

## Excellent Integrated System Limited

Stocking Distributor

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[Diodes Incorporated](#)  
[2DA1774Q-7](#)

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**2DA1774Q/R/S**

**PNP SMALL SIGNAL SURFACE MOUNT TRANSISTOR**

**Features**

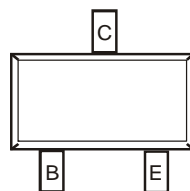
- Epitaxial Planar Die Construction
- Complementary NPN Type Available (2DC4617Q,R,S)
- **Lead Free/RoHS Compliant (Note 1)**
- **"Green" Device (Notes 2 & 3)**

**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



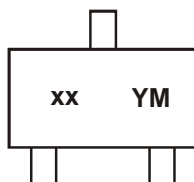
Pin-Out Configuration

**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 Sb2O3 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		



**2DA1774Q/R/S**

## Maximum Ratings @T<sub>A</sub> = 25°C unless otherwise specified

Characteristic	Symbol	Value	Unit
Collector-Base Voltage	V <sub>CB0</sub>	-60	V
Collector-Emitter Voltage	V <sub>CEO</sub>	-50	V
Emitter-Base Voltage	V <sub>EBO</sub>	-6.0	V
Collector Current - Continuous (Note 5)	I <sub>C</sub>	150	mA

## Thermal Characteristics

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 5) T <sub>A</sub> = 25°C	P <sub>D</sub>	150	mW
Thermal Resistance, Junction to Ambient (Note 5)	R <sub>θJA</sub>	833	°C/W
Operating and Storage Temperature Range	T <sub>J</sub> , T <sub>STG</sub>	-55 to +150	°C

## Electrical Characteristics @T<sub>A</sub> = 25°C unless otherwise specified

Characteristic	Symbol	Min	Max	Unit	Test Condition
<b>OFF CHARACTERISTICS (Note 6)</b>					
Collector-Base Breakdown Voltage	V <sub>(BR)CBO</sub>	-60	—	V	I <sub>C</sub> = -50μA, I <sub>E</sub> = 0
Collector-Emitter Breakdown Voltage	V <sub>(BR)CEO</sub>	-50	—	V	I <sub>C</sub> = -1.0mA, I <sub>B</sub> = 0
Emitter-Base Breakdown Voltage	V <sub>(BR)EBO</sub>	-6.0	—	V	I <sub>E</sub> = -50μA, I <sub>C</sub> = 0
Collector Cutoff Current	I <sub>CBO</sub>	—	-100	nA	V <sub>CB</sub> = -60V
Emitter Cutoff Current	I <sub>EBO</sub>	—	-100	nA	V <sub>EB</sub> = -6.0V
<b>ON CHARACTERISTICS (Note 6)</b>					
DC Current Gain	h <sub>FE</sub>	120	270	—	V <sub>CE</sub> = -6.0V, I <sub>C</sub> = -1.0mA
		180	390	—	
		270	560	—	
Collector-Emitter Saturation Voltage	V <sub>CE(SAT)</sub>	—	-0.5	V	I <sub>C</sub> = -50mA, I <sub>B</sub> = -5.0mA
<b>SMALL SIGNAL CHARACTERISTICS</b>					
Output Capacitance	C <sub>obo</sub>	4.0 Typ.	5.0	pF	V <sub>CB</sub> = -12V, f = 1.0MHz, I <sub>E</sub> = 0
Current Gain-Bandwidth Product	f <sub>T</sub>	140 Typ.	—	MHz	V <sub>CE</sub> = -12V, I <sub>C</sub> = -2.0mA, f = 30MHz

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.

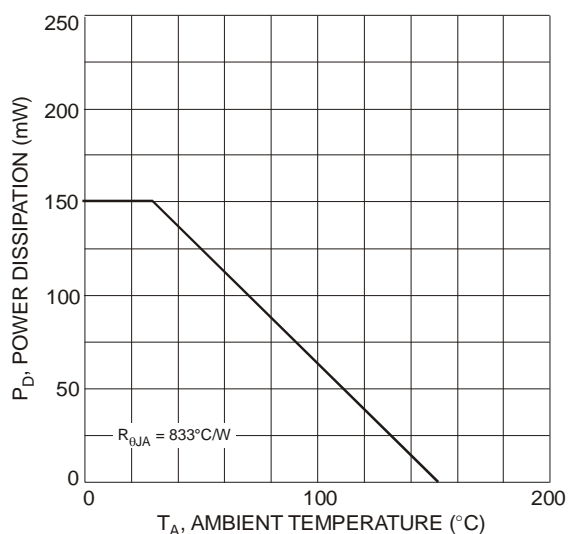


Fig. 1 Power Dissipation vs. Ambient Temperature (Note 1)

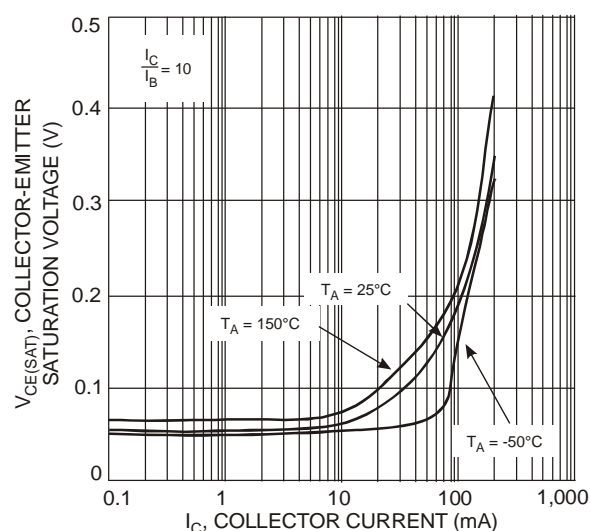


Fig. 2 Typical Collector-Emitter Saturation Voltage vs. Collector Current



**2DA1774Q/R/S**

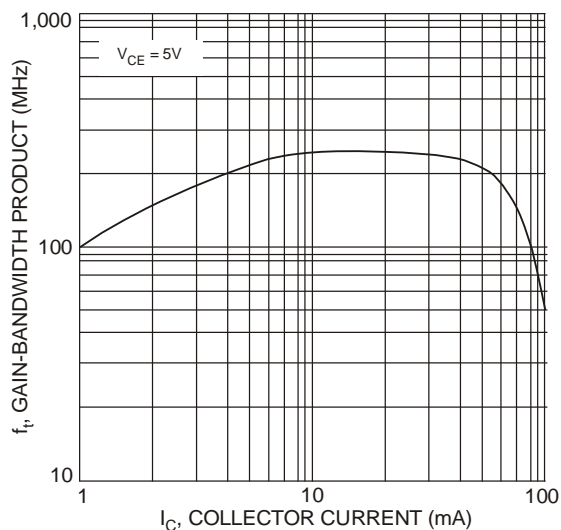
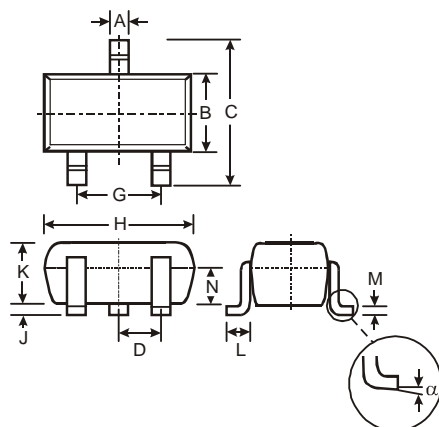


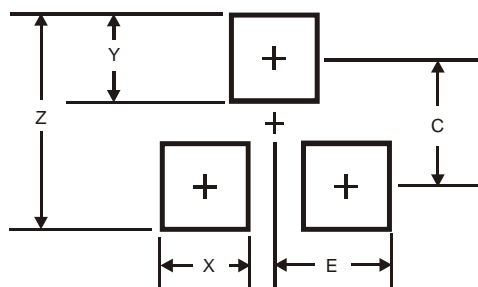
Fig. 3 Typical Gain-Bandwidth Product vs. Collector Current

## 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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