

## Product Summary

BV <sub>DSS</sub>	R <sub>DS(ON)</sub> Max	I <sub>D</sub> Max T <sub>A</sub> = +25°C
80V	8mΩ @ V <sub>GS</sub> = 10V	13A
	9.5mΩ @ V <sub>GS</sub> = 6V	12A
	12mΩ @ V <sub>GS</sub> = 4.5V	11A

## Features and Benefits

- High Conversion Efficiency
- Low R<sub>DS(ON)</sub> – Minimizes On-State Losses
- Low Input Capacitance
- Fast Switching Speed
- 100% Unclamped Inductive Switching (UIS) Test in Production – Ensures More Reliable and Robust End Application
- **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-Q100/101/200, PPAP capable, and manufactured in IATF 16949 certified facilities), please [contact us](mailto:contact@diodes.com) or your local Diodes representative.  
<https://www.diodes.com/quality/product-definitions/>

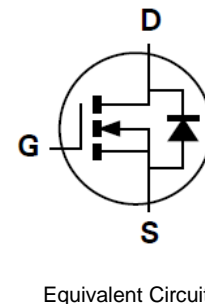
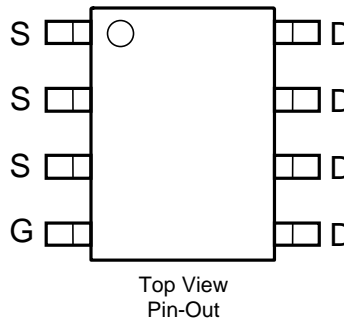
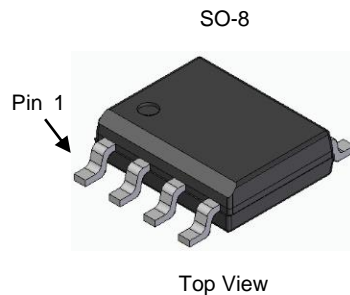
## Description and Applications

This MOSFET is designed to minimize the on-state resistance (R<sub>DS(ON)</sub>), yet maintain superior switching performance, making it ideal for high efficiency power management applications.

- High Frequency Switching
- Synchronous Rectification
- DC-DC Converters

## Mechanical Data

- Case: SO-8
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 3 per J-STD-020
- Terminal Finish – Matte Tin Annealed over Copper Leadframe. Solderable per MIL-STD-202, Method 208 @3
- Weight: 0.074 grams (Approximate)

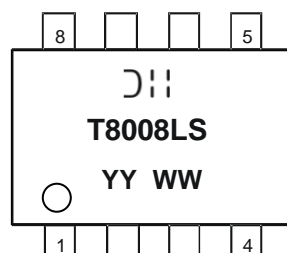


## Ordering Information (Note 4)

Part Number	Case	Packaging
DMT8008LSS-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



DII = Manufacturer's Marking  
T8008LS = Product Type Marking Code  
YYWW = Date Code Marking  
YY or YY = Year (ex: 19 = 2019)  
WW = Week (01 to 53)

**Maximum Ratings** (@T<sub>A</sub> = +25°C, unless otherwise specified.)

Characteristic	Symbol	Value	Unit
Drain-Source Voltage	V <sub>DSS</sub>	80	V
Gate-Source Voltage	V <sub>GSS</sub>	±20	V
Continuous Drain Current (Note 6) V <sub>GS</sub> = 10V	I <sub>D</sub>	13	A
		10	A
	I <sub>D</sub>	32	A
		26	A
Pulsed Drain Current (10µs Pulse, Duty Cycle = 1%)	I <sub>DM</sub>	110	A
Maximum Continuous Body Diode Forward Current (Note 6)	I <sub>S</sub>	10	A
Pulsed Body Diode Forward Current (10µs Pulse, Duty Cycle = 1%)	I <sub>SM</sub>	110	A
Avalanche Current, L = 0.3mH (Note 9)	I <sub>AS</sub>	27	A
Avalanche Energy, L = 0.3mH (Note 9)	E <sub>AS</sub>	109	mJ

**Thermal Characteristics** (@T<sub>A</sub> = +25°C, unless otherwise specified.)

Characteristic	Symbol	Value	Unit
Total Power Dissipation (Note 5)	P <sub>D</sub>	1.3	W
Thermal Resistance, Junction to Ambient (Note 5)	R <sub>θJA</sub>	94	°C/W
Total Power Dissipation (Note 6)	P <sub>D</sub>	2.2	W
Thermal Resistance, Junction to Ambient (Note 6)	R <sub>θJA</sub>	58	°C/W
Thermal Resistance, Junction to Case (Note 6)	R <sub>θJC</sub>	10	°C/W
Operating and Storage Temperature Range	T <sub>J</sub> , T <sub>STG</sub>	-55 to +150	°C

**Electrical Characteristics** (T<sub>A</sub> = +25°C, unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
<b>OFF CHARACTERISTICS</b> (Note 7)						
Drain-Source Breakdown Voltage	BV <sub>DSS</sub>	80	—	—	V	V <sub>GS</sub> = 0V, I <sub>D</sub> = 1mA
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	—	—	1	µA	V <sub>DS</sub> = 64V, V <sub>GS</sub> = 0V
Gate-Source Leakage	I <sub>GSS</sub>	—	—	±1	µA	V <sub>GS</sub> = ±20V, V <sub>DS</sub> = 0V
<b>ON CHARACTERISTICS</b> (Note 7)						
Gate Threshold Voltage	V <sub>GS(TH)</sub>	1.3	—	2.8	V	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = 250µA
Static Drain-Source On-Resistance	R <sub>DS(ON)</sub>	—	6	8	mΩ	V <sub>GS</sub> = 10V, I <sub>D</sub> = 10A
		—	7	9.5		V <sub>GS</sub> = 6V, I <sub>D</sub> = 10A
		—	8.3	12		V <sub>GS</sub> = 4.5V, I <sub>D</sub> = 6A
		—	—	—		V <sub>GS</sub> = 0V, I <sub>S</sub> = 20A
Diode Forward Voltage	V <sub>SD</sub>	—	0.8	1.2	V	V <sub>GS</sub> = 0V, I <sub>S</sub> = 20A
<b>DYNAMIC CHARACTERISTICS</b> (Note 8)						
Input Capacitance	C <sub>iss</sub>	—	2840	—	pF	V <sub>DS</sub> = 40V, V <sub>GS</sub> = 0V, f = 1MHz
Output Capacitance	C <sub>oss</sub>	—	797	—		
Reverse Transfer Capacitance	C <sub>rss</sub>	—	42	—		
Gate Resistance	R <sub>g</sub>	—	1.7	—	Ω	V <sub>DS</sub> = 0V, V <sub>GS</sub> = 0V, f = 1MHz
Total Gate Charge (V <sub>GS</sub> = 4.5V)	Q <sub>g</sub>	—	24	—	nC	V <sub>DD</sub> = 40V, I <sub>D</sub> = 2A
Total Gate Charge (V <sub>GS</sub> = 10V)	Q <sub>g</sub>	—	47	—		
Gate-Source Charge	Q <sub>gs</sub>	—	7	—		
Gate-Drain Charge	Q <sub>gd</sub>	—	11	—		
Turn-On Delay Time	t <sub>d(ON)</sub>	—	6	—	ns	V <sub>DD</sub> = 40V, V <sub>GS</sub> = 10V, I <sub>D</sub> = 2A, R <sub>g</sub> = 1.6Ω
Turn-On Rise Time	t <sub>r</sub>	—	6	—		
Turn-Off Delay Time	t <sub>d(OFF)</sub>	—	27	—		
Turn-Off Fall Time	t <sub>f</sub>	—	44	—		
Body Diode Reverse Recovery Time	t <sub>RR</sub>	—	43	—	ns	I <sub>F</sub> = 2A, di/dt = 100A/µs
Body Diode Reverse Recovery Charge	Q <sub>RR</sub>	—	59	—	nC	

- 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 1inch square copper plate.
  7. Short duration pulse test used to minimize self-heating effect.
  8. Guaranteed by design. Not subject to product testing.
  9. I<sub>AS</sub> and E<sub>AS</sub> ratings are based on low frequency and duty cycles to keep T<sub>J</sub> = +25°C.

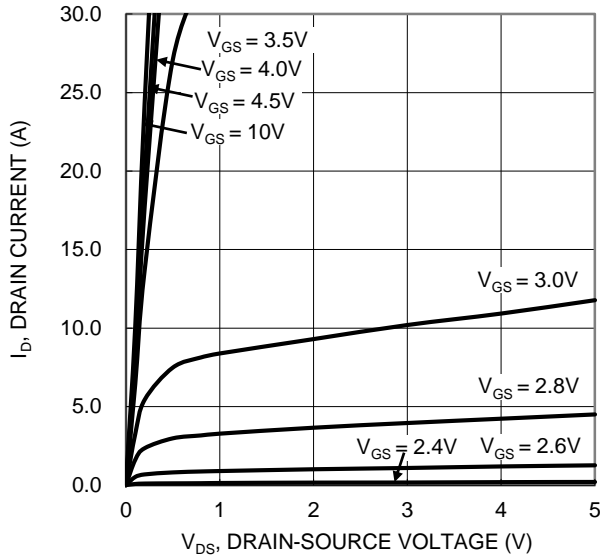


Figure 1. Typical Output Characteristic

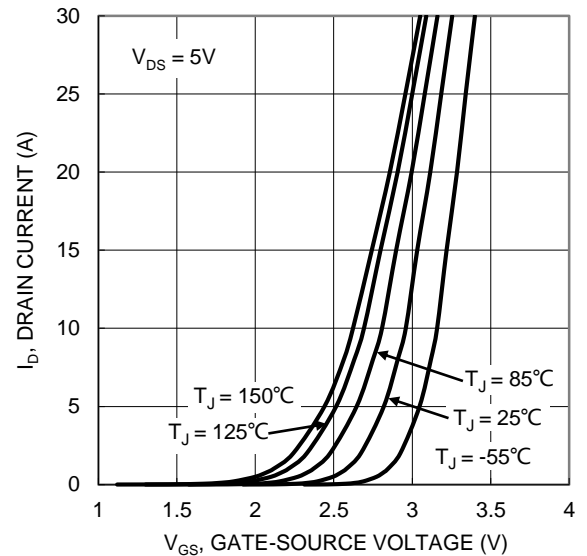


Figure 2. Typical Transfer Characteristic

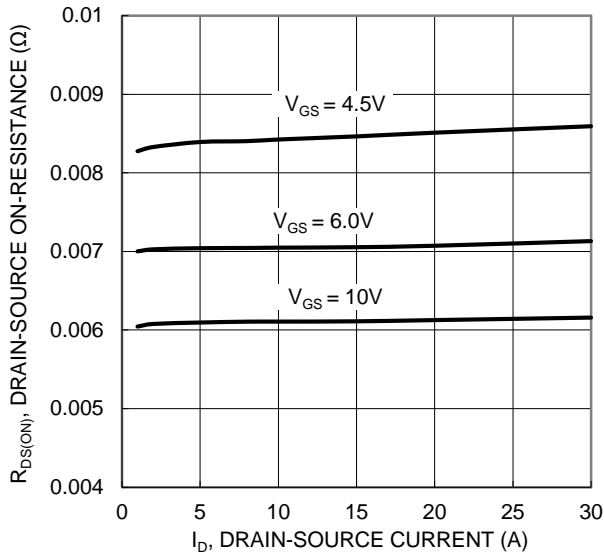


Figure 3. Typical On-Resistance vs. Drain Current and Gate Voltage

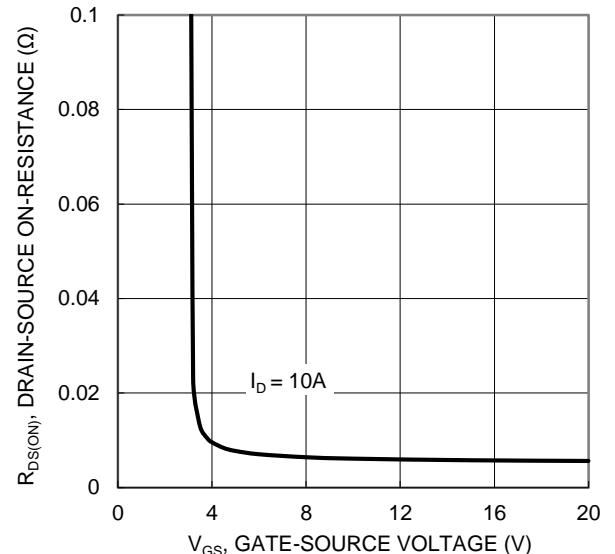


Figure 4. Typical Transfer Characteristic

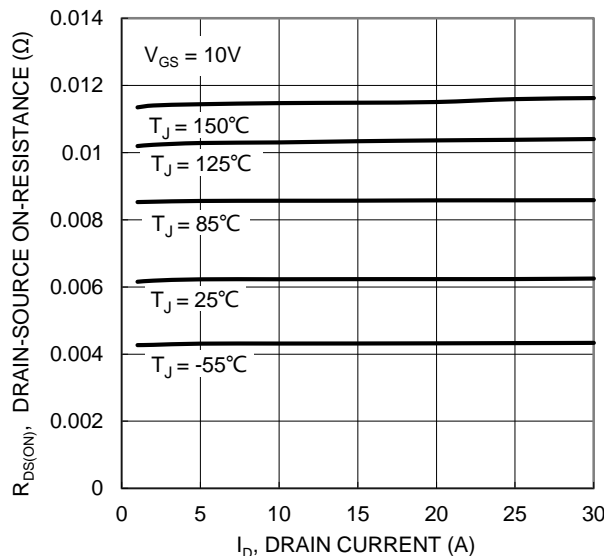


Figure 5. Typical On-Resistance vs. Drain Current and Junction Temperature

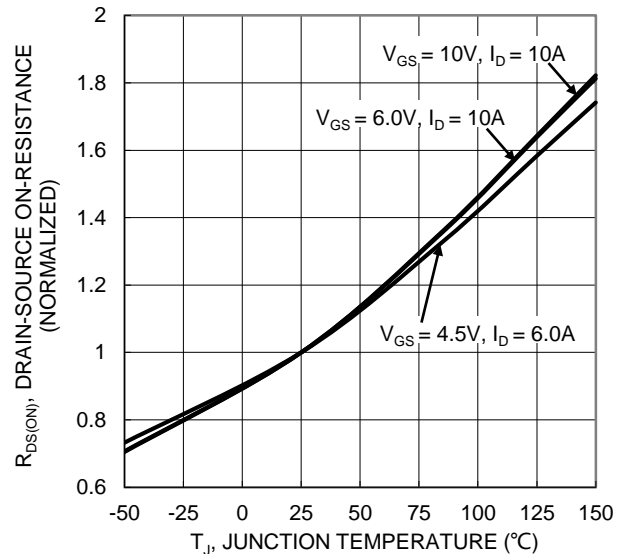
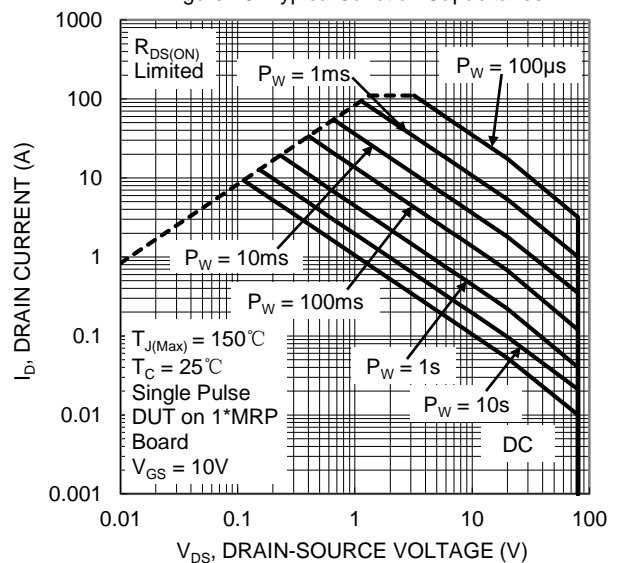
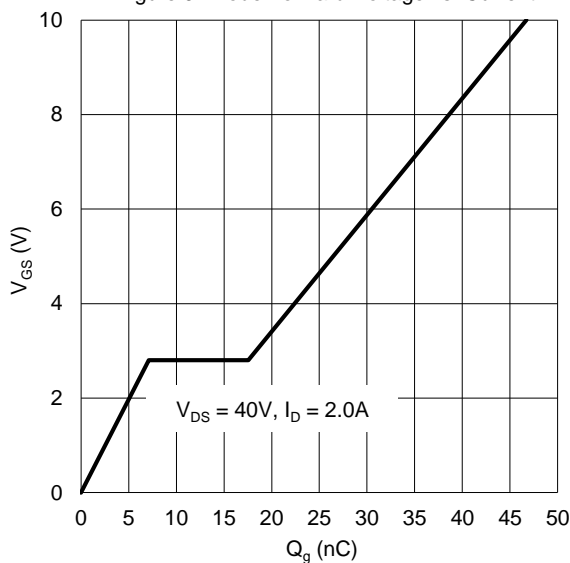
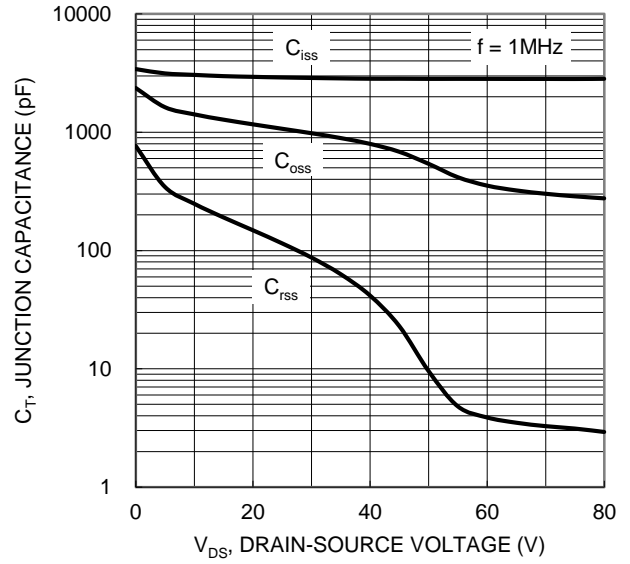
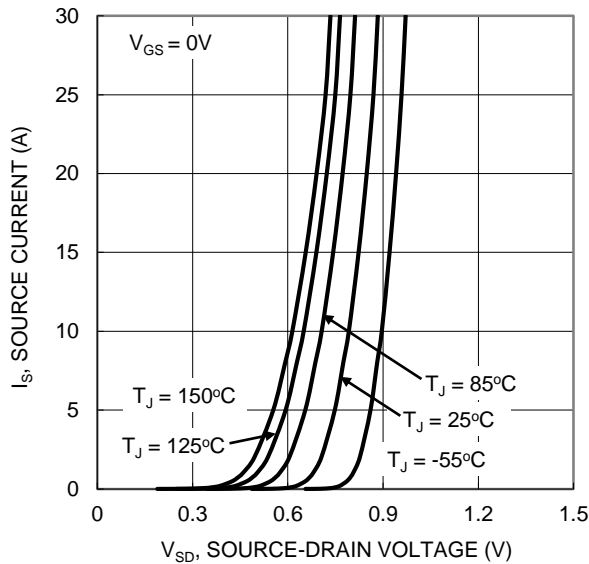
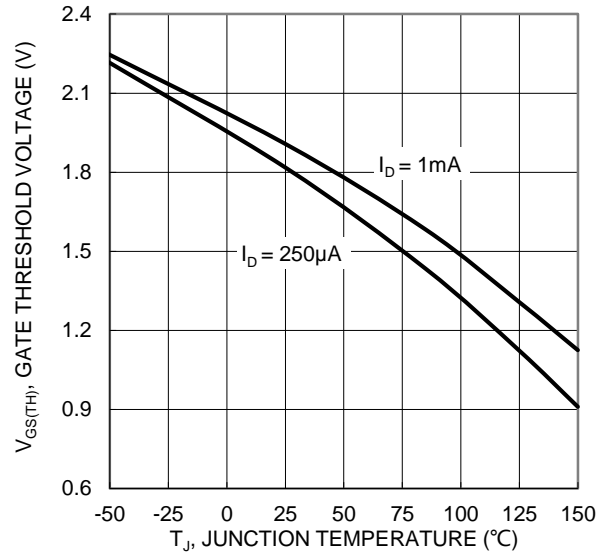
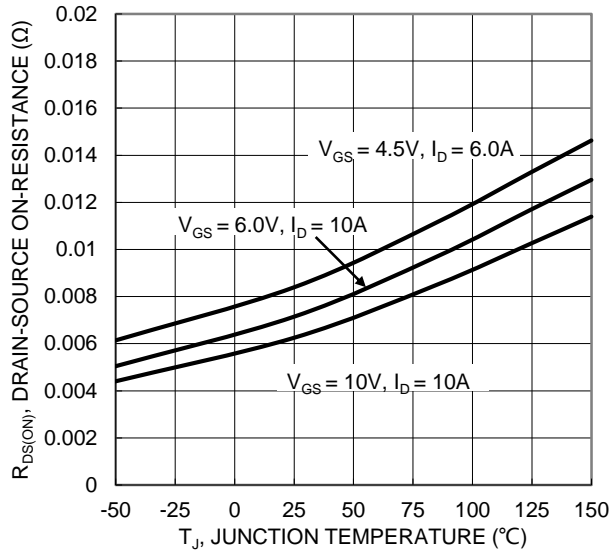


Figure 6. On-Resistance Variation with Junction Temperature



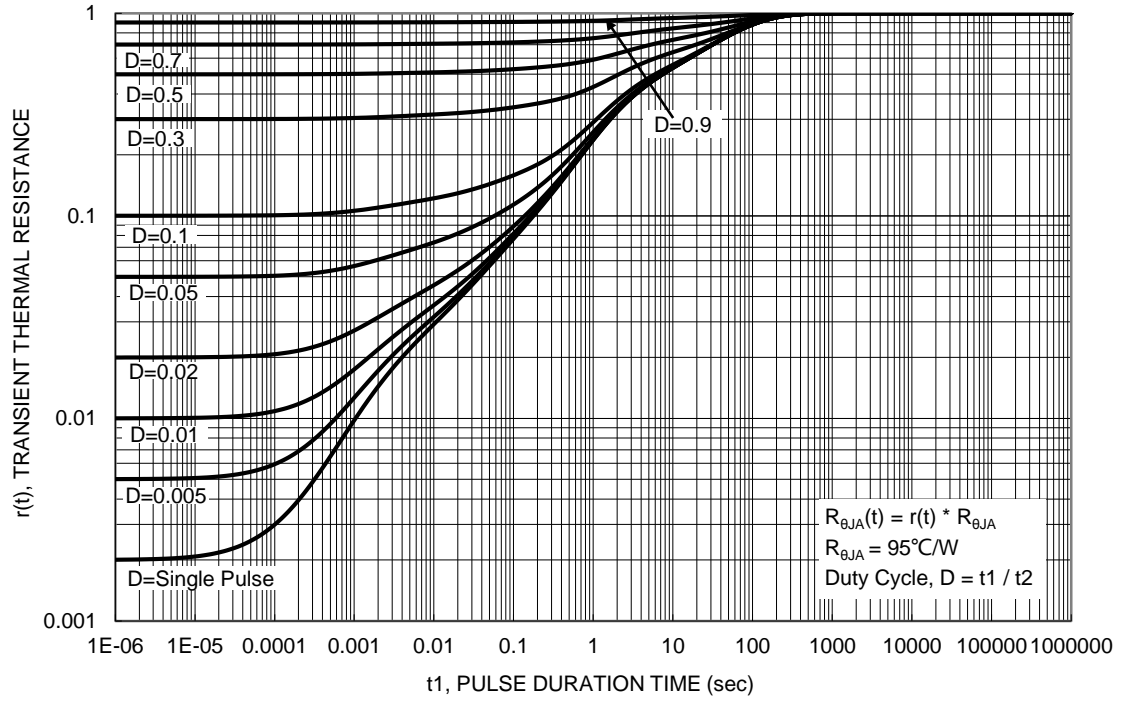
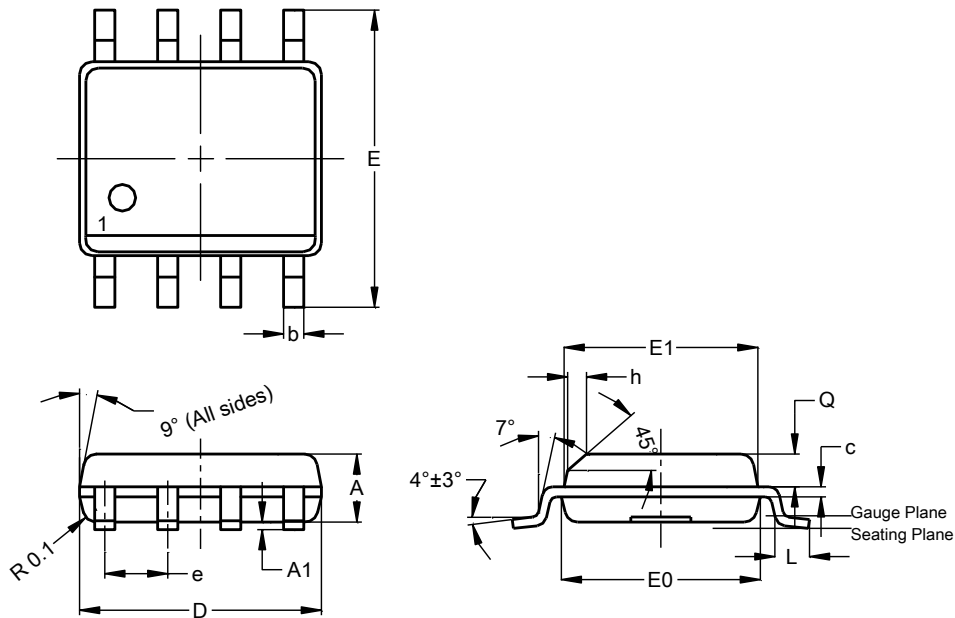


Figure 13. Transient Thermal Resistance

## Package Outline Dimensions

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

### SO-8



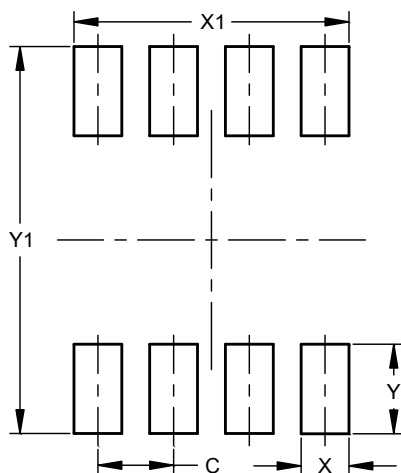
SO-8			
Dim	Min	Max	Typ
A	1.40	1.50	1.45
A1	0.10	0.20	0.15
b	0.30	0.50	0.40
c	0.15	0.25	0.20
D	4.85	4.95	4.90
E	5.90	6.10	6.00
E1	3.80	3.90	3.85
E0	3.85	3.95	3.90
e	--	--	1.27
h	-	--	0.35
L	0.62	0.82	0.72
Q	0.60	0.70	0.65

All Dimensions in mm

## Suggested Pad Layout

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

### SO-8



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

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