


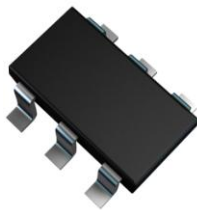
## Features & Benefits

- $BV_{CEO} > -150V$
- 2% Matched Tolerance,  $h_{FE}$ ,  $V_{CE(SAT)}$ ,  $V_{BE(SAT)}$
- Ideal for Medium Power Amplification and Switching
- Dual Transistors in a Single SOT26 (SC74R) Package Taking Half the Footprint of Two Equivalent Transistors in SOT23
- Epitaxial Planar Die Construction
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**

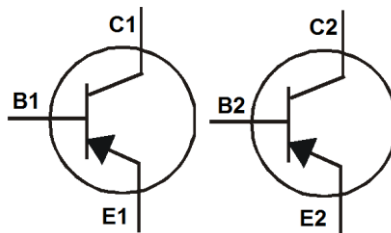
## Mechanical Data

- Case: SOT26 (SC74R)
- Case Material: Molded Plastic. "Green" Molding Compound. UL Flammability Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish - Matte Tin Plated Leads. Solderable per MIL-STD-202, Method 208 
- Weight: 0.018grams (Approximate)

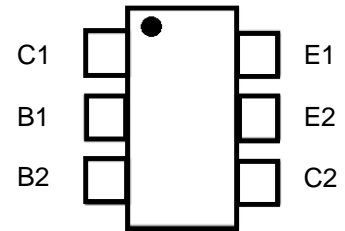
SOT26 (SC74R)



Top View



Device Symbol



Pin-Out Top

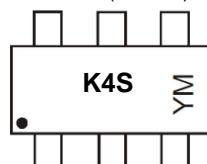
## Ordering Information (Note 4)

Part Number	Compliance	Marking	Reel Size (inches)	Tape Width (mm)	Quantity Per Reel
DMMT5401-7-F	Standard	K4S	7	8	3,000

- Notes:
1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant.
  2. See [http://www.diodes.com/quality/lead\\_free.html](http://www.diodes.com/quality/lead_free.html) for more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "Green" and Lead-free.
  3. Halogen- and Antimony-free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
  4. For packaging details, go to our website at <https://www.diodes.com/design/support/packaging/diodes-packaging/>.

## Marking Information

SOT26 (SC74R)



K4S = Part Marking (See Ordering Information)  
YM = Date Code Marking  
Y = Year (ex: E = 2017)  
M = Month (ex: 9 = September)

### Date Code Key

Year	2017	2018	2019	2020	2021	2022	2023
Code	E	F	G	H	I	J	K

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<sub>A</sub> = +25°C, unless otherwise specified.)

Characteristic	Symbol	Value	Unit
Collector-Base Voltage	V <sub>CBO</sub>	-160	V
Collector-Emitter Voltage	V <sub>CEO</sub>	-150	V
Emitter-Base Voltage	V <sub>EBO</sub>	-5.0	V
Continuous Collector Current	I <sub>C</sub>	-200	mA

**Thermal Characteristics** (@T<sub>A</sub> = +25°C, unless otherwise specified.)

Characteristic	Symbol	Value	Unit
Power Dissipation (Notes 5 & 6)	P <sub>D</sub>	300	mW
Thermal Resistance, Junction to Ambient (Note 6)	R <sub>θJA</sub>	417	°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	Typ	Max	Unit	Test Condition
<b>OFF CHARACTERISTICS</b> (Note 7)						
Collector-Base Breakdown Voltage	BV <sub>CBO</sub>	-160	—	—	V	I <sub>C</sub> = -100μA, I <sub>E</sub> = 0
Collector-Emitter Breakdown Voltage	BV <sub>CEO</sub>	-150	—	—	V	I <sub>C</sub> = -1mA, I <sub>B</sub> = 0
Emitter-Base Breakdown Voltage	BV <sub>EBO</sub>	-5	—	—	V	I <sub>E</sub> = -10μA, I <sub>C</sub> = 0
Collector-Base Cutoff Current	I <sub>CBO</sub>	—	—	-50	nA μA	V <sub>CB</sub> = -120V, I <sub>E</sub> = 0 V <sub>CB</sub> = -120V, I <sub>E</sub> = 0, T <sub>A</sub> = +100°C
Emitter-Base Cutoff Current	I <sub>EBO</sub>	—	—	-50	nA	V <sub>EB</sub> = -3V, I <sub>B</sub> = 0
<b>ON CHARACTERISTICS</b> (Note 7)						
DC Current Gain (Note 8)	h <sub>FE</sub>	50 60 50	—	240	—	I <sub>C</sub> = -1mA, V <sub>CE</sub> = -5V I <sub>C</sub> = -10mA, V <sub>CE</sub> = -5V I <sub>C</sub> = -50mA, V <sub>CE</sub> = -5V
Collector-Emitter Saturation Voltage	V <sub>CE(SAT)</sub>	—	—	-0.2 -0.5	V	I <sub>C</sub> = -10mA, I <sub>B</sub> = -1mA I <sub>C</sub> = -50mA, I <sub>B</sub> = -5mA
Base-Emitter Saturation Voltage	V <sub>BE(SAT)</sub>	—	—	-1	V	I <sub>C</sub> = -10mA, I <sub>B</sub> = -1mA I <sub>C</sub> = -50mA, I <sub>B</sub> = -5mA
<b>SMALL SIGNAL CHARACTERISTICS</b>						
Current Gain-Bandwidth Product	f <sub>T</sub>	100	—	300	MHz	V <sub>CE</sub> = -10V, I <sub>C</sub> = -10mA, f = 100MHz
Output Capacitance	C <sub>OBO</sub>	—	—	6	pF	V <sub>CB</sub> = -10V, f = 1.0MHz, I <sub>E</sub> = 0mA
Small Signal Current Gain	h <sub>fe</sub>	40	—	200	—	V <sub>CE</sub> = -10V, I <sub>C</sub> = -1mA, f = 1.0kHz
Noise Figure	NF	—	—	8	dB	V <sub>CE</sub> = -5V, I <sub>C</sub> = -200μA, R <sub>S</sub> = 10Ω, f = 1.0kHz

- Notes:
- For a device surface mounted on 1.0 x 0.75 x 0.62 inch FR-4 PCB with high coverage of copper, in still air conditions; the device is measured when operating in a steady-state condition.
  - Maximum combined dissipation.
  - Short duration pulse test used to minimize self-heating effect.
  - The DC Current Gain, h<sub>FE</sub>, (matched at I<sub>C</sub> = -10mA and V<sub>CE</sub> = -5V) Collector Emitter Saturation Voltage, V<sub>CE(SAT)</sub>, and Base Emitter Saturation Voltage, V<sub>BE(SAT)</sub> are matched with typical matched tolerances of 1% and maximum of 2%.

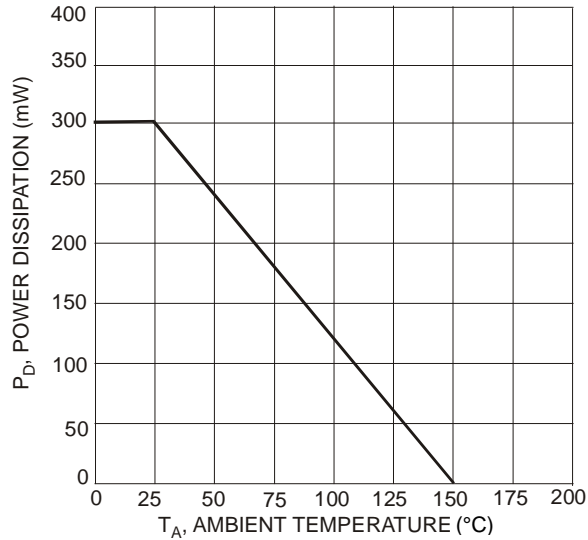


Fig. 1 Power Dissipation vs. Ambient Temperature

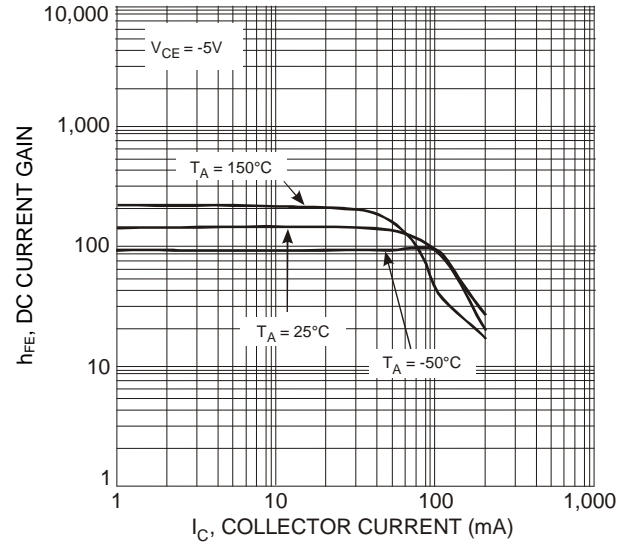


Fig. 2 Typical DC Current Gain vs. Collector Current

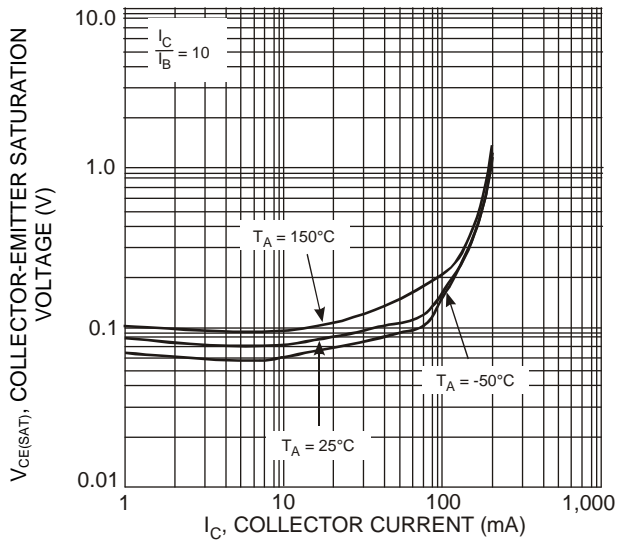


Fig. 3 Typical Collector-Emitter Saturation Voltage vs. Collector Current

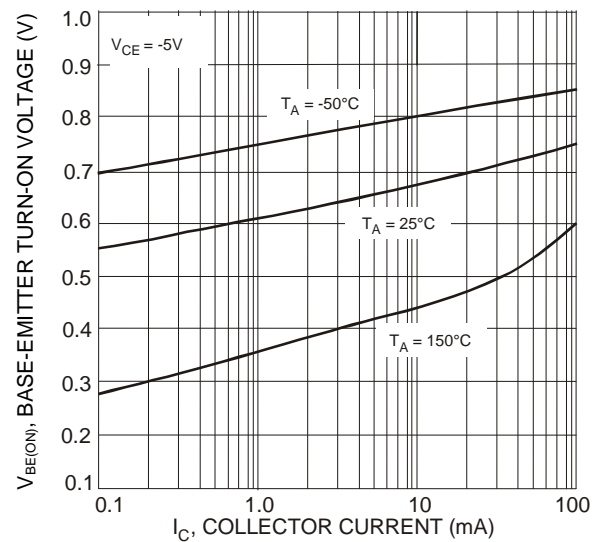


Fig. 4 Typical Base-Emitter Turn-On Voltage vs. Collector Current

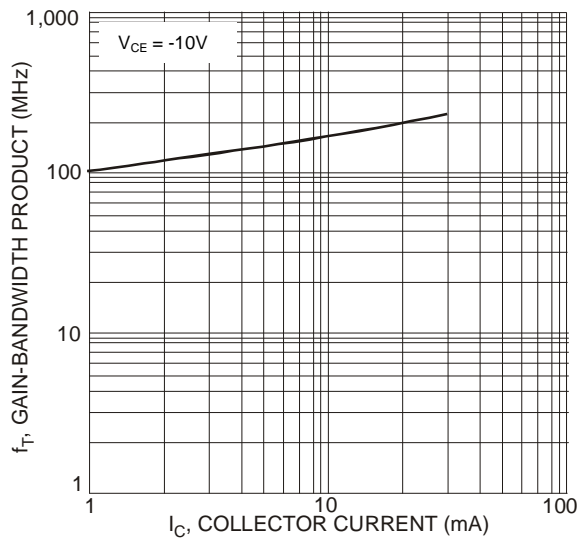
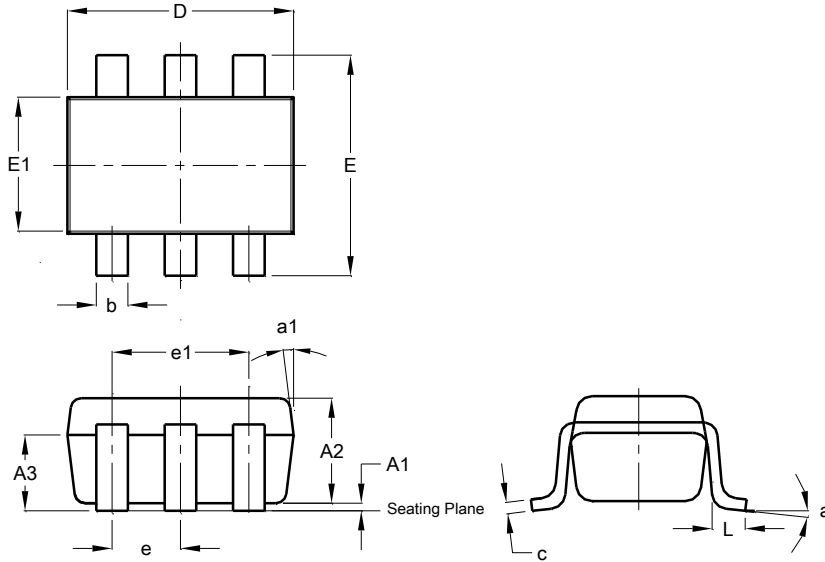


Fig. 5 Typical Gain-Bandwidth Product vs. Collector Current

## Package Outline Dimensions

Please see <http://www.diodes.com/package-outlines.html> for the latest version.

### SOT26 (SC74R)

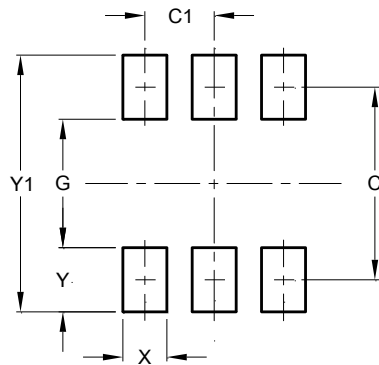


SOT26 (SC74R)			
Dim	Min	Max	Typ
A1	0.013	0.10	0.05
A2	1.00	1.30	1.10
A3	0.70	0.80	0.75
b	0.35	0.50	0.38
c	0.10	0.20	0.15
D	2.90	3.10	3.00
e	-	-	0.95
e1	-	-	1.90
E	2.70	3.00	2.80
E1	1.50	1.70	1.60
L	0.35	0.55	0.40
a	-	-	8°
a1	-	-	7°
All Dimensions in mm			

## Suggested Pad Layout

Please see <http://www.diodes.com/package-outlines.html> for the latest version.

### SOT26 (SC74R)



Dimensions	Value (in mm)
C	2.40
C1	0.95
G	1.60
X	0.55
Y	0.80
Y1	3.20

### **IMPORTANT NOTICE**

DIODES INCORPORATED MAKES NO WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, WITH REGARDS TO THIS DOCUMENT, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE (AND THEIR EQUIVALENTS UNDER THE LAWS OF ANY JURISDICTION).

Diodes Incorporated and its subsidiaries reserve the right to make modifications, enhancements, improvements, corrections or other changes without further notice to this document and any product described herein. Diodes Incorporated does not assume any liability arising out of the application or use of this document or any product described herein; neither does Diodes Incorporated convey any license under its patent or trademark rights, nor the rights of others. Any Customer or user of this document or products described herein 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 Diodes Incorporated website, harmless against all damages.

Diodes Incorporated does not warrant or accept any liability whatsoever in respect of any products purchased through unauthorized sales channel. Should Customers purchase or use Diodes Incorporated products for any unintended or unauthorized application, Customers shall indemnify and hold Diodes Incorporated and its representatives harmless against all claims, damages, expenses, and attorney fees arising out of, directly or indirectly, any claim of personal injury or death associated with such unintended or unauthorized application.

Products described herein may be covered by one or more United States, international or foreign patents pending. Product names and markings noted herein may also be covered by one or more United States, international or foreign trademarks.

This document is written in English but may be translated into multiple languages for reference. Only the English version of this document is the final and determinative format released by Diodes Incorporated.

### **LIFE SUPPORT**

Diodes Incorporated products are specifically not authorized for use as critical components in life support devices or systems without the express written approval of the Chief Executive Officer of Diodes Incorporated. As used herein:

A. Life support devices or systems are devices or systems which:

1. are intended to implant into the body, or
2. support or sustain life and whose failure to perform when properly used in accordance with instructions for use provided in the labeling can be reasonably expected to result in significant injury to the user.

B. A critical component is any component in a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or to affect its safety or effectiveness.

Customers represent that they have all necessary expertise in the safety and regulatory ramifications of their life support devices or systems, and acknowledge and agree that they are solely responsible for all legal, regulatory and safety-related requirements concerning their products and any use of Diodes Incorporated products in such safety-critical, life support devices or systems, notwithstanding any devices- or systems-related information or support that may be provided by Diodes Incorporated. Further, Customers must fully indemnify Diodes Incorporated and its representatives against any damages arising out of the use of Diodes Incorporated products in such safety-critical, life support devices or systems.

Copyright © 2017, Diodes Incorporated

**www.diodes.com**