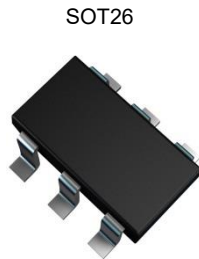


Features

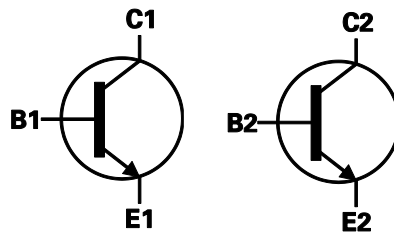
- $BV_{CEO} > 60V$
- $I_C = 1A$ High Continuous Collector Current
- $I_{CM} = 2A$ Peak Pulse Current
- $R_{CE(sat)} = 100m\Omega$ for a Low Equivalent On-Resistance
- Low Saturation Voltage $V_{CE(sat)} < 250mV @ 1A$
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **For automotive applications requiring specific change control (i.e.: parts qualified to AEC-Q100/101/104/200, PPAP capable, and manufactured in IATF 16949 certified facilities), please refer to the related automotive grade (Q-suffix) part. A listing can be found at <https://www.diodes.com/products/automotive/automotive-products/>.**
- **This part is qualified to JEDEC standards (as references in AEC-Q) for High Reliability. <https://www.diodes.com/quality/product-definitions/>**

Mechanical Data

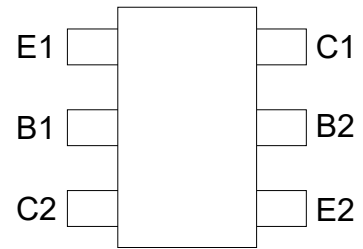
- Package: SOT26
- Package Material: Molded Plastic, "Green" Molding Compound
UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish – Matte Tin Plated Leads, Solderable per MIL-STD-202, Method 208 @3
- Weight: 0.015 grams (Approximate)



Top View



Device Symbol



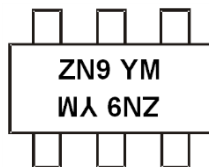
Top View Pinout

Ordering Information (Note 4)

Orderable Part Number	Package	Marking	Reel Size (inches)	Tape Width (mm)	Packing	
					Qty.	Carrier
DSS4160DS-7	SOT26	ZN9	7	8	3,000	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



ZN9 = Product Type Marking Code
 YM = Date Code Marking
 Y = Year (ex: N = 2026)
 M = Month (ex: 1 = January)

Date Code Key

Year	2013	-	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Code	A	-	N	P	R	S	T	U	V	W	X	Y

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

Absolute Maximum Ratings – Q1 & Q2 Common (@T_A = +25°C, unless otherwise specified.)

Characteristic	Symbol	Value	Unit
Collector-Base Voltage	V _{CBO}	80	V
Collector-Emitter Voltage	V _{CEO}	60	V
Emitter-Base Voltage	V _{EBO}	5	V
Continuous Collector Current	I _C	1	A
Peak Pulse Collector Current	I _{CM}	2	A
Base Current	I _B	300	mA
Peak Pulse Base Current	I _{BM}	1	A

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

Characteristic	Symbol	Value	Unit
Power Dissipation Linear Derating Factor	P _D	0.7	W mW/°C
		5.6	
		0.9	
		7.2	
		1.1	
		8.8	
		1.1	
		8.8	
Thermal Resistance, Junction to Ambient	R _{θJA}	179	°C/W
		139	
		113	
		113	
		73	
Thermal Resistance, Junction to Lead	R _{θJL}	96	
Thermal Resistance, Junction to Case	R _{θJC}	42	°C/W
Operating and Storage Temperature Range	T _J , T _{STG}	-55 to +150	°C

ESD Ratings (Note 12)

Characteristic	Symbol	Value	Unit	JEDEC Class
Electrostatic Discharge - Human Body Model	ESD HBM	4,000	V	3A
Electrostatic Discharge - Machine Model	ESD MM	400	V	C

- Notes:
5. For a device mounted with the collector lead on 15mm x 15mm 1oz copper that is on a single-sided 1.6mm FR4 PCB; device is measured under still air conditions whilst operating in a steady state.
 6. Same as Note 5, except the device is mounted on 25mm x 25mm 1oz copper.
 7. Same as Note 5, except the device is mounted on 50mm x 50mm 2oz copper.
 8. Same as Note 7, except the device is measured at t < 5 seconds.
 9. One active die operating with the collector attached to the heatsink.
 10. Two active dice running at equal power with heatsink split 50% to each collector.
 11. Thermal resistance from junction to solder-point (at the end of the collector lead).
 12. Refer to JEDEC specifications JESD22-A114 and JESD22-A115.

Thermal Characteristics and Derating Information

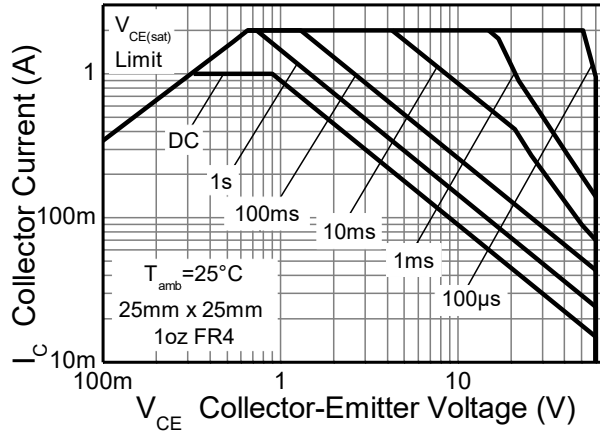


Figure 1. Safe Operating Area

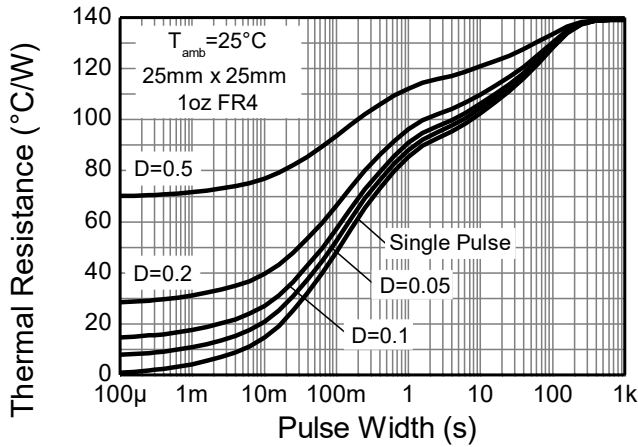


Figure 2. Transient Thermal Impedance

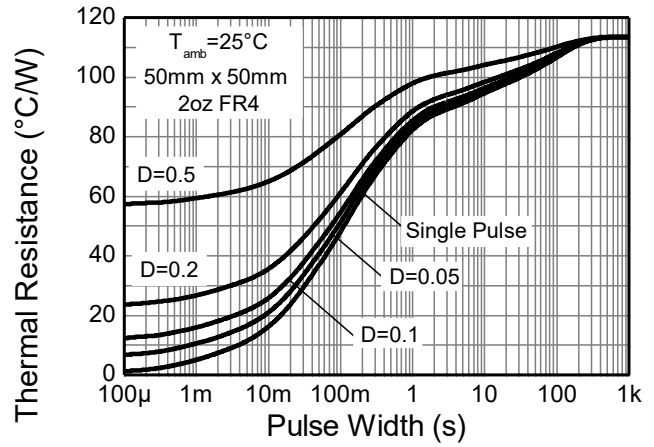


Figure 3. Transient Thermal Impedance

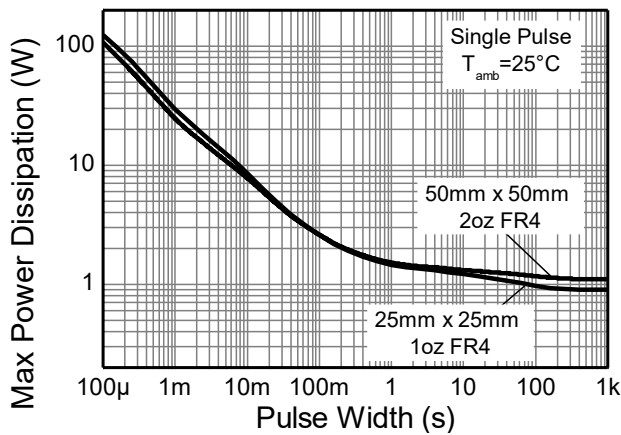


Figure 4. Pulse Power Dissipation

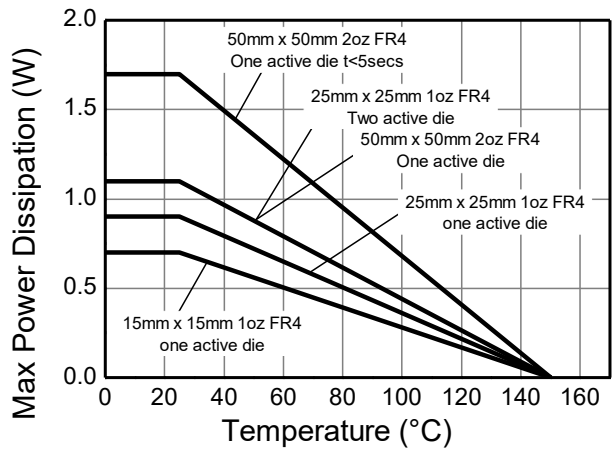


Figure 5. Derating Curve

Electrical Characteristics - Q1 & Q2 Common (@T_A = +25°C, unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Collector-Base Breakdown Voltage	BV _{CB0}	80	—	—	V	I _C = 100μA
Collector-Emitter Breakdown Voltage (Note 13)	BV _{CEO}	60	—	—	V	I _C = 10mA
Emitter-Base Breakdown Voltage	BV _{EBO}	5	—	—	V	I _E = 100μA
Collector-Base Cutoff Current	I _{CBO}	—	—	100	nA	V _{CB} = 60V, I _E = 0
		—	—	50	μA	V _{CB} = 60V, I _E = 0, T _J = +150°C
Collector-Emitter Cutoff Current	I _{CES}	—	—	100	nA	V _{CE} = 60V, V _{BE} = 0
Emitter-Base Cutoff Current	I _{EBO}	—	—	100	nA	V _{EB} = 5V, I _C = 0
DC Current Gain (Note 13)	h _{FE}	250	380	—	—	I _C = 1mA, V _{CE} = 5V
		200	420	—		I _C = 500mA, V _{CE} = 5V
		100	380	—		I _C = 1A, V _{CE} = 5V
Collector-Emitter Saturation Voltage (Note 13)	V _{CE(sat)}	—	60	110	mV	I _C = 100mA, I _B = 1mA
		—	70	140		I _C = 500mA, I _B = 50mA
		—	100	250		I _C = 1A, I _B = 100mA
Equivalent On-Resistance	R _{CE(sat)}	—	100	250	mΩ	I _C = 1A, I _B = 100mA
Base-Emitter Saturation Voltage (Note 13)	V _{BE(sat)}	—	940	1100	mV	I _C = 1A, I _B = 50mA
Base-Emitter Turn-On Voltage (Note 13)	V _{BE(on)}	—	780	900	mV	I _C = 1A, V _{CE} = 5V
Output Capacitance	C _{obo}	—	5.5	10	pF	V _{CB} = 10V, f = 1MHz
Transition Frequency	f _T	150	220	—	MHz	V _{CE} = 10V, I _C = 50mA f = 100MHz
Turn-On Time	t _{on}	—	63	—	ns	V _{CC} = 10V, I _C = 0.5A I _{B1} = -I _{B2} = 25mA
Delay Time	t _d	—	33	—	ns	
Rise Time	t _r	—	30	—	ns	
Turn-Off Time	t _{off}	—	420	—	ns	
Storage Time	t _s	—	380	—	ns	
Fall Time	t _f	—	40	—	ns	

Note: 13. Measured under pulsed conditions. Pulse width ≤ 300μs. Duty cycle ≤ 2%.

Typical Electrical Characteristics (@ $T_A = +25^\circ\text{C}$, unless otherwise specified.)

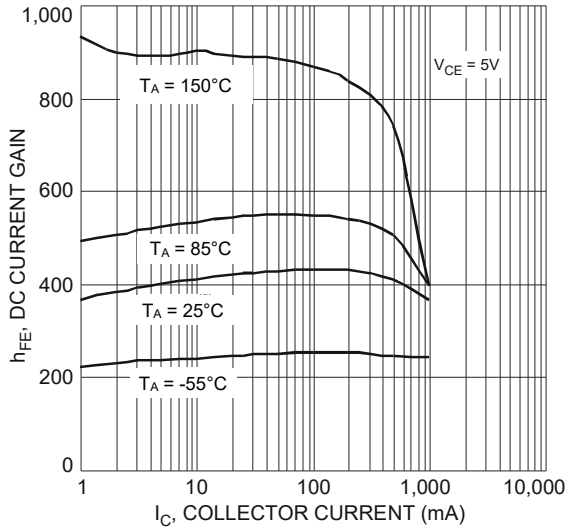


Figure 6. Typical DC Current Gain vs. Collector Current

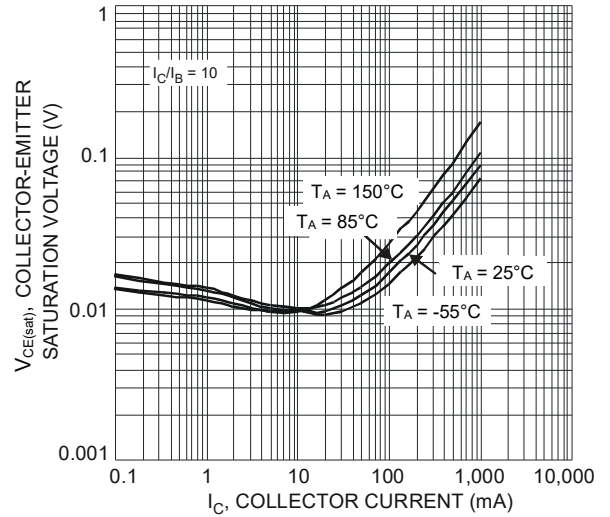


Figure 7. Typical Collector-Emitter Saturation Voltage vs. Collector Current

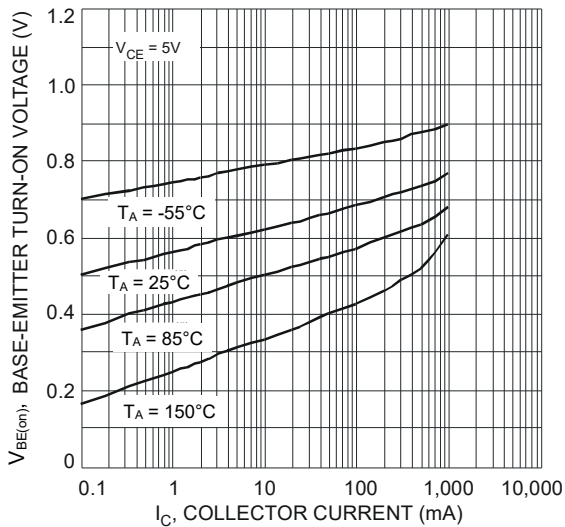


Figure 8. Typical Base-Emitter Turn-On Voltage vs. Collector Current

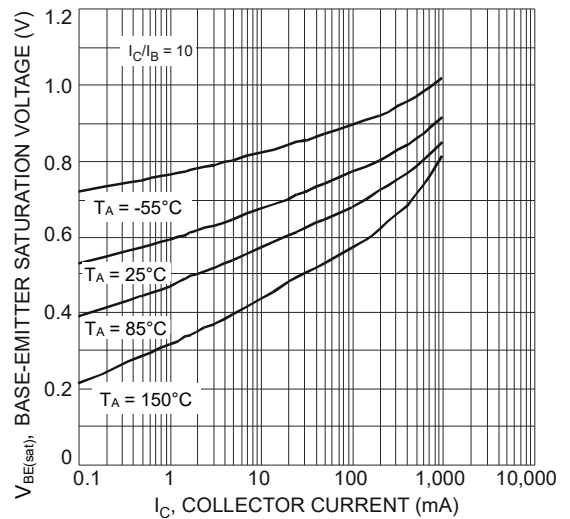


Figure 9. Typical Base-Emitter Saturation Voltage vs. Collector Current

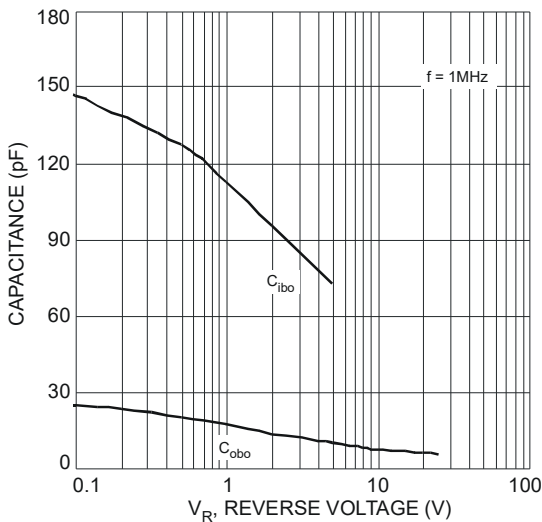
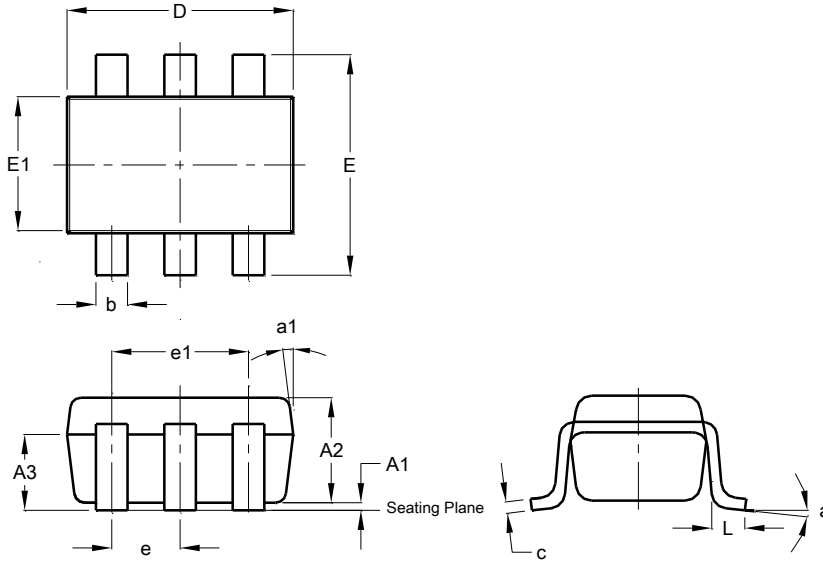


Figure 10. Typical Capacitance Characteristics

Package Outline Dimensions

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

SOT26

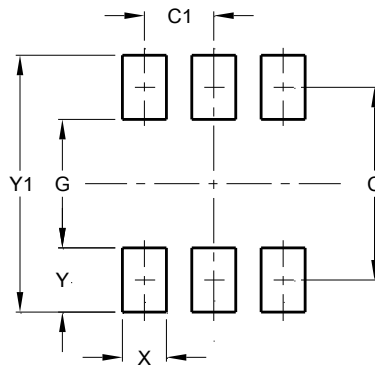


SOT26			
Dim	Min	Max	Typ
A1	0.013	0.10	0.05
A2	1.00	1.30	1.10
A3	0.70	0.80	0.75
b	0.35	0.50	0.38
c	0.10	0.20	0.15
D	2.90	3.10	3.00
e	-	-	0.95
e1	-	-	1.90
E	2.70	3.00	2.80
E1	1.50	1.70	1.60
L	0.35	0.55	0.40
a	-	-	8°
a1	-	-	7°
All Dimensions in mm			

Suggested Pad Layout

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

SOT26



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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