

Product Summary

BV _{DSS}	R _{DS(ON)} Max	I _D T _A = +25°C
60V	44mΩ @ V _{GS} = 10V	5.0A
	60mΩ @ V _{GS} = 4.5V	4.3A

Features and Benefits

- 100% Unclamped Inductive Switch (UIS) Test in Production
- Low Input Capacitance
- Low On-Resistance
- Fast Switching Speed
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- This part is qualified to JEDEC standards (as references in AEC-Q) for High Reliability.
- <https://www.diodes.com/quality/product-definitions/>
- An automotive-compliant part is available under a separate datasheet ([DMN6040SVTQ](#))

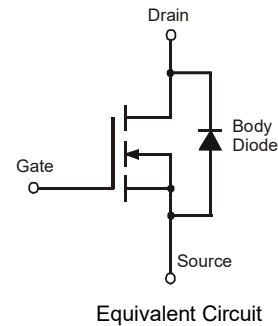
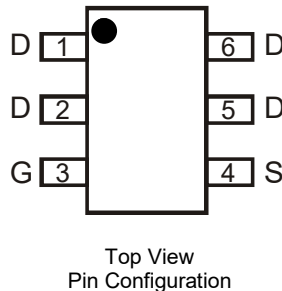
Description and Applications

This new generation MOSFET has been designed to minimize the on-state resistance (R_{DS(ON)}) yet maintain superior switching performance, making it ideal for high-efficiency power-management applications.

- DC-DC converters
- Power-management functions
- Backlighting

Mechanical Data

- Package: TSOT26
- Package 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: Finish – Tin Finish Annealed over Copper Leadframe. Solderable per MIL-STD-202, Method 208 
- Weight: 0.013 grams (Approximate)

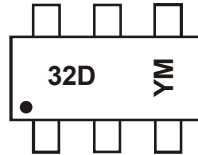


Ordering Information (Note 4)

Orderable Part Number	Package	Packing	
		Qty.	Carrier
DMN6040SVT-7	TSOT26	3,000	Tape & Reel
DMN6040SVT-7R	TSOT26	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



32D = Product Type Marking Code
 YM = Date Code Marking
 Y or Y= Year (ex: N = 2026)
 M = Month (ex: 9 = September)

Date Code Key

Year	2011	-	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Code	Y	-	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

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

Characteristic			Symbol	Value	Unit
Drain-Source Voltage			V _{DSS}	60	V
Gate-Source Voltage			V _{GSS}	±20	V
Continuous Drain Current (Note 5) V _{GS} = 10V	Steady State	T _A = +25°C T _A = +70°C	I _D	5.0 4.0	A
	t < 10s	T _A = +25°C T _A = +70°C	I _D	6.3 5.0	A
Continuous Drain Current (Note 5) V _{GS} = 5V	Steady State	T _A = +25°C T _A = +70°C	I _D	4.3 3.4	A
	t < 10s	T _A = +25°C T _A = +70°C	I _D	5.4 4.3	A
Maximum Body Diode Forward Current (Note 5)			I _S	2.1	A
Pulsed Drain Current (10μs Pulse, Duty Cycle = 1%)			I _{DM}	30	A
Avalanche Current (Note 6) L = 0.1mH			I _{AR}	14.2	A
Avalanche Energy (Note 6) L = 0.1mH			E _{AR}	10	mJ

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

Characteristic		Symbol	Value	Unit
Total Power Dissipation (Note 7)	T _A = +25°C	P _D	1.2	W
	T _A = +70°C		0.75	
Thermal Resistance, Junction to Ambient (Note 7)	Steady State	R _{θJA}	106	°C/W
	t < 10s		69	°C/W
Total Power Dissipation (Note 5)	T _A = +25°C	P _D	1.8	W
	T _A = +70°C		1.1	
Thermal Resistance, Junction to Ambient (Note 5)	Steady State	R _{θJA}	68	°C/W
	t < 10s		44	°C/W
Thermal Resistance, Junction to Case (Note 5)		R _{θJC}	20	°C/W
Operating and Storage Temperature Range		T _J , T _{STG}	-55 to +150	°C

Notes: 5. Device mounted on FR-4 substrate PC board, 2oz copper, with 1inch square copper plate.
 6. I_{AR} and E_{AR} ratings are based on low frequency and duty cycles to keep T_J = +25°C.
 7. Device mounted on FR-4 substrate PC board, 2oz copper, with minimum recommended pad layout.

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

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
OFF CHARACTERISTICS (Note 8)						
Drain-Source Breakdown Voltage	BV _{DSS}	60	—	—	V	V _{GS} = 0, I _D = 250μA
Zero Gate Voltage Drain Current	I _{DSS}	—	—	100	nA	V _{DS} = 60V, V _{GS} = 0
Gate-Source Leakage	I _{GSS}	—	—	±100	nA	V _{GS} = ±20V, V _{DS} = 0
ON CHARACTERISTICS (Note 8)						
Gate Threshold Voltage	V _{GS(th)}	1	—	3	V	V _{DS} = V _{GS} , I _D = 250μA
Static Drain-Source On-Resistance	R _{DS(on)}	—	30	44	mΩ	V _{GS} = 10V, I _D = 4.3A
		—	35	60		V _{GS} = 4.5V, I _D = 4A
Forward Transfer Admittance	Y _{fs}	—	4.5	—	S	V _{DS} = 10V, I _D = 4.3A
Diode Forward Voltage	V _{SD}	—	0.7	1.2	V	V _{GS} = 0, I _S = 1A
DYNAMIC CHARACTERISTICS (Note 9)						
Input Capacitance	C _{iss}	—	1287	—	pF	V _{DS} = 25V, V _{GS} = 0 f = 1.0MHz
Output Capacitance	C _{oss}	—	57	—		
Reverse Transfer Capacitance	C _{rss}	—	44	—		
Gate Resistance	R _G	—	1.2	—	Ω	V _{DS} = 0, V _{GS} = 0, f = 1.0MHz
Total Gate Charge (V _{GS} = 10V)	Q _g	—	22.4	—	nC	V _{DS} = 30V, I _D = 4.3A
Total Gate Charge (V _{GS} = 4.5V)	Q _g	—	10.4	—		
Gate-Source Charge	Q _{gs}	—	4.9	—		
Gate-Drain Charge	Q _{gd}	—	3.0	—		
Turn-On Delay Time	t _{D(on)}	—	6.6	—	ns	V _{GS} = 10V, V _{DD} = 30V, R _G = 6Ω, I _D = 4.3A
Turn-On Rise Time	t _r	—	8.1	—		
Turn-Off Delay Time	t _{D(off)}	—	20.1	—		
Turn-Off Fall Time	t _f	—	4.0	—		
Body Diode Reverse-Recovery Time	t _{rr}	—	18	—	ns	I _S = 4.3A, di/dt = 100A/μs
Body Diode Reverse-Recovery Charge	Q _{rr}	—	11.9	—	nC	I _S = 4.3A, di/dt = 100A/μs

Notes: 8. Short duration pulse test used to minimize self-heating effect.
9. Guaranteed by design. Not subject to product testing.

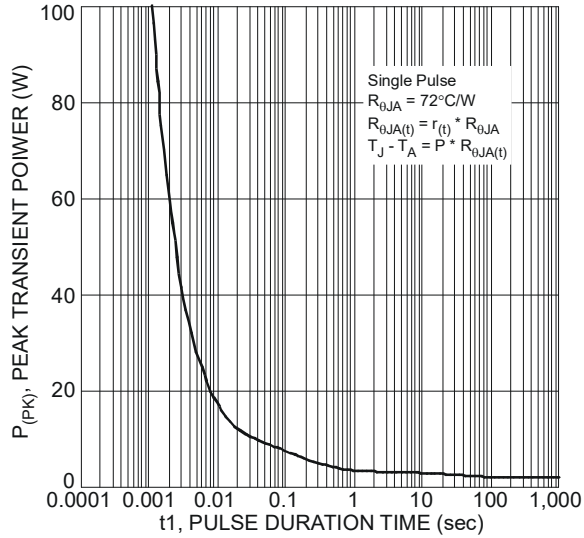


Fig. 1 Single Pulse Maximum Power Dissipation

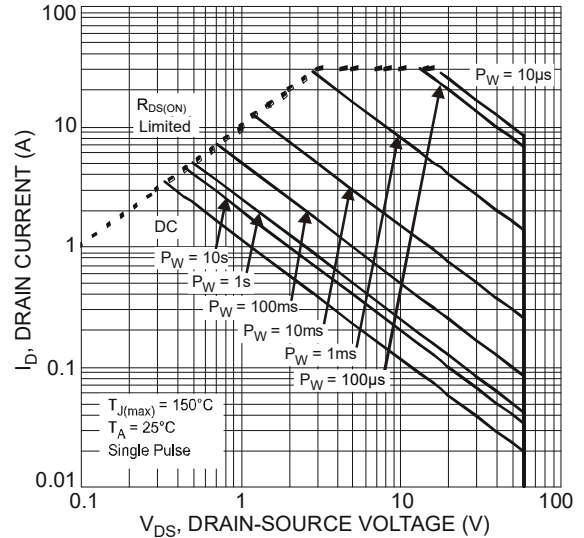


Fig. 2 SOA, Safe Operation Area

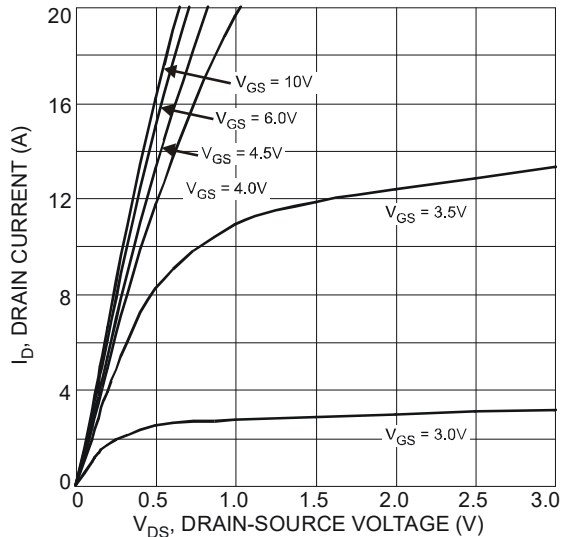


Fig. 3 Typical Output Characteristic

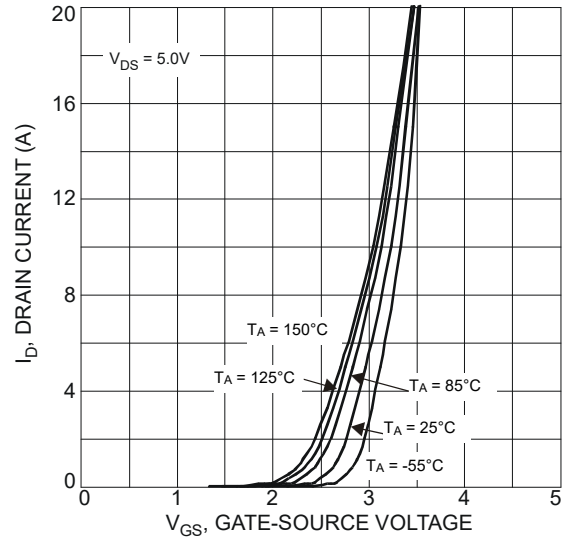


Fig. 4 Typical Transfer Characteristics

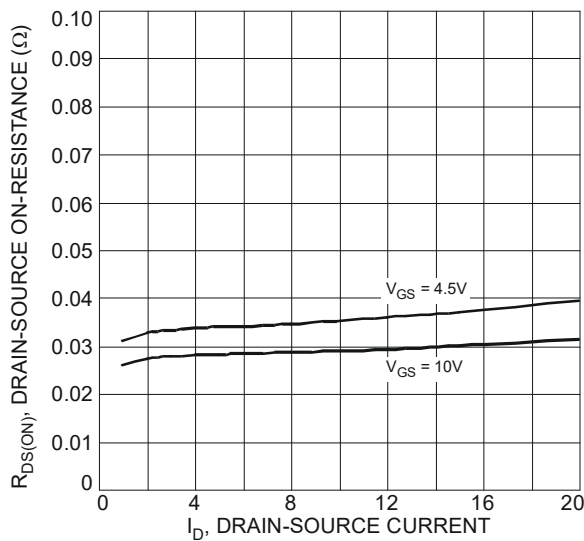


Fig. 5 Typical On-Resistance vs. Drain Current and Gate Voltage

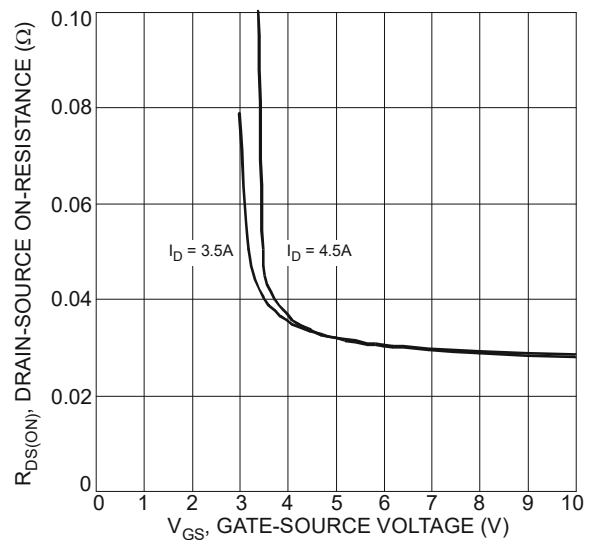


Fig. 6 Typical On-Resistance vs. Drain Current and Gate Voltage

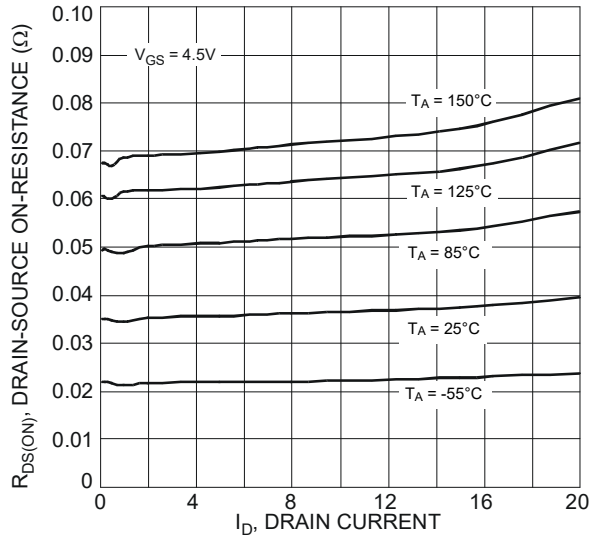


Fig. 7 Typical On-Resistance vs. Drain Current and Temperature

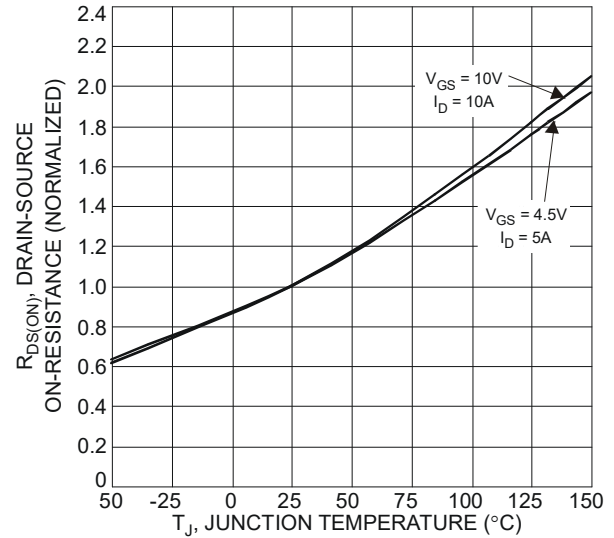


Fig. 8 On-Resistance Variation with Temperature

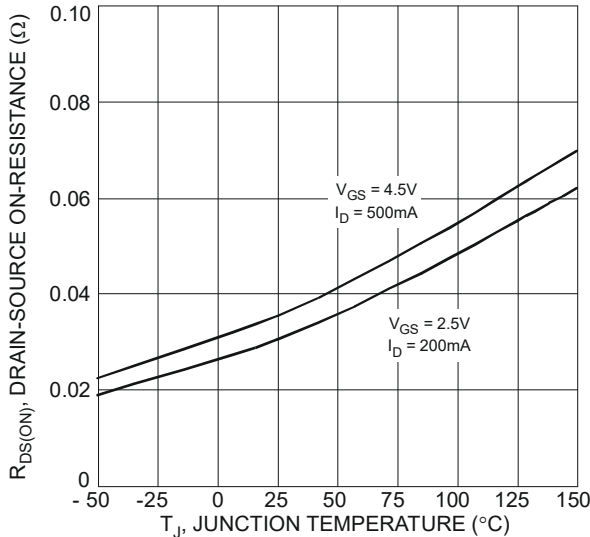


Fig. 9 On-Resistance Variation with Temperature

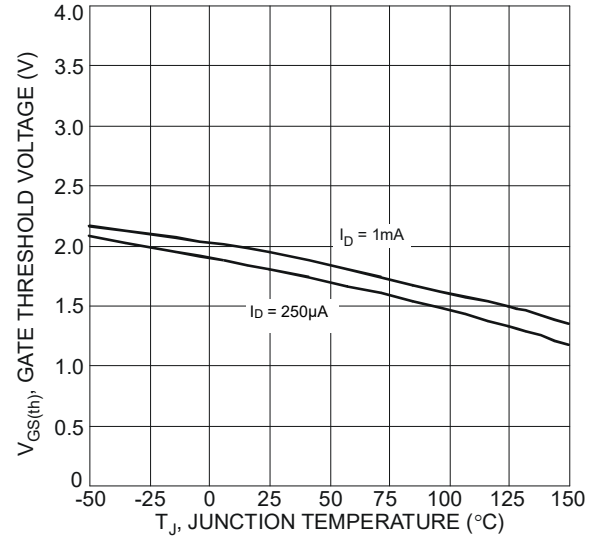


Fig. 10 Gate Threshold Variation vs. Ambient Temperature

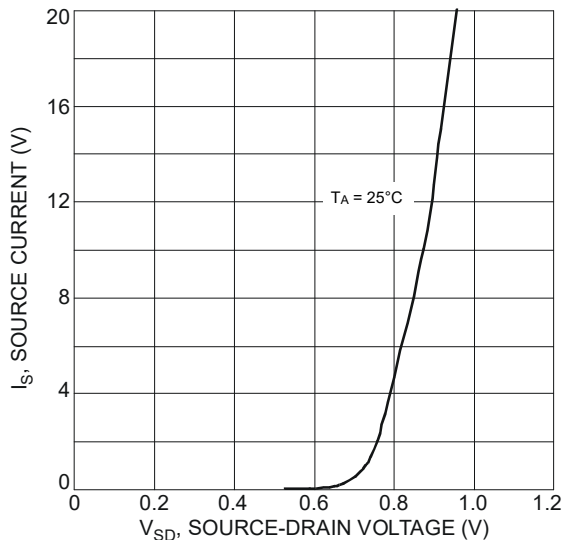


Fig. 11 Diode Forward Voltage vs. Current

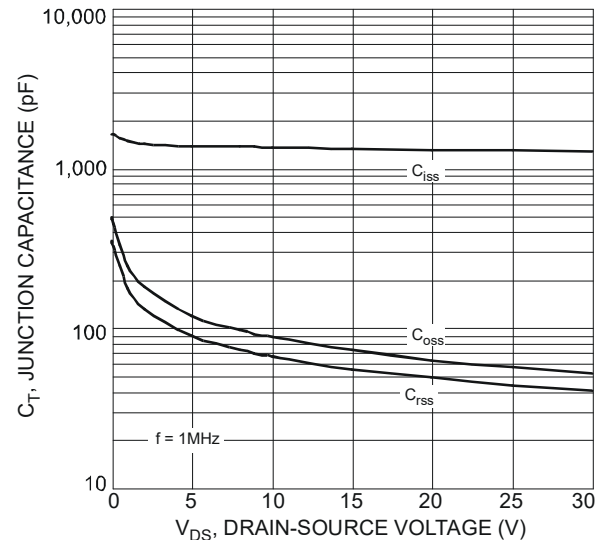
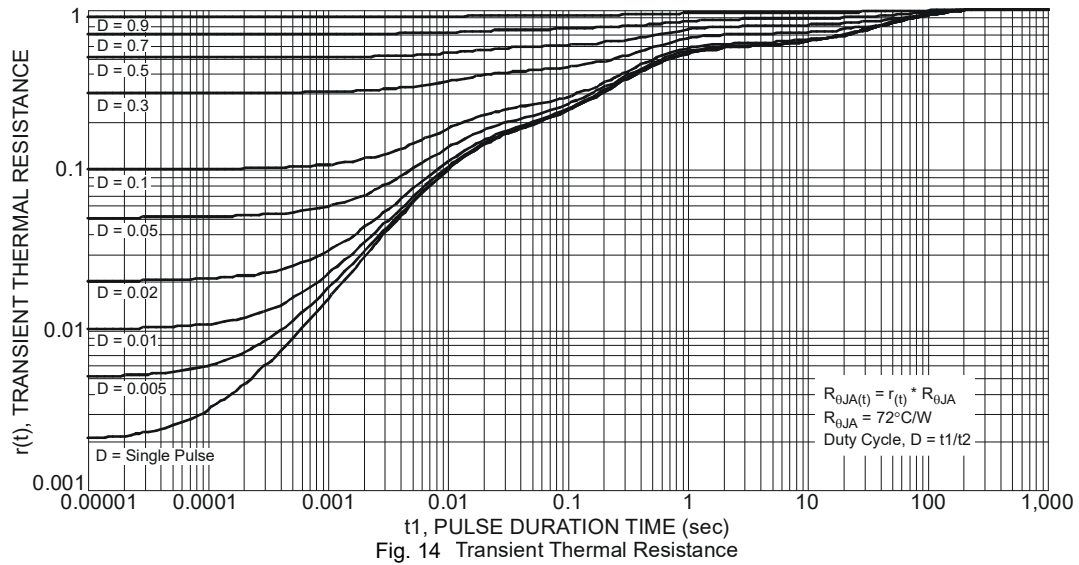
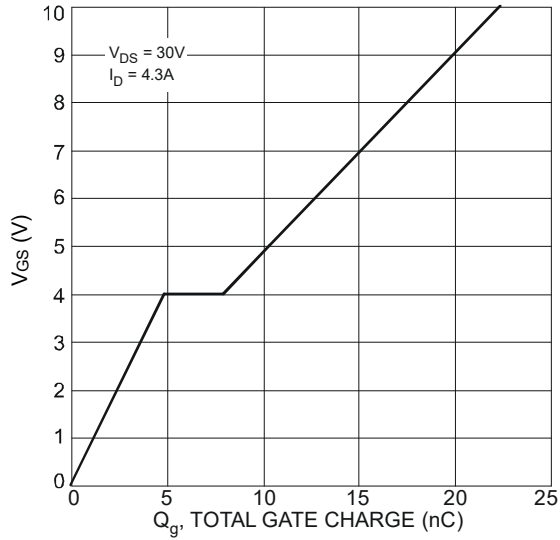


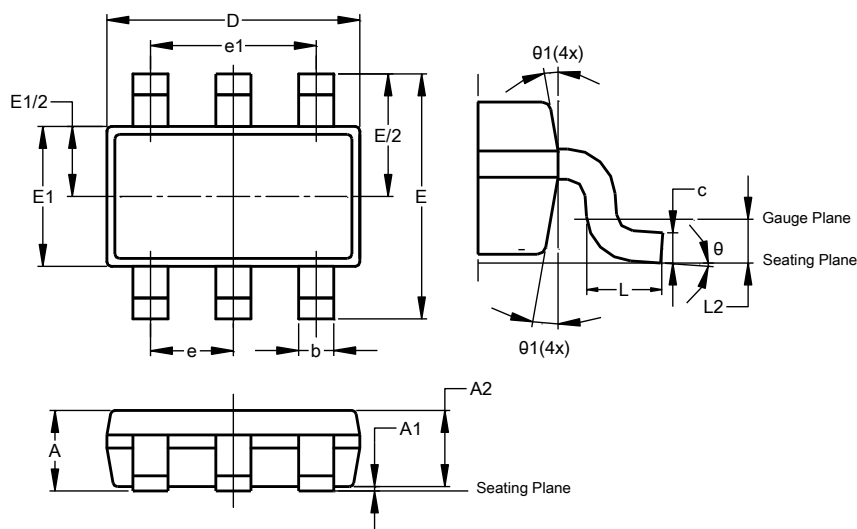
Fig. 12 Typical Junction Capacitance



Package Outline Dimensions

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

TSOT26

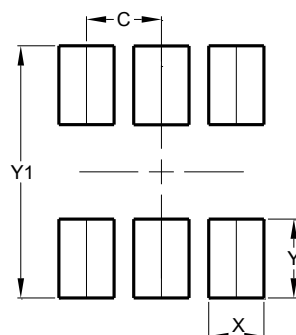


TSOT26			
Dim	Min	Max	Typ
A	—	1.00	—
A1	0.010	0.100	—
A2	0.840	0.900	—
D	2.800	3.000	2.900
E	2.800 BSC		
E1	1.500	1.700	1.600
b	0.300	0.450	—
c	0.120	0.200	—
e	0.950 BSC		
e1	1.900 BSC		
L	0.30	0.50	—
L2	0.250 BSC		
θ	0°	8°	4°
θ1	4°	12°	—
All Dimensions in mm			

Suggested Pad Layout

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

TSOT26



Dimensions	Value (in mm)
C	0.950
X	0.700
Y	1.000
Y1	3.200

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