

## Features

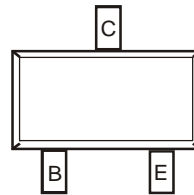
- Epitaxial Planar Die Construction
- Complementary NPN Type Available (2DC4617Q,R,S)
- **Lead Free/RoHS Compliant (Note 1)**
- **"Green" Device (Notes 2 & 3)**

## Mechanical Data

- Case: SOT-523
- Case Material: Molded Plastic, "Green" Molding Compound, Note 5. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminal Connections: See Diagram
- Lead Free Plating (Matte Tin annealed over Alloy 42 leadframe).
- Weight: 0.002 grams (approximate)



Top View



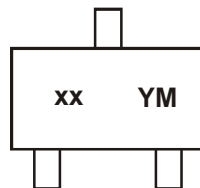
Pin-Out Configuration

## Ordering Information (Note 4)

Part Number	Case	Packaging
2DA1774Q-7-F	SOT-523	3000/Tape & Reel
2DA1774R-7-F	SOT-523	3000/Tape & Reel
2DA1774S-7-F	SOT-523	3000/Tape & Reel

- Notes:
2. No purposefully added lead.
  2. Diodes Inc.'s "Green" policy can be found on our website at <http://www.diodes.com>.
  3. Product manufactured with Date Code UO (week 40, 2007) and newer are built with Green Molding Compound. Product manufactured prior to Date Code UO are built with Non-Green Molding Compound and may contain Halogens or Sb<sub>2</sub>O<sub>3</sub> Fire Retardants.
  4. For packaging details, go to our website at <http://www.diodes.com>.

## Marking Information



xx = Product Type Marking Code:  
 2DA1774Q = 8A  
 2DA1774R = 8B  
 2DA1774S = 8C  
 YM = Date Code Marking  
 Y = Year (ex: N = 2002)  
 M = Month (ex: 9 = September)

### Date Code Key

Year	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Code	N	P	R	S	T	U	V	W	X	Y	Z	A	B	C

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

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

Characteristic	Symbol	Value	Unit
Collector-Base Voltage	$V_{CB0}$	-60	V
Collector-Emitter Voltage	$V_{CEO}$	-50	V
Emitter-Base Voltage	$V_{EBO}$	-6.0	V
Collector Current - Continuous (Note 5)	$I_C$	150	mA

**Thermal Characteristics**

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 5) $T_A = 25^\circ\text{C}$	$P_D$	150	mW
Thermal Resistance, Junction to Ambient (Note 5)	$R_{\theta JA}$	833	$^\circ\text{C/W}$
Operating and Storage Temperature Range	$T_J, T_{STG}$	-55 to +150	$^\circ\text{C}$

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

Characteristic	Symbol	Min	Max	Unit	Test Condition
<b>OFF CHARACTERISTICS (Note 6)</b>					
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	-60	—	V	$I_C = -50\mu\text{A}, I_E = 0$
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	-50	—	V	$I_C = -1.0\text{mA}, I_B = 0$
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	-6.0	—	V	$I_E = -50\mu\text{A}, I_C = 0$
Collector Cutoff Current	$I_{CBO}$	—	-100	nA	$V_{CB} = -60\text{V}$
Emitter Cutoff Current	$I_{EBO}$	—	-100	nA	$V_{EB} = -6.0\text{V}$
<b>ON CHARACTERISTICS (Note 6)</b>					
DC Current Gain	2DA1774Q 2DA1774R 2DA1774S	120 180 270	270 390 560	—	$V_{CE} = -6.0\text{V}, I_C = -1.0\text{mA}$
Collector-Emitter Saturation Voltage	$V_{CE(SAT)}$	—	-0.5	V	$I_C = -50\text{mA}, I_B = -5.0\text{mA}$
<b>SMALL SIGNAL CHARACTERISTICS</b>					
Output Capacitance	$C_{obo}$	4.0 Typ.	5.0	pF	$V_{CB} = -12\text{V}, f = 1.0\text{MHz}, I_E = 0$
Current Gain-Bandwidth Product	$f_T$	140 Typ.	—	MHz	$V_{CE} = -12\text{V}, I_C = -2.0\text{mA}, f = 30\text{MHz}$

Notes: 5. Part mounted on FR-4 board with recommended pad layout, which can be found on our website at <http://www.diodes.com>.  
6. Short duration pulse test used to minimize self-heating effect.

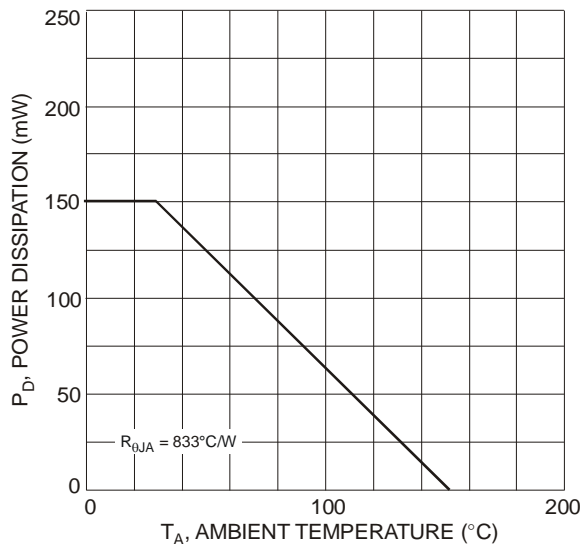


Fig. 1 Power Dissipation vs. Ambient Temperature (Note 1)

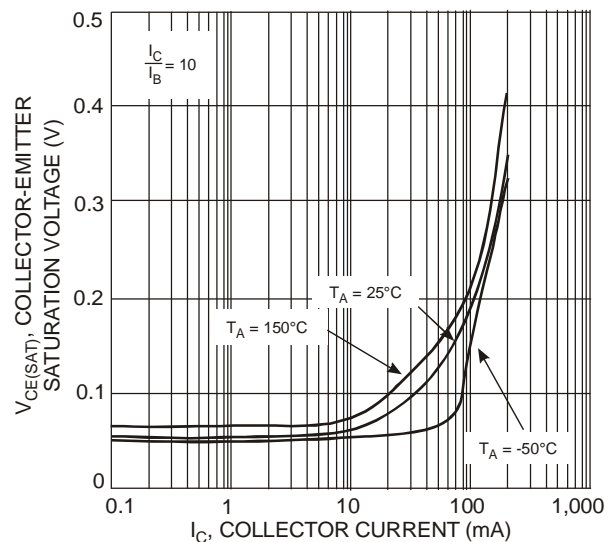


Fig. 2 Typical Collector-Emitter Saturation Voltage vs. Collector Current

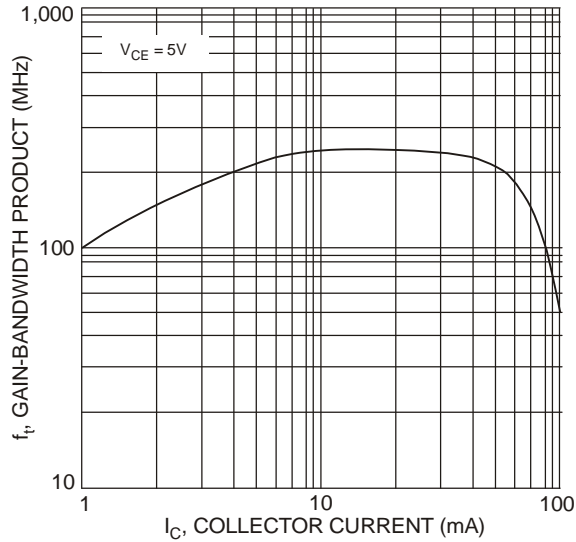
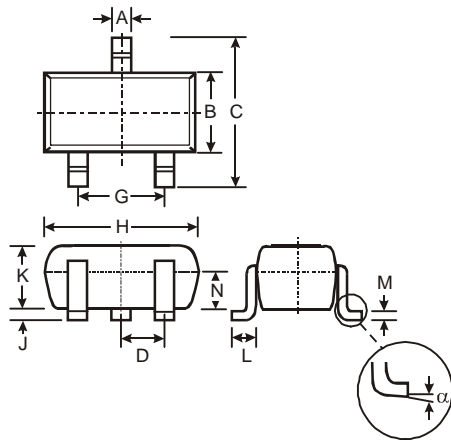


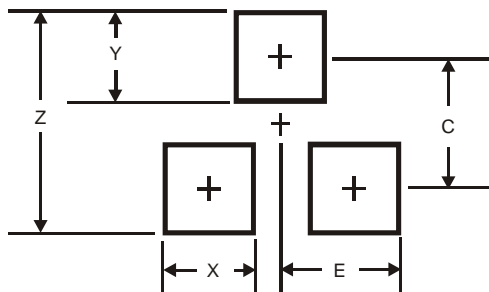
Fig. 3 Typical Gain-Bandwidth Product vs. Collector Current

**Package Outline Dimensions**



SOT-523			
Dim	Min	Max	Typ
A	0.15	0.30	0.22
B	0.75	0.85	0.80
C	1.45	1.75	1.60
D	—	—	0.50
G	0.90	1.10	1.00
H	1.50	1.70	1.60
J	0.00	0.10	0.05
K	0.60	0.80	0.75
L	0.10	0.30	0.22
M	0.10	0.20	0.12
N	0.45	0.65	0.50
$\alpha$	0°	8°	—
All Dimensions in mm			

**Suggested Pad Layout**



Dimensions	Value (in mm)
Z	1.8
X	0.4
Y	0.51
C	1.3
E	0.7

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