

ANTREX Electronics

Electronic Components Sourcing Information

Product Reference Information

Part Number:	DMNH6065SSDQ-13
Manufacturer:	Diodes Incorporated
Package:	Please confirm with sales
Availability:	Please confirm with sales

Product Page:

<https://antrexco.com/product/details/diodes-incorporated/dmnh6065ssdq-13.html>

Request a Quote:

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Contact Information

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Website: <https://antrexco.com>

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New & Original Components

Supplier verification and packaging condition review

CoC / RoHS / REACH documents available on request

Secure sourcing support for OEM / EMS projects

Note:

This PDF includes an ANTREX product reference cover page.

The original manufacturer datasheet follows from the next page.

Product Summary

BV _{DSS}	R _{DS(ON)} Max	I _D Max T _A = +25°C
60V	65mΩ @ V _{GS} = 10V	3.8A
	88mΩ @ V _{GS} = 4.5V	3.3A

Description and Applications

This MOSFET is designed to meet the stringent requirements of automotive applications. It is qualified to AEC-Q101, supported by a PPAP and is ideal for use in:

- Backlighting
- Power Management Functions
- DC-DC Converters

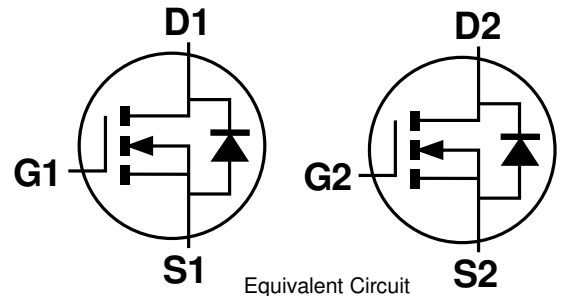
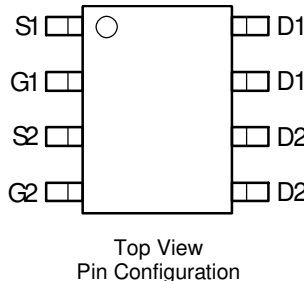
Features and Benefits

- Rated to +175°C— Ideal for High Ambient Temperature Environments
- 100% Unclamped Inductive Switch (UIS) Test in Production
- Low On-Resistance
- Low Input Capacitance
- Fast Switching Speed
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **The DMNH6065SSDQ is suitable for automotive applications requiring specific change control; this part is AEC-Q101 qualified, PPAP capable, and manufactured in IATF 16949 certified facilities.**

<https://www.diodes.com/quality/product-definitions/>

Mechanical Data

- Case: SO-8
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminal Connections Indicator: See Diagram
- Terminals: Finish — Matte Tin Annealed over Copper Leadframe Solderable per MIL-STD-202, Method 208 
- Weight: 0.074 grams (Approximate)

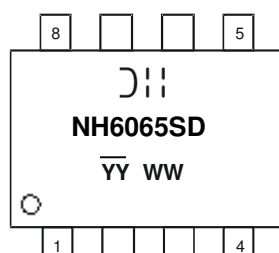


Ordering Information (Note 4)

Part Number	Case	Packaging
DMNH6065SSDQ-13	SO-8	2,500/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



J; ; = Manufacturer's Marking
 NH6065SD = Product Type Marking Code
 YYWW = Date Code Marking
 YY = Year (ex: 21 = 2021)
 WW = Week (01 to 53)

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 6) V _{GS} = 10V	I _D	3.8 2.7	A
Maximum Continuous Body Diode Forward Current (Note 6)	I _S	3.8	A
Pulsed Drain Current (10µs Pulse, Duty Cycle = 1%)	I _{DM}	30	A
Avalanche Current, L = 1mH	I _{AS}	13	A
Avalanche Energy, L = 1mH	E _{AS}	84.5	mJ

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

Characteristic	Symbol	Value	Unit
Total Power Dissipation (Note 5)	P _D	1.5	W
Thermal Resistance, Junction to Ambient (Note 5)	R _{θJA}	96	°C/W
Total Power Dissipation (Note 6)	P _D	2.0	W
Thermal Resistance, Junction to Ambient (Note 6)	R _{θJA}	72	°C/W
Operating and Storage Temperature Range	T _J , T _{STG}	-55 to +175	°C

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

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
OFF CHARACTERISTICS (Note 7)						
Drain-Source Breakdown Voltage	BV _{DSS}	60	—	—	V	I _D = 250µA, V _{GS} = 0V
Zero Gate Voltage Drain Current	I _{DSS}	—	—	1	µA	V _{DS} = 60V, V _{GS} = 0V
Gate-Source Leakage	I _{GSS}	—	—	±100	nA	V _{GS} = ±20V, V _{DS} = 0V
ON CHARACTERISTICS (Note 7)						
Gate Threshold Voltage	V _{GS(TH)}	1.0	—	3.0	V	I _D = 250µA, V _{DS} = V _{GS}
Static Drain-Source On-Resistance	R _{DS(ON)}	—	45	65	mΩ	V _{GS} = 10V, I _D = 3A
			60	88		V _{GS} = 4.5V, I _D = 3A
Diode Forward Voltage	V _{SD}	—	0.9	1.3	V	V _{GS} = 10V, I _D = 3A
DYNAMIC CHARACTERISTICS (Note 8)						
Input Capacitance	C _{iss}	—	446	—	pF	V _{DS} = 30V, V _{GS} = 0V F = 1MHz
Output Capacitance	C _{oss}	—	113	—		
Reverse Transfer Capacitance	C _{rss}	—	10	—		
Gate Resistance	R _g	—	2.8	—	Ω	V _{GS} = 0V, V _{DS} = 0V, f = 1MHz
Total Gate Charge (V _{GS} = 4.5V)	Q _g	—	5.6	—	nC	V _{DS} = 30V, I _D = 3A
Total Gate Charge (V _{GS} = 10V)	Q _g	—	11.3	—		
Gate-Source Charge	Q _{gs}	—	1.5	—		
Gate-Drain Charge	Q _{gd}	—	2.4	—		
Turn-On Delay Time	t _{D(ON)}	—	8.8	—	ns	V _{DD} = 30V, V _{GS} = 10V R _G = 4.7Ω, I _D = 3A
Turn-On Rise Time	t _R	—	33.5	—		
Turn-Off Delay Time	t _{D(OFF)}	—	22.4	—		
Turn-Off Fall Time	t _F	—	19.4	—		
Body Diode Reverse Recovery Time	t _{RR}	—	31	—	ns	I _S = 3A, dI/dt = 100A/µs
Body Diode Reverse Recovery Charge	Q _{RR}	—	23	—	nC	I _S = 3A, dI/dt = 100A/µs

- Notes:
5. Device mounted on FR-4 substrate PC board, 2oz copper, with minimum recommended pad layout.
 6. Device mounted on FR-4 substrate PC board, 2oz copper, with 1 inch square copper plate.
 7. Short duration pulse test used to minimize self-heating effect.
 8. Guaranteed by design. Not subject to product testing.

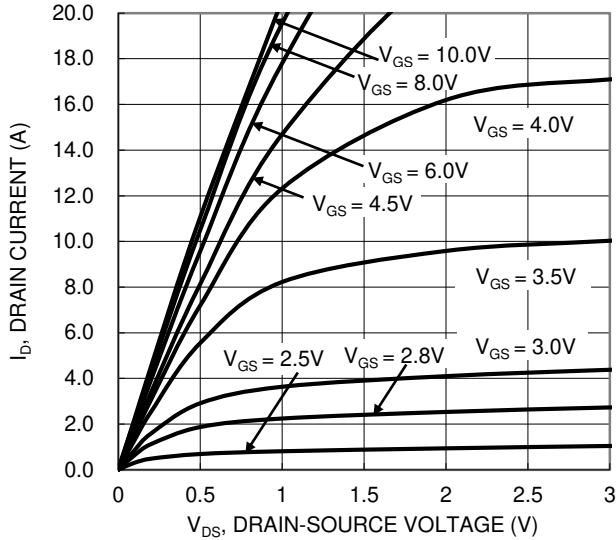


Figure 1. Typical Output Characteristic

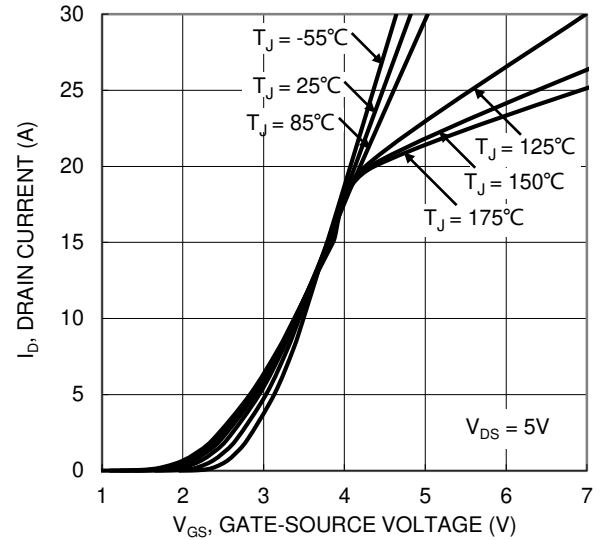


Figure 2. Typical Transfer Characteristic

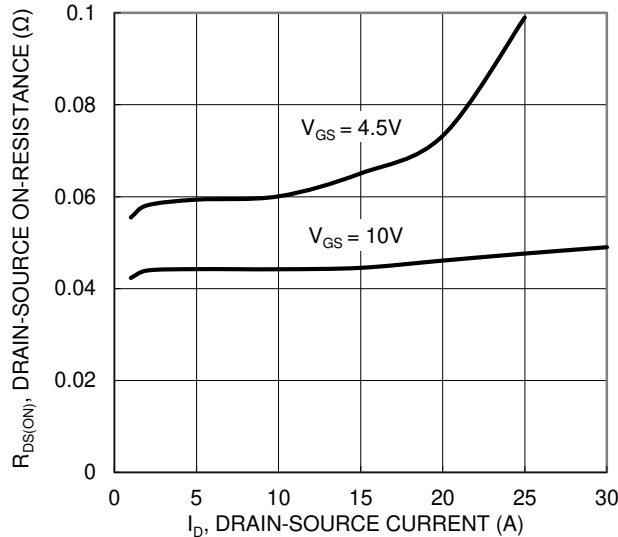


Figure 3. Typical On-Resistance vs. Drain Current and Gate Voltage

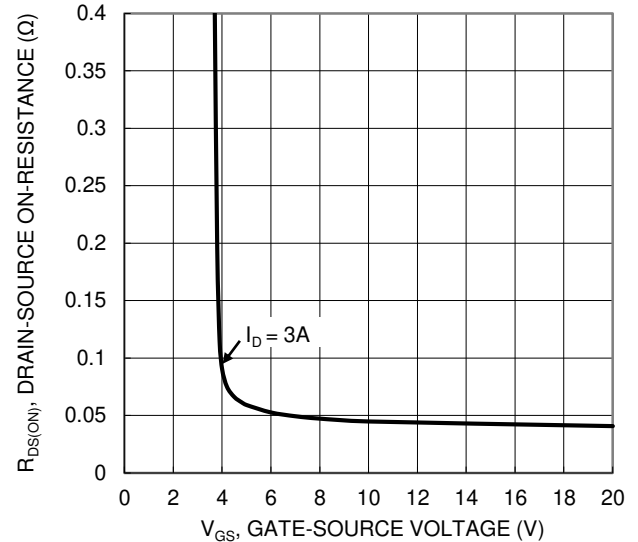


Figure 4. Typical Transfer Characteristic

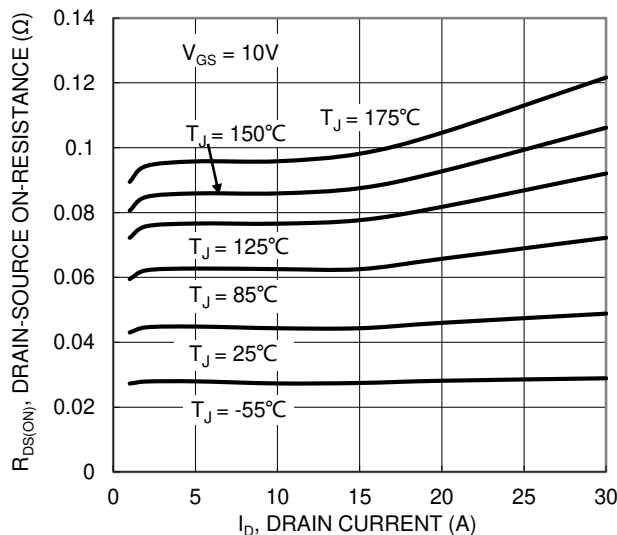


Figure 5. Typical On-Resistance vs. Drain Current and Junction Temperature

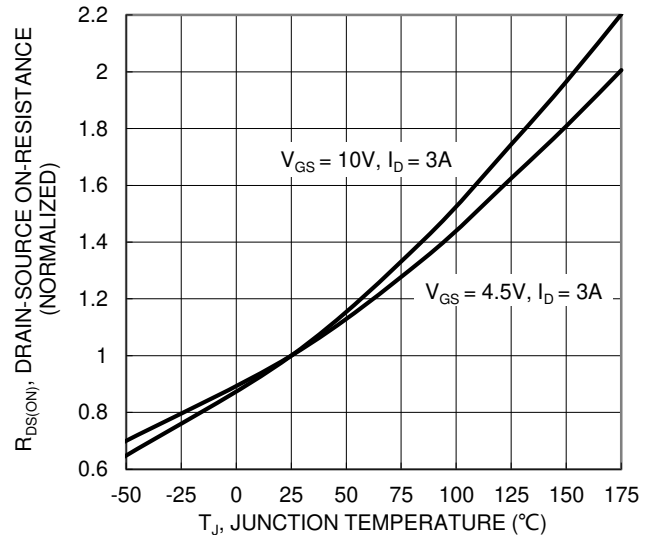
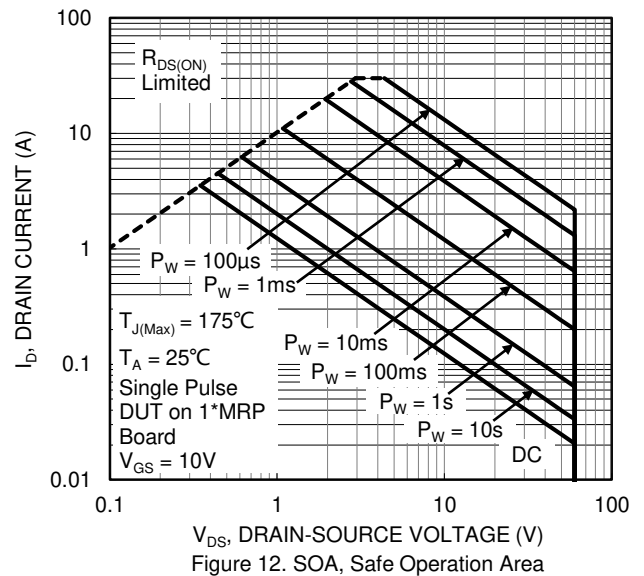
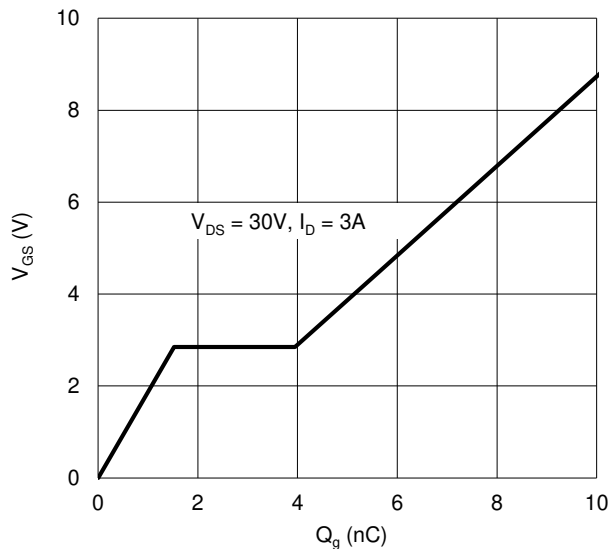
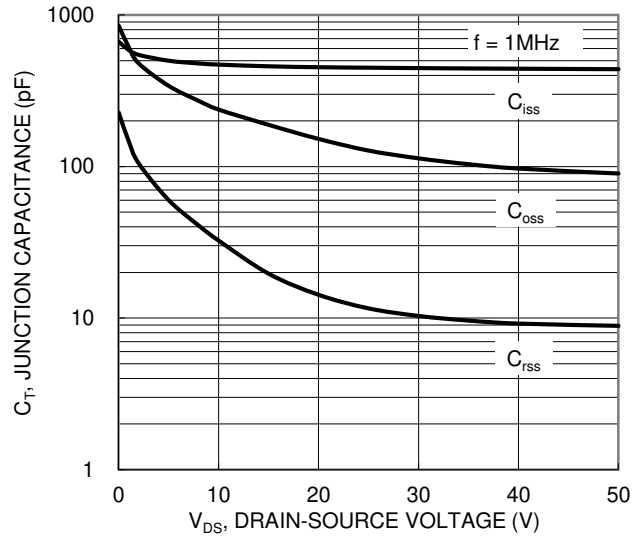
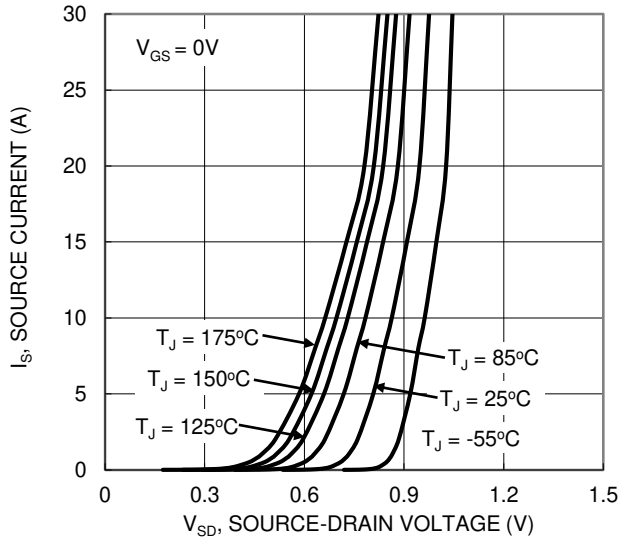
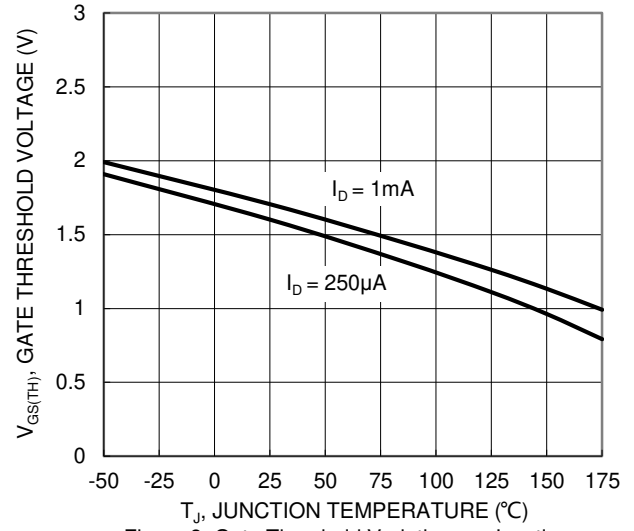
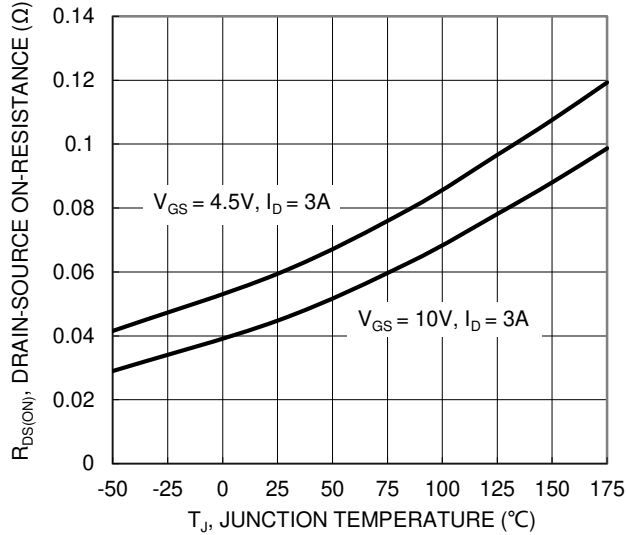


Figure 6. On-Resistance Variation with Temperature



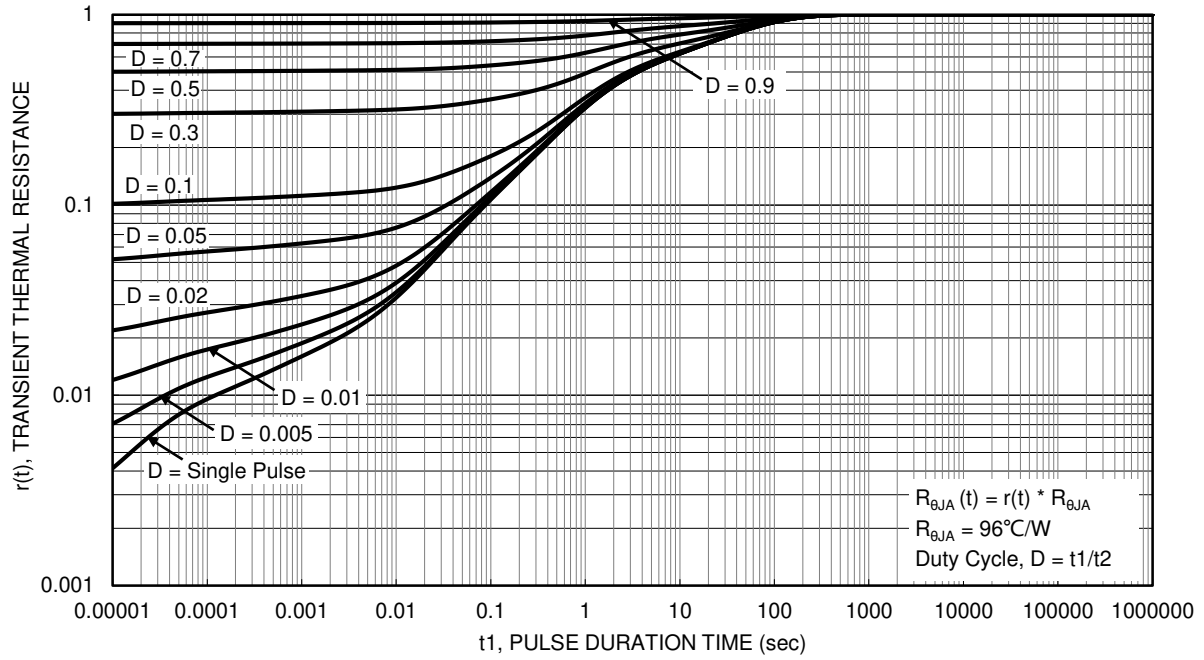
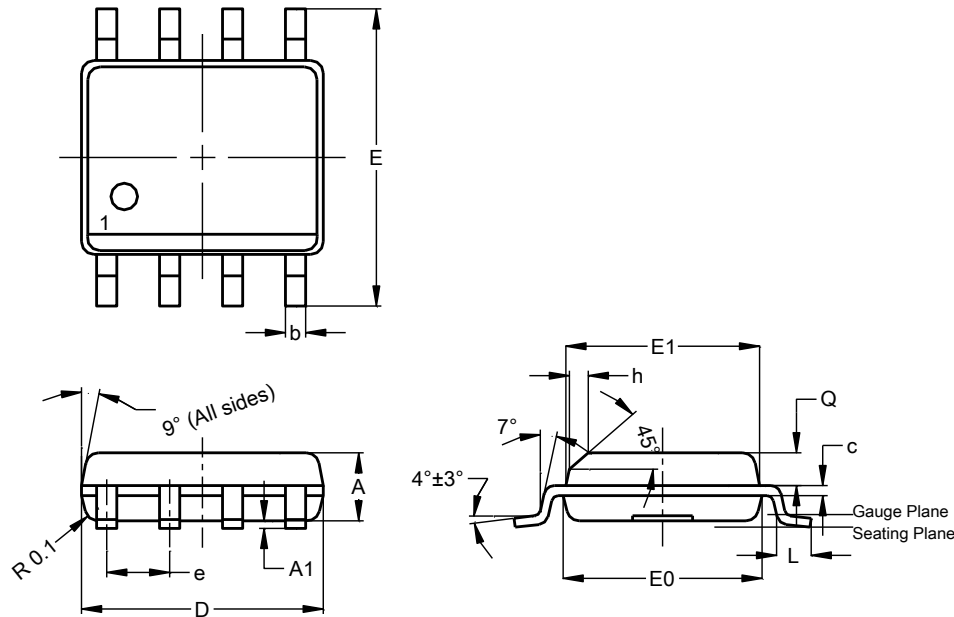


Figure 13. Transient Thermal Resistance

Package Outline Dimensions

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

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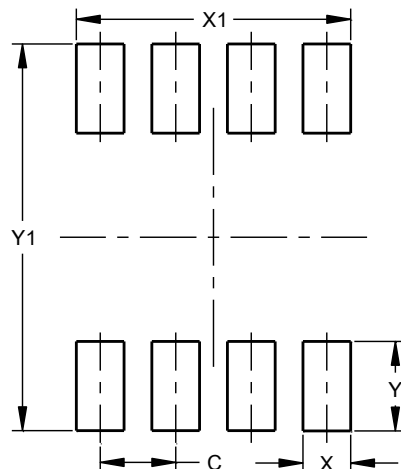
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Dim	Min	Max	Typ
A	1.40	1.50	1.45
A1	0.10	0.20	0.15
b	0.30	0.50	0.40
c	0.15	0.25	0.20
D	4.85	4.95	4.90
E	5.90	6.10	6.00
E1	3.80	3.90	3.85
E0	3.85	3.95	3.90
e	--	--	1.27
h	--	--	0.35
L	0.62	0.82	0.72
Q	0.60	0.70	0.65

All Dimensions in mm

Suggested Pad Layout

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

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Dimensions	Value (in mm)
C	1.27
X	0.802
X1	4.612
Y	1.505
Y1	6.50

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