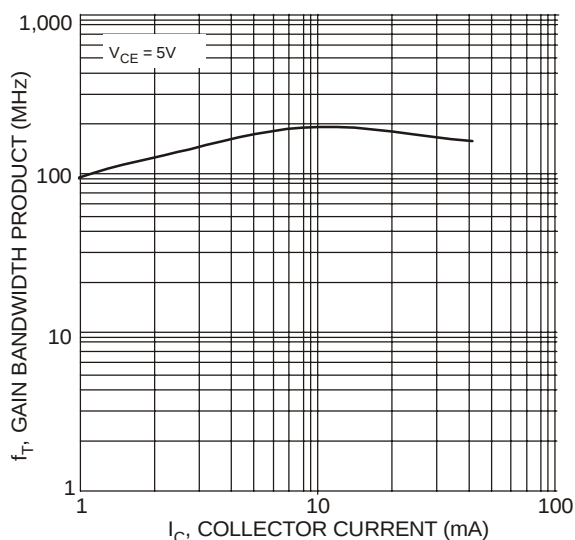


Fig. 3 Gain Bandwidth Product vs. Collector Current

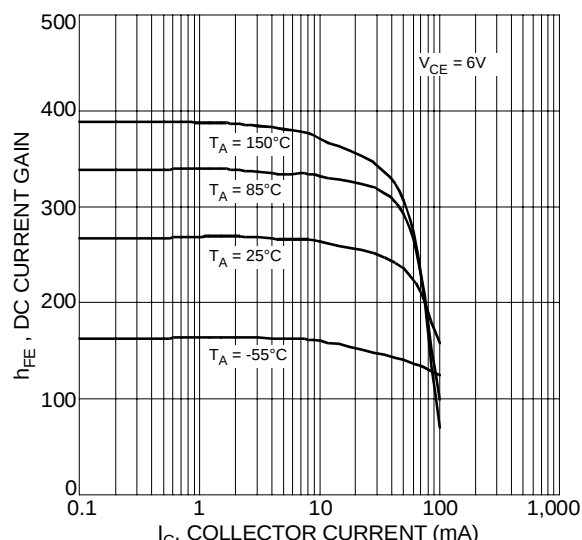


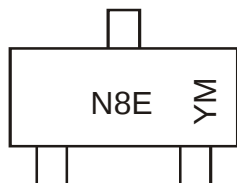
Fig. 4 DC Current Gain vs. Collector Current

Ordering Information (Note 5)

Device	Packaging	Shipping
2DC2412R-7	SOT-23	3000/Tape & Reel

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

Marking Information



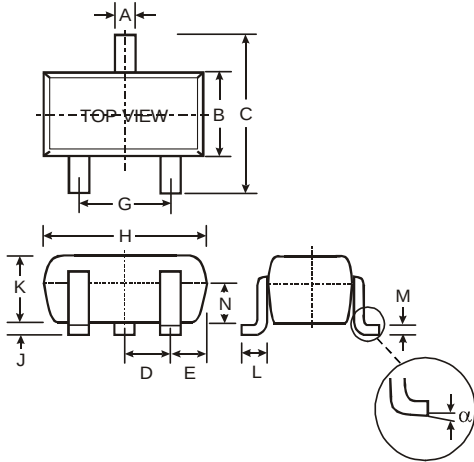
N8E = Product Type Marking Code
YM = Date Code Marking
Y = Year (ex: U = 2007)
M = Month (ex: 9 = September)

Date Code Key

Year	2007	2008	2009	2010	2011	2012
Code	U	V	W	X	Y	Z

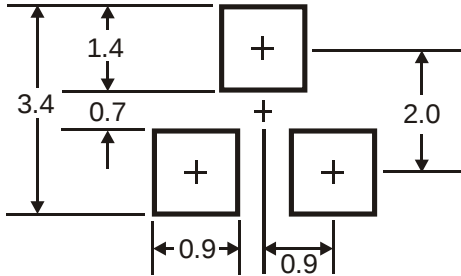
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Code	1	2	3	4	5	6	7	8	9	O	N	D

Package Outline Dimensions



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
N	—	—
α	0°	8°
All Dimensions in mm		

Suggested Pad Layout (Dimensions given in mm)



IMPORTANT NOTICE

Diodes Incorporated and its subsidiaries reserve the right to make modifications, enhancements, improvements, corrections or other changes without further notice to any product herein. Diodes Incorporated does not assume any liability arising out of the application or use of any product described herein; neither does it convey any license under its patent rights, nor the rights of others. The user of products in such applications shall assume all risks of such use and will agree to hold Diodes Incorporated and all the companies whose products are represented on our website, harmless against all damages.

LIFE SUPPORT

Diodes Incorporated products are not authorized for use as critical components in life support devices or systems without the expressed written approval of the President of Diodes Incorporated.