Features

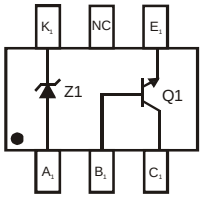
- Epitaxial Planar Die Construction
- Ideally Suited for Automated Assembly Processes
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**

Mechanical Data

- Case: SOT26 (SC74R)
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminal Connections: See Diagram
- Terminals: Matte Tin Finish Annealed over Copper Leadframe (Lead Free Plating). Solderable per MIL-STD-202, Method 208
- Marking Information: See Page 4
- Ordering Information: See Page 4
- Weight: 0.008 grams (Approximate)

SOT26 (SC74R)

Top View



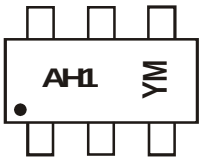
Device Schematic

Ordering Information (Note 4)

Part Number	Case	Packaging
DVRN6056-7-F	SOT26 (SC74R)	3,000/Tape & Reel

Notes:
1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3).compliant.
2. 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.
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



AH1 = Product Type Marking Code
YM = Date Code Marking
Y = Year (ex: F = 2018)
M = Month (ex: 9 = September)

Date Code Key

Year	2003	2004	2005	…..	2012	2013	2014	2015	2016	2017	2018	2019	2020
Code	P	R	S	…..	Z	A	B	C	D	E	F	G	H

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, NPN Transistor Element (Q1) (@T_A = +25°C, unless otherwise specified.)

Characteristic		Symbol	Value	Unit
Collector-Base Voltage		V_{CBO}	60	V
Collector-Emitter Voltage		V_{CEO}	40	V
Emitter-Base Voltage		V_{EBO}	6.0	V
Collector Current - Continuous	(Note 5)	I_C	600	mA

Maximum Ratings, Zener Element (Z1) (@T_A = +25°C, unless otherwise specified.)

Characteristic		Symbol	Value	Unit
Forward Voltage	@ I_F = 10mA	V_F	0.9	V

Thermal Characteristics

Characteristic		Symbol	Value	Unit
Power Dissipation	(Note 5)	P_D	300	mW
Thermal Resistance, Junction to Ambient	(Note 5)	$R_{\theta JA}$	417	°C/W
Operating and Storage Temperature Range		T_J, T_{STG}	-55 to +150	°C

Note: 5. Part mounted on FR-4 board with recommended pad layout, which can be found on our website at http://www.diodes.com/package-outlines.html.

Electrical Characteristics, NPN Transistor Element (Q1) (@T_A = +25°C, unless otherwise specified.)

Characteristic	Symbol	Min	Max	Unit	Test Condition
OFF CHARACTERISTICS (Note 6)					
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	60	—	V	I_C = 100µA, I_E = 0
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	40	—	V	I_C = 1.0mA, I_B = 0
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	6	—	V	I_E = 100µA, I_C = 0
Collector Cutoff Current	I_{CEX}	—	100	nA	V_{CE} = 35V, $V_{EB(OFF)}$ = 0.4V
Base Cutoff Current	I_{BL}	—	100	nA	V_{CE} = 35V, $V_{EB(OFF)}$ = 0.4V
ON CHARACTERISTICS (Note 6)					
DC Current Gain	h_{FE}	20 40 80 100 40	— — — 300 —	—	I_C = 100µA, V_{CE} = 1.0V I_C = 1.0mA, V_{CE} = 1.0V I_C = 10mA, V_{CE} = 1.0V I_C = 150mA, V_{CE} = 1.0V I_C = 500mA, V_{CE} = 2.0V
Collector-Emitter Saturation Voltage	$V_{CE(SAT)}$	—	0.40 0.75	V	I_C = 150mA, I_B = 15mA I_C = 500mA, I_B = 50mA
Base-Emitter Saturation Voltage	$V_{BE(SAT)}$	0.75 —	0.95 1.2	V	I_C = 150mA, I_B = 15mA I_C = 500mA, I_B = 50mA

Electrical Characteristics, Zener Element (Z1) (@T_A = +25°C, unless otherwise specified.)

Zener Voltage Range (Note 6)				Maximum Zener Impedance		Maximum Reverse Leakage Current (Note 6)	
V_Z @ I_{ZT}			I_{ZT}	Z_{ZT} @ I_{ZT}	Z_{ZK} @ I_{ZK} = 0.5mA	I_R	@ V_R
Nom (V)	Min (V)	Max (V)	mA	Ω		µA	V
5.6	5.49	5.73	5	60	200	1.0	2.5

Note: 6. Short duration pulse test used to minimize self-heating effect.

NPN Transistor (Q1)

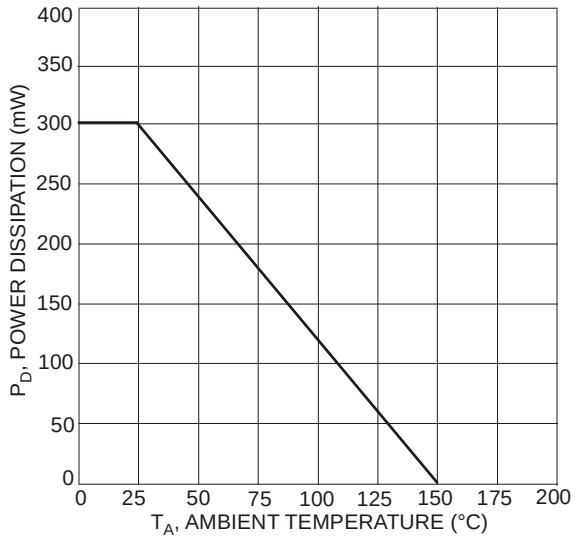


Fig. 1 Power Dissipation vs. Ambient Temperature (Total Device)

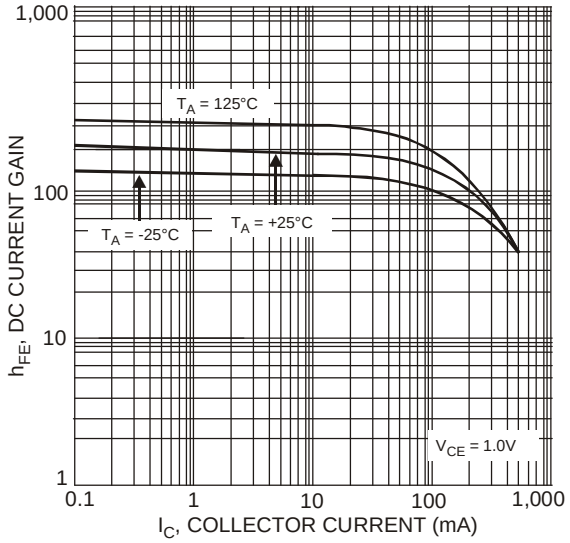


Fig. 2 Typical DC Current Gain vs. Collector Current

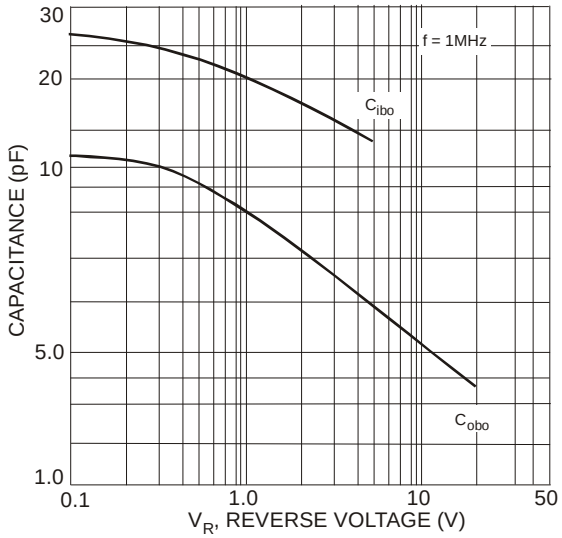


Fig. 3 Typical Capacitance Characteristics

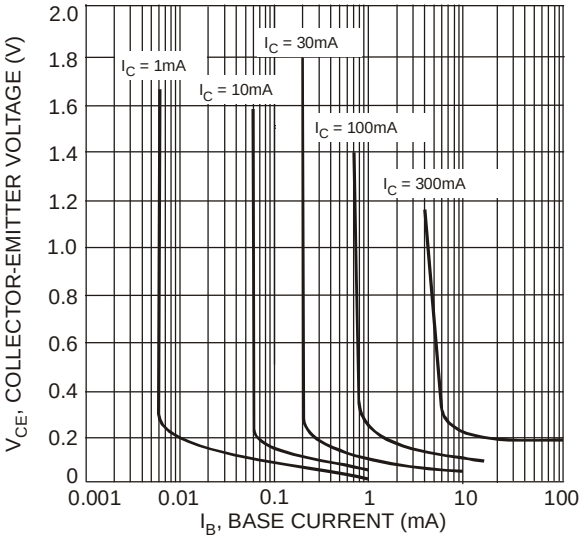


Fig. 4 Typical Collector Saturation Region

NPN Transistor (Q1) (Continued)

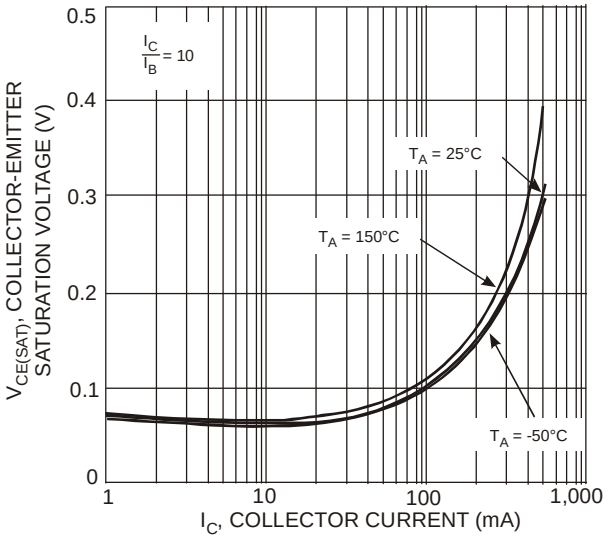


Fig. 5 Typical Collector-Emitter Saturation Voltage vs. Collector Current

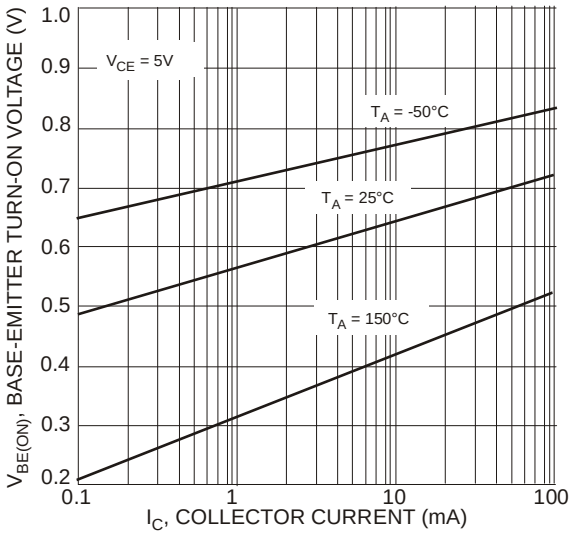


Fig. 6 Typical Base-Emitter Turn-On Voltage vs. Collector Current

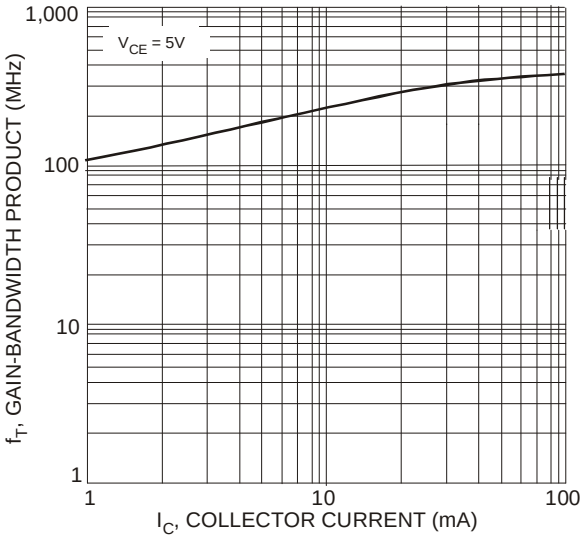


Fig. 7 Typical Gain-Bandwidth Product vs. Collector Current

Zener (Z1)

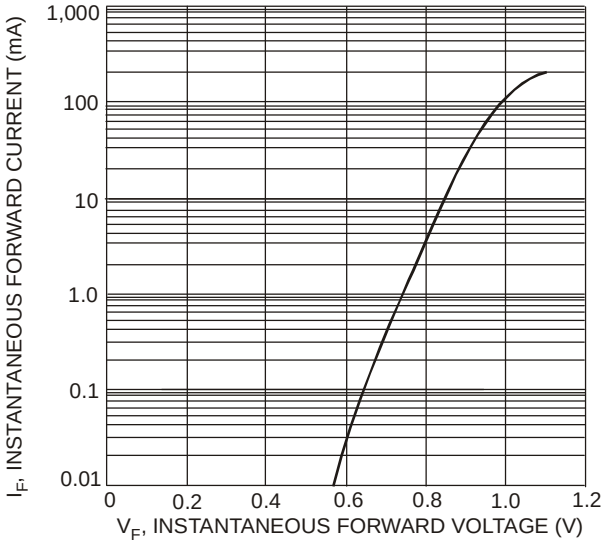
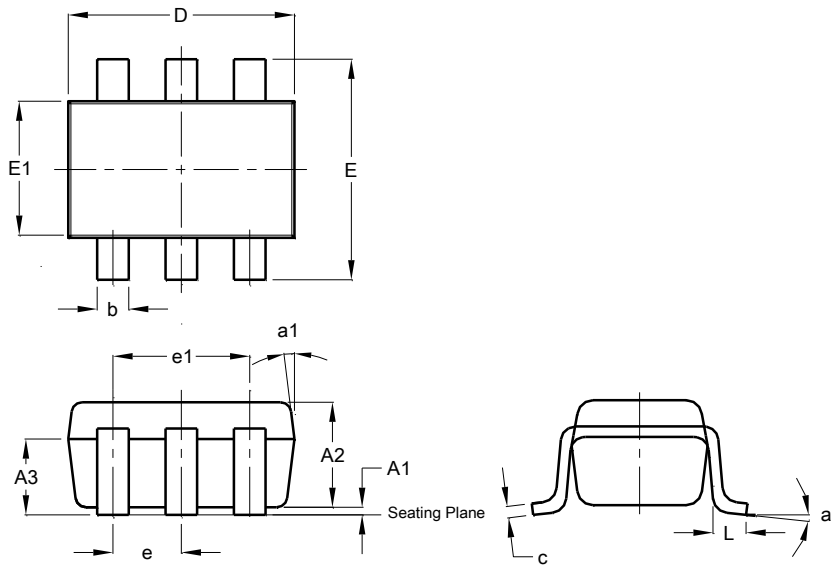


Fig. 8 Typical Forward Characteristics

Package Outline Dimensions

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

SOT26 (SC74R)

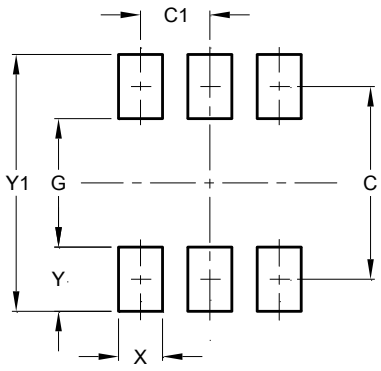


SOT26 (SC74R)			
Dim	**Min**	**Max**	**Typ**
A1	0.013	0.10	0.05
A2	1.00	1.30	1.10
A3	0.70	0.80	0.75
b	0.35	0.50	0.38
c	0.10	0.20	0.15
D	2.90	3.10	3.00
e	-	-	0.95
e1	-	-	1.90
E	2.70	3.00	2.80
E1	1.50	1.70	1.60
L	0.35	0.55	0.40
a	-	-	8°
a1	-	-	7°
All Dimensions in mm			

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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