150V DUAL PNP SMALL SIGNAL SURFACE MOUNT TRANSISTOR

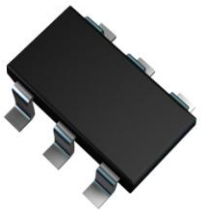
Features

- BV_{CEO} > -150V
- I_C = -200mA High Collector Current
- Pair of PNP Transistors that are Intrinsically Matched (Note 1)
- 2% Matched Tolerance, h_{FE}, $V_{CE(SAT)}$, $V_{BE(SAT)}$
- Ideal for Medium Power Amplification and Switching
- Fully Internally Isolated in a Small Surface Mount Package
- Epitaxial Planar Die Construction
- **Totally Lead-Free & Fully RoHS Compliant (Notes 2 & 3)**
- **Halogen and Antimony Free. "Green" Device (Note 4)**
- **Qualified to AEC-Q101 for High Reliability**

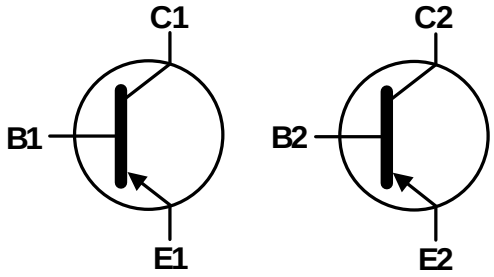
Mechanical Data

- 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 e3
- Weight: 0.018 grams (Approximate)

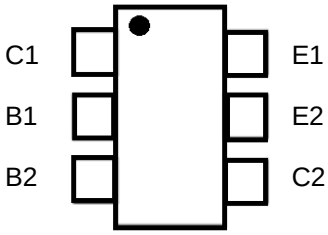
SOT26 (SC74R)



Top View



Device Symbol



Top View
Pin-Out

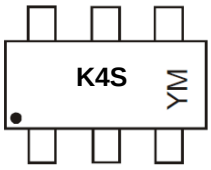
Ordering Information (Note 5)

Part Number	Compliance	Marking	Reel Size (inches)	Tape Width (mm)	Quantity Per Reel
DMMT5401-7-F	AEC-Q101	K4S	7	8	3,000

Notes:
1. Intrinsically matched pair as this is built with adjacent die from the same wafer.
2. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant.
3. See https://www.diodes.com/quality/lead-free/ for more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "Green" and Lead-free.
4. Halogen- and Antimony-free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
5. 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: F = 2018)
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

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Maximum Ratings (@T_A = +25°C, unless otherwise specified.)

Characteristic	Symbol	Value	Unit
Collector-Base Voltage	V_{CBO}	-160	V
Collector-Emitter Voltage	V_{CEO}	-150	V
Emitter-Base Voltage	V_{EBO}	-5	V
Collector Current	I_C	-200	mA

Thermal Characteristics (@T_A = +25°C, unless otherwise specified.)

Characteristic		Symbol	Value	Unit
Power Dissipation Total Device	(Notes 6 & 7)	P_D	300	mW
Thermal Resistance, Junction to Ambient	(Note 6)	$R_{\theta JA}$	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 8)						
Collector-Base Breakdown Voltage	BV_{CBO}	-160	—	—	V	I_C = -100µA, I_E = 0
Collector-Emitter Breakdown Voltage	BV_{CEO}	-150	—	—	V	I_C = -1mA, I_B = 0
Emitter-Base Breakdown Voltage	BV_{EBO}	-5	—	—	V	I_E = -10µA, I_C = 0
Collector-Base Cutoff Current	I_{CBO}	—	—	-50	nA µA	V_{CB} = -120V, I_E = 0 V_{CB} = -120V, I_E = 0, T_A = +100°C
Emitter-Base Cutoff Current	I_{EBO}	—	—	-50	nA	V_{EB} = -3V, I_B = 0
ON CHARACTERISTICS (Note 8)						
DC Current Gain (Note 9)	h_{FE}	50 60 50	—	240	—	I_C = -1mA, V_{CE} = -5V I_C = -10mA, V_{CE} = -5V I_C = -50mA, V_{CE} = -5V
Collector-Emitter Saturation Voltage	$V_{CE(SAT)}$	—	—	-0.2 -0.5	V	I_C = -10mA, I_B = -1mA I_C = -50mA, I_B = -5mA
Base-Emitter Saturation Voltage	$V_{BE(SAT)}$	—	—	-1	V	I_C = -10mA, I_B = -1mA I_C = -50mA, I_B = -5mA
SMALL SIGNAL CHARACTERISTICS						
Current Gain-Bandwidth Product	f_T	100	—	300	MHz	V_{CE} = -10V, I_C = -10mA, f = 100MHz
Output Capacitance	C_{OBO}	—	—	6	pF	V_{CB} = -10V, f = 1.0MHz, I_E = 0mA
Small Signal Current Gain	h_{fe}	40	—	260	—	V_{CE} = -10V, I_C = -1mA, f = 1.0kHz
Noise Figure	NF	—	—	8	dB	V_{CE} = -5V, I_C = -200µA, R_S = 10Ω, f = 1.0kHz

Notes:
6. For a device mounted on minimum recommended pad layout with 1oz copper that is on a single-sided 1.6mm FR-4 PCB; the device is measured under still air conditions whilst operating in a steady-state.
7. Maximum combined dissipation.
8. Short duration pulse test used to minimize self-heating effect.
9. The DC Current Gain, h_{FE}, (matched at I_C = -10mA and V_{CE} = -5V) Collector Emitter Saturation Voltage, $V_{CE(SAT)}$, and Base Emitter Saturation Voltage, $V_{BE(SAT)}$ are matched with typical matched tolerances of 1% and maximum of 2%.

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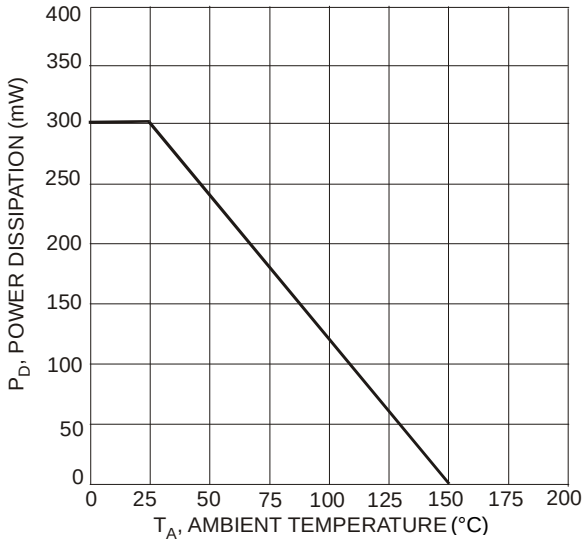

Fig. 1 Power Dissipation vs. Ambient Temperature

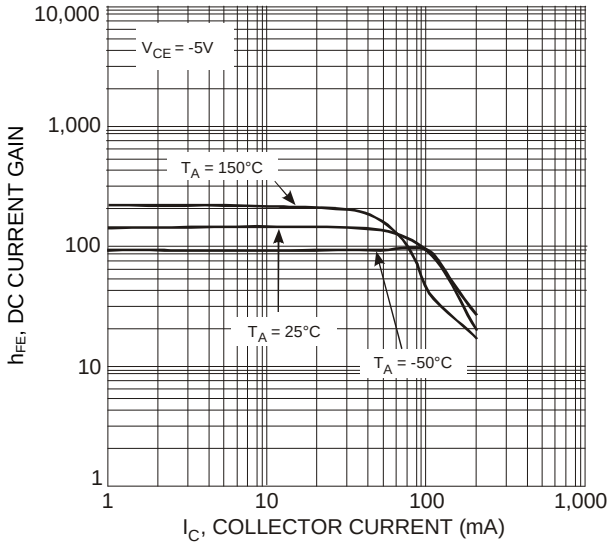

Fig. 2 Typical DC Current Gain vs. Collector Current

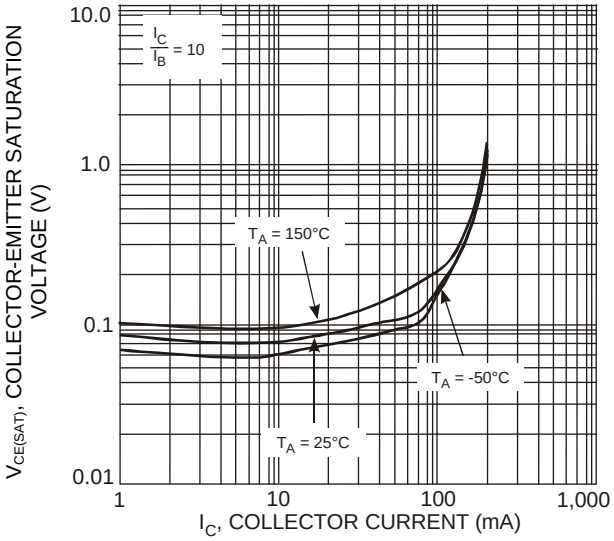

Fig. 3 Typical Collector-Emitter Saturation Voltage vs. Collector Current

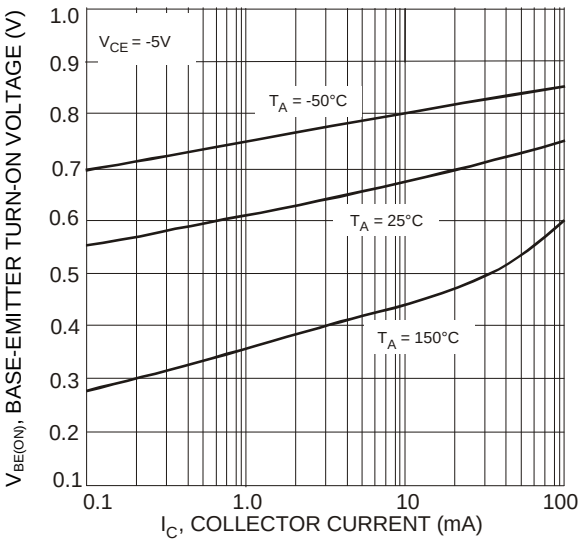

Fig. 4 Typical Base-Emitter Turn-On Voltage vs. Collector Current

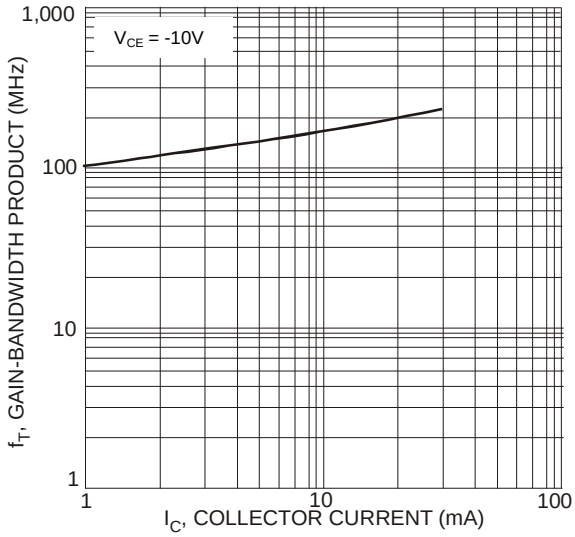

Fig. 5 Typical Gain-Bandwidth Product vs. Collector Current

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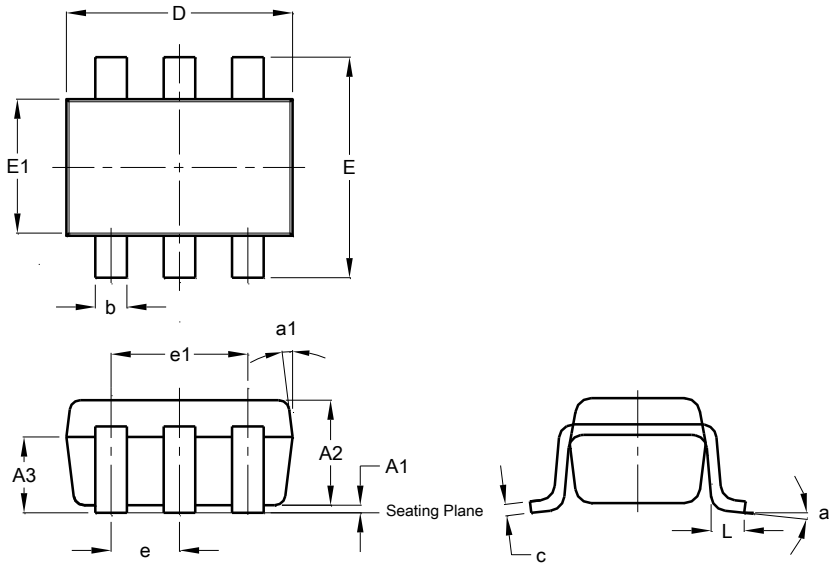
Package Outline Dimensions

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

SOT26 (SC74R)

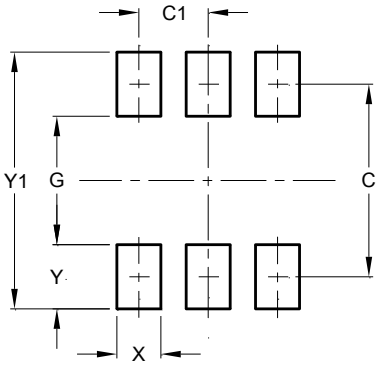


SOT26 (SC74R)			
Dim	**Min**	**Max**	**Typ**
A1	0.013	0.10	0.05
A2	1.00	1.30	1.10
A3	0.70	0.80	0.75
b	0.35	0.50	0.38
c	0.10	0.20	0.15
D	2.90	3.10	3.00
e	-	-	0.95
e1	-	-	1.90
E	2.70	3.00	2.80
E1	1.50	1.70	1.60
L	0.35	0.55	0.40
a	-	-	8°
a1	-	-	7°
All Dimensions in mm			

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

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