Product Summary

BV_{DSS}	$R_{DS(on)}$ Max	I_D Max T_A = +25°C
100V	32mΩ @ V_{GS} = 10V	5A
	49mΩ @ V_{GS} = 4.5V	4A

Features and Benefits

- High Conversion Efficiency
- Low $R_{DS(on)}$—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 or your local Diodes representative. https://www.diodes.com/quality/product-definitions/**

Description and Applications

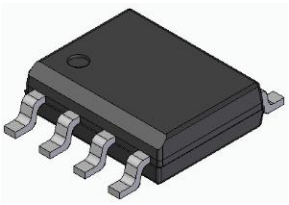
This MOSFET is designed to minimize the on-state resistance ($R_{DS(on)}$) yet maintain superior switching performance, making it ideal for high-efficiency power management applications.

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

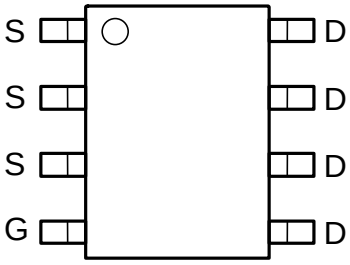
Mechanical Data

- Package: SO-8
- Package 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 e3
- Weight: 0.074 grams (Approximate)

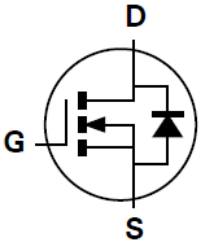
SO-8



Top View



Top View
Pin Configuration



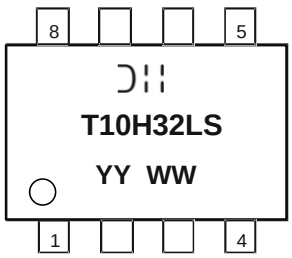
Equivalent Circuit

Ordering Information (Note 4)

Part Number	Package	Packing	
		Qty.	Carrier
DMT10H032LSS-13	SO-8	2500	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



⊃╎╎ = Manufacturer's Marking
T10H32LS = Product Type Marking Code
YYWW = Date Code Marking
YY or YY = Year (ex: 21 = 2021)
WW = Week (01 to 53)

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

Characteristic		Symbol	Value	Unit
Drain-Source Voltage		V_{DSS}	100	V
Gate-Source Voltage		V_{GSS}	±20	V
Continuous Drain Current (Note 6) V_{GS} = 10V	T_A = +25°C T_A = +70°C	I_D	5 4	A
Pulsed Drain Current (10µs Pulse, Duty Cycle = 1%)		I_{DM}	42	A
Maximum Continuous Body Diode Forward Current (Note 6)		I_S	25	A
Pulsed Body Diode Forward Current (10µs Pulse, Duty Cycle = 1%)		I_{SM}	42	A
Avalanche Current, L = 0.3mH		I_{AS}	13	A
Avalanche Energy, L = 0.3mH		E_{AS}	25.3	mJ

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

Characteristic	Symbol	Value	Unit
Total Power Dissipation (Note 5)	P_D	1.3	W
Thermal Resistance, Junction to Ambient (Note 5)	$R_{\Theta JA}$	100	°C/W
Total Power Dissipation (Note 6)	P_D	1.9	W
Thermal Resistance, Junction to Ambient (Note 6)	$R_{\Theta JA}$	60	°C/W
Thermal Resistance, Junction to Case (Note 6)	$R_{\Theta JC}$	11	°C/W
Operating and Storage Temperature Range	T_J, T_{STG}	-55 to +150	°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}	100	—	—	V	V_{GS} = 0V, I_D = 1mA
Zero Gate Voltage Drain Current	I_{DSS}	—	—	1	µA	V_{DS} = 80V, V_{GS} = 0V
Gate-Source Leakage	I_{GSS}	—	—	±100	nA	V_{GS} = ±20V, V_{DS} = 0V
ON CHARACTERISTICS (Note 7)						
Gate Threshold Voltage	$V_{GS(th)}$	1.3	—	2.5	V	V_{DS} = V_{GS}, I_D = 250µA
Static Drain-Source On-Resistance	$R_{DS(on)}$	—	23	32	mΩ	V_{GS} = 10V, I_D = 10A
		—	34	49		V_{GS} = 4.5V, I_D = 6A
Diode Forward Voltage	V_{SD}	—	0.8	1.0	V	V_{GS} = 0V, I_S = 6A
DYNAMIC CHARACTERISTICS (Note 8)						
Input Capacitance	C_{iss}	—	683	—	pF	V_{DS} = 50V, V_{GS} = 0V, f = 1MHz
Output Capacitance	C_{oss}	—	165	—	pF	
Reverse Transfer Capacitance	C_{rss}	—	6.9	—	pF	
Gate Resistance	R_g	—	1.2	—	Ω	V_{DS} = 0V, V_{GS} = 0V, f = 1MHz
Total Gate Charge (V_{GS} = 4.5V)	Q_g	—	6.3	—	nC	V_{DS} = 50V, I_D = 6A
Total Gate Charge (V_{GS} = 10V)	Q_g	—	11.9	—	nC	
Gate-Source Charge	Q_{gs}	—	2.0	—	nC	
Gate-Drain Charge	Q_{gd}	—	3.1	—	nC	
Turn-On Delay Time	$t_{D(on)}$	—	4.1	—	ns	V_{DS} = 50V, R_L = 5.85Ω, V_{GS} = 10V, R_{GEN} = 3Ω
Turn-On Rise Time	t_R	—	4.5	—	ns	
Turn-Off Delay Time	$t_{D(off)}$	—	12.5	—	ns	
Turn-Off Fall Time	t_F	—	9.3	—	ns	
Reverse Recovery Time	t_{RR}	—	31.5	—	ns	I_F = 6A, di/dt = 500A/µs
Reverse Recovery Charge	Q_{RR}	—	94.6	—	nC	

Notes:
5. Device mounted on FR-4 substrate PCB, 2oz copper, with minimum recommended pad layout.
6. Device mounted on FR-4 substrate PCB, 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.

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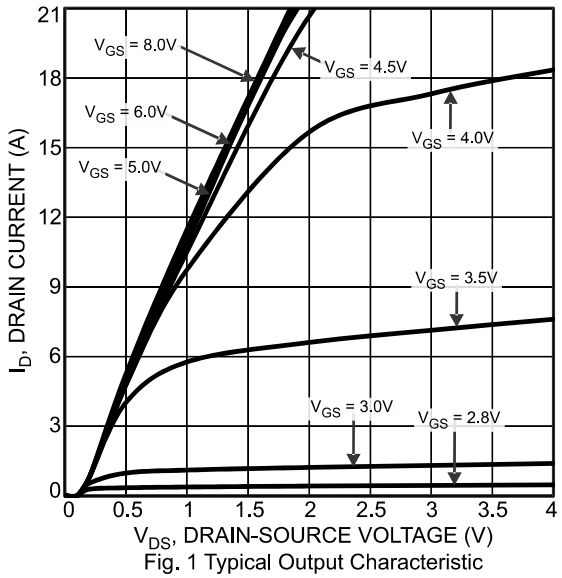


Fig. 1 Typical Output Characteristic

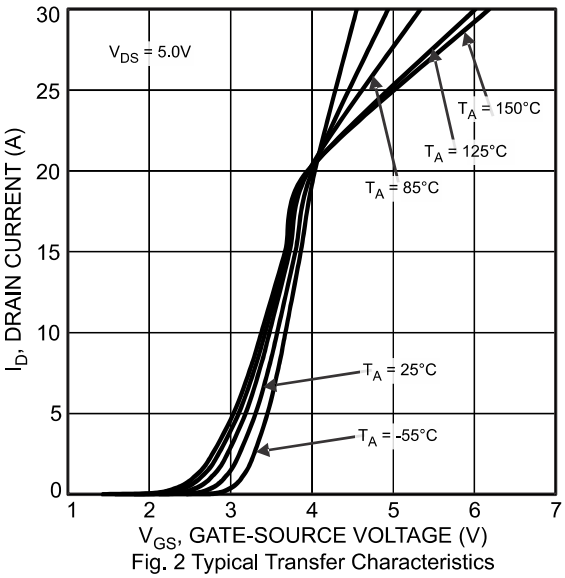


Fig. 2 Typical Transfer Characteristics

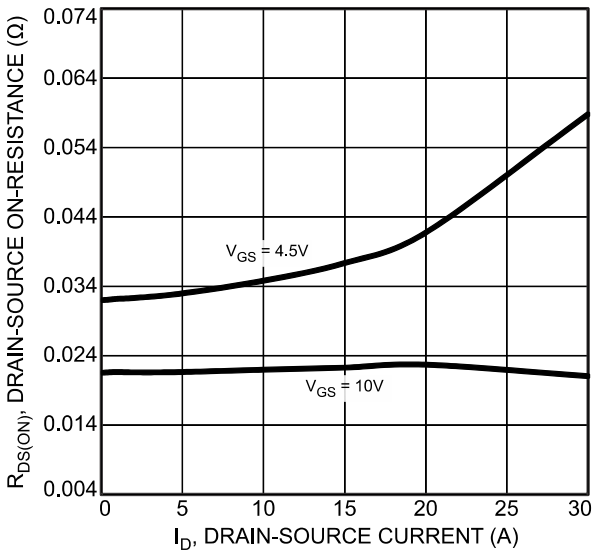


Fig. 3 Typical On-Resistance vs. Drain Current and Gate Voltage

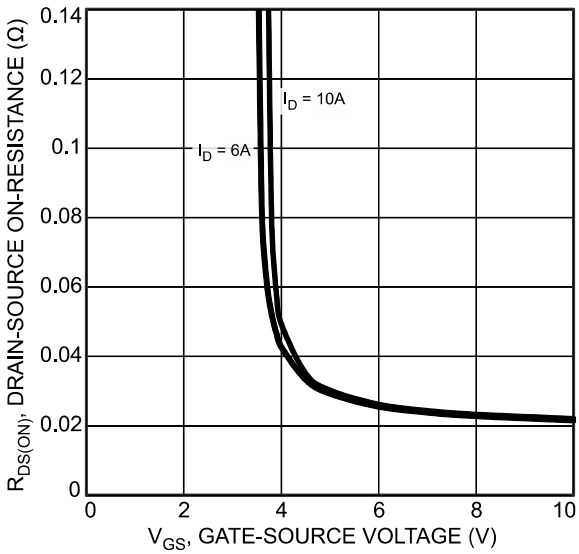


Fig. 4 Typical Drain-Source On-Resistance vs. Gate-Source Voltage

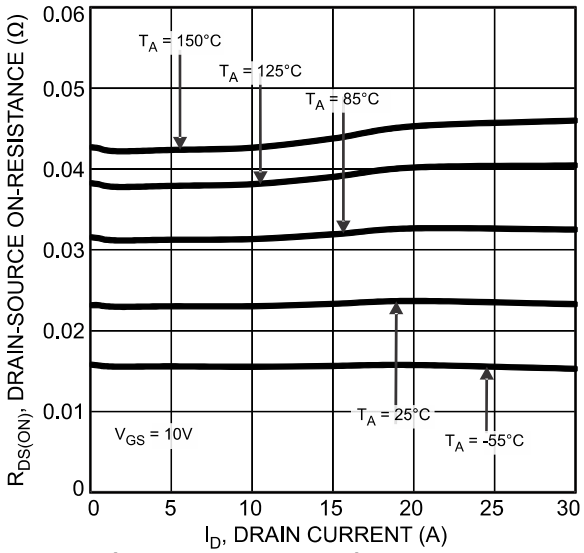


Fig. 5 Typical On-Resistance vs. Drain Current and Junction Temperature

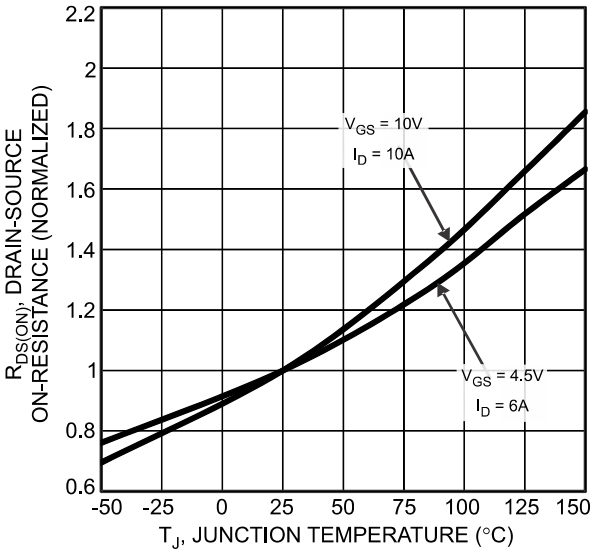


Fig. 6 On-Resistance Variation with Junction Temperature

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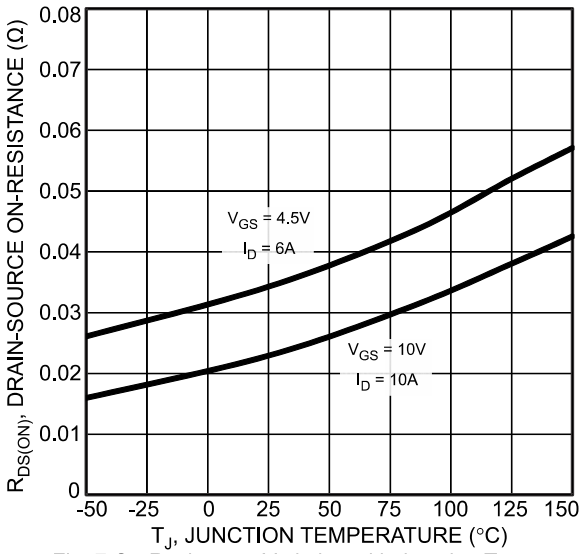


Fig. 7 On-Resistance Variation with Junction Temperature

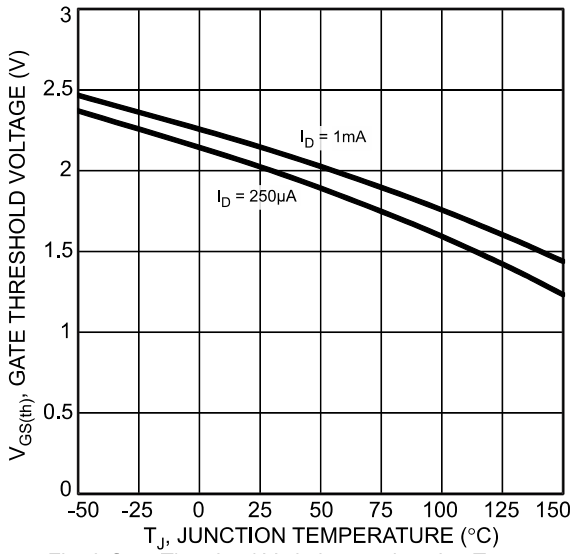


Fig. 8 Gate Threshold Variation vs. Junction Temperature

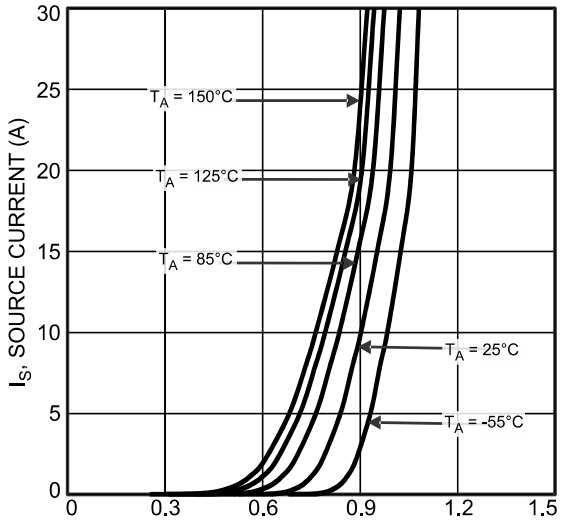


Fig. 9 Diode Forward Voltage vs. Current

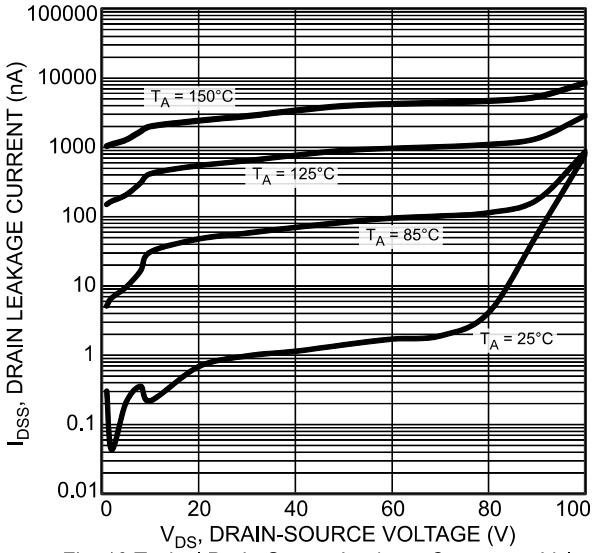


Fig. 10 Typical Drain-Source Leakage Current vs. Voltage

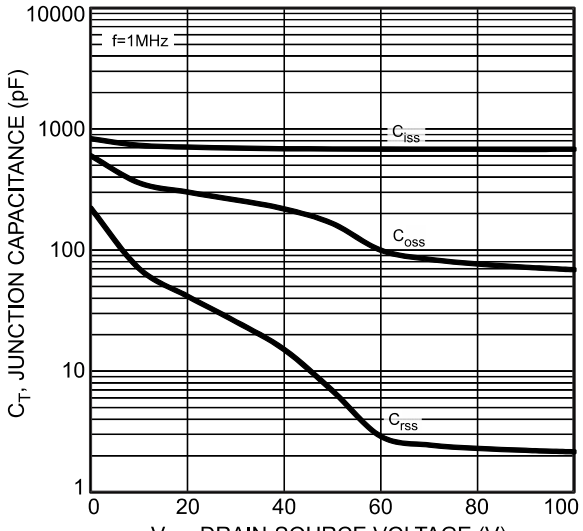


Fig. 10 Typical Junction Capacitance

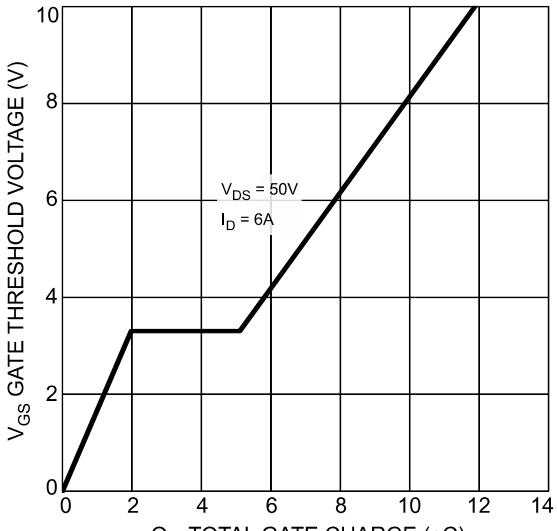


Fig. 12 Gate Charge

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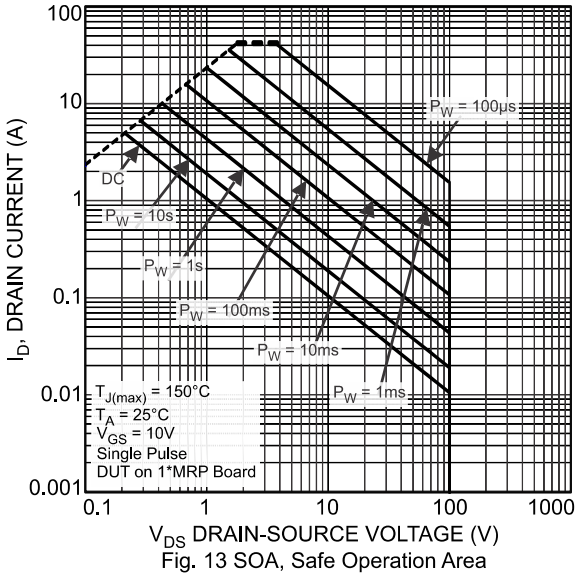


Fig. 13 SOA, Safe Operation Area

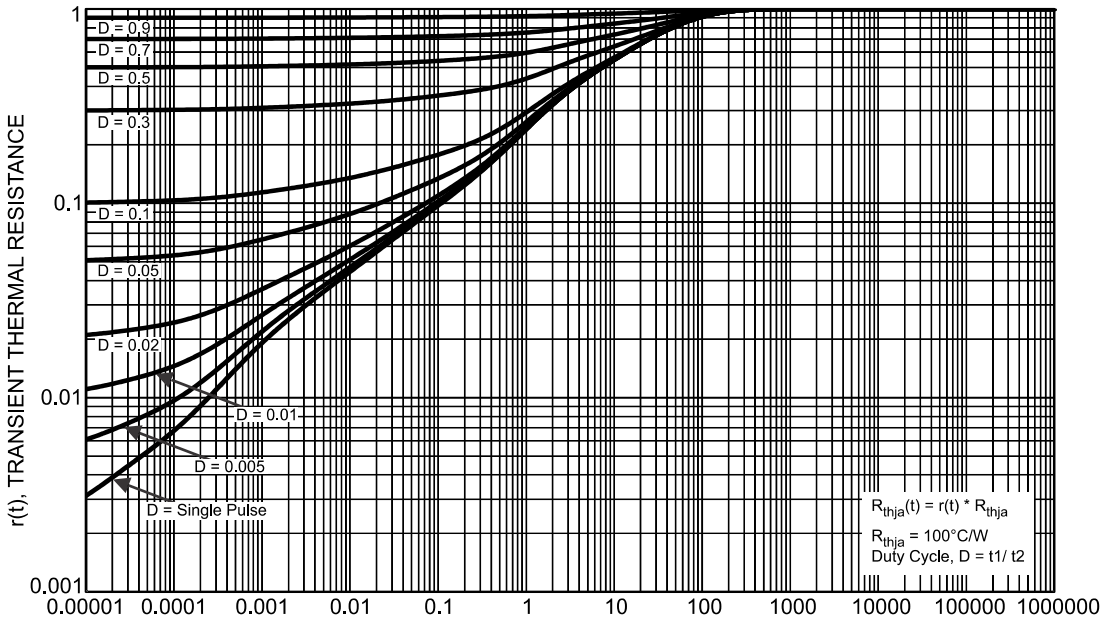


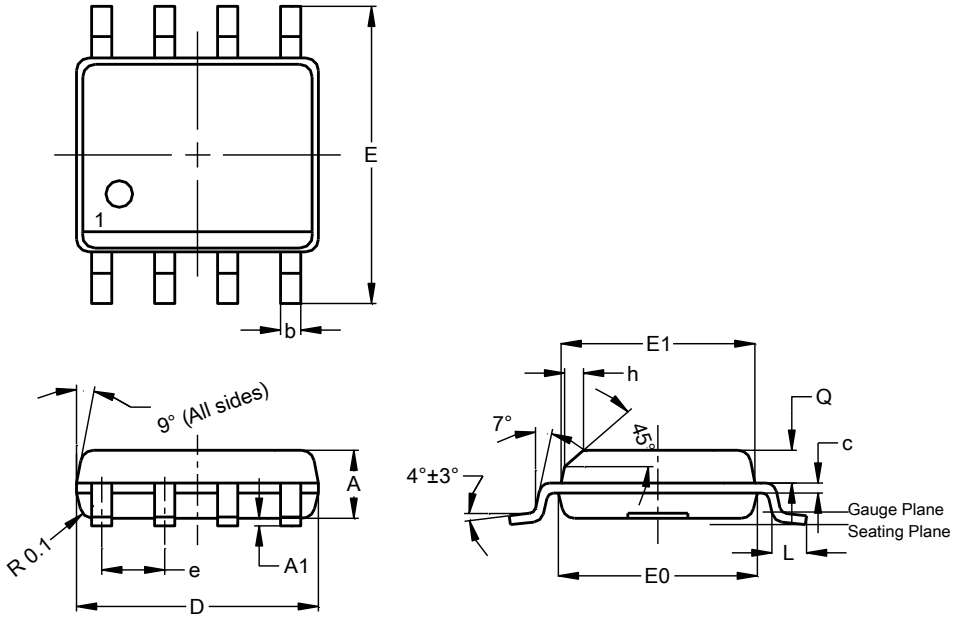
Fig. 14 Transient Thermal Resistance

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Package Outline Dimensions

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

SO-8

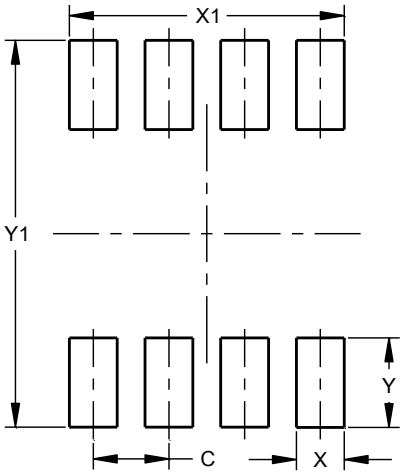


SO-8			
Dim	**Min**	**Max**	**Typ**
A	1.40	1.50	1.45
A1	0.10	0.20	0.15
b	0.30	0.50	0.40
c	0.15	0.25	0.20
D	4.85	4.95	4.90
E	5.90	6.10	6.00
E1	3.80	3.90	3.85
E0	3.85	3.95	3.90
e	--	--	1.27
h	--	--	0.35
L	0.62	0.82	0.72
Q	0.60	0.70	0.65
All Dimensions in mm			

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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