

Product Summary

BV_{DSS}	$R_{DS(ON)} \text{ Max}$	$I_D \text{ max}$ $T_A = +25^\circ\text{C}$
100V	25m Ω @ $V_{GS} = 10\text{V}$	7.1A
	33m Ω @ $V_{GS} = 6\text{V}$	6.2A
	45m Ω @ $V_{GS} = 4.5\text{V}$	5.3A

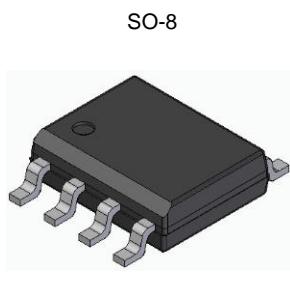
Features and Benefits

- 100% Unclamped Inductive Switching – Ensures More Reliable and Robust End Application
- High Conversion Efficiency
- Low $R_{DS(ON)}$ – Minimizes On-State Losses
- Low Input Capacitance
- Fast Switching Speed
- 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/>

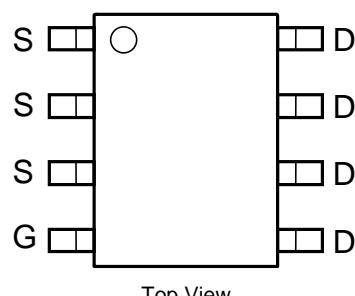
Description and Applications

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.

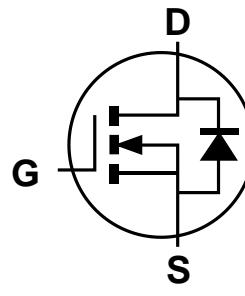
- High Frequency Switching
- Synchronous Rectification
- DC-DC Converters



Top View



Top View
Pin-Out



Equivalent Circuit

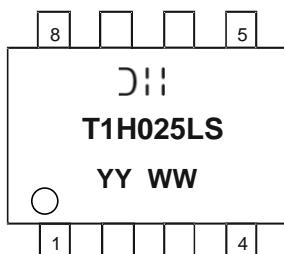
Ordering Information (Note 4)

Part Number	Case	Packaging
DMT10H025LSS-13	SO-8	2,500/Tape & Reel

Notes:

- No purposely added lead. Fully EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant.
- 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.
- Halogen- and Antimony-free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
- For packaging details, go to our website at <https://www.diodes.com/design/support/packaging/diodes-packaging/>.

Marking Information



DII = Manufacturer's Marking
T1H025LS = Product Type Marking Code
YYWW = Date Code Marking
YY or YY = Year (ex: 19 = 2019)
WW = Week (01 to 53)

Maximum Ratings (@ $T_A = +25^\circ\text{C}$, 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) $V_{GS} = 10\text{V}$	$T_A = +25^\circ\text{C}$ $T_A = +70^\circ\text{C}$	I_D	7.1 5.7	A
Pulsed Drain Current (10 μs Pulse, Duty Cycle = 1%)		I_{DM}	60	A
Maximum Continuous Body Diode Forward Current (Note 6)		I_S	10.5	A
Pulsed Body Diode Forward Current (10 μs Pulse, Duty Cycle = 1%)		I_{SM}	60	A
Avalanche Current, $L = 0.3\text{mH}$		I_{AS}	8.8	A
Avalanche Energy, $L = 0.3\text{mH}$		E_{AS}	11.5	mJ

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

Characteristic		Symbol	Value	Unit
Total Power Dissipation (Note 5)	$T_A = +25^\circ\text{C}$	P_D	1.3	W
Thermal Resistance, Junction to Ambient (Note 5)		$R_{\theta JA}$	93	$^\circ\text{C/W}$
Total Power Dissipation (Note 6)	$T_A = +25^\circ\text{C}$	P_D	1.9	W
Thermal Resistance, Junction to Ambient (Note 6)		$R_{\theta JA}$	65.7	$^\circ\text{C/W}$
Total Power Dissipation (Note 6)	$T_c = +25^\circ\text{C}$	P_D	12.9	W
Thermal Resistance, Junction to Case (Note 6)		$R_{\theta JC}$	9.7	$^\circ\text{C/W}$
Operating and Storage Temperature Range		T_J, T_{STG}	-55 to +150	$^\circ\text{C}$

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

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
OFF CHARACTERISTICS (Note 7)						
Drain-Source Breakdown Voltage	BV_{DSS}	100	—	—	V	$V_{GS} = 0\text{V}, I_D = 1\text{mA}$
Zero Gate Voltage Drain Current	I_{DSS}	—	—	1	μA	$V_{DS} = 80\text{V}, V_{GS} = 0\text{V}$
Gate-Source Leakage	I_{GSS}	—	—	± 100	nA	$V_{GS} = \pm 20\text{V}, V_{DS} = 0\text{V}$
ON CHARACTERISTICS (Note 7)						
Gate Threshold Voltage	$V_{GS(TH)}$	1	—	3	V	$V_{DS} = V_{GS}, I_D = 250\mu\text{A}$
Static Drain-Source On-Resistance	$R_{DS(ON)}$	—	19	25	$\text{m}\Omega$	$V_{GS} = 10\text{V}, I_D = 20\text{A}$
		—	22.1	33		$V_{GS} = 6\text{V}, I_D = 12.5\text{A}$
		—	34	45		$V_{GS} = 4.5\text{V}, I_D = 12.5\text{A}$
Diode Forward Voltage	V_{SD}	—	0.9	1.2	V	$V_{GS} = 0\text{V}, I_S = 20\text{A}$
DYNAMIC CHARACTERISTICS (Note 8)						
Input Capacitance	C_{iss}	—	1639	—	pF	$V_{DS} = 50\text{V}, V_{GS} = 0\text{V}, f = 1\text{MHz}$
Output Capacitance	C_{oss}	—	245	—		
Reverse Transfer Capacitance	C_{rss}	—	13	—		
Gate Resistance	R_g	—	1.16	—	Ω	$V_{DS} = 0\text{V}, V_{GS} = 0\text{V}, f = 1\text{MHz}$
Total Gate Charge ($V_{GS} = 10\text{V}$)	Q_g	—	22.9	—		
Total Gate Charge ($V_{GS} = 6\text{V}$)	Q_g	—	14.5	—		
Gate-Source Charge	Q_{gs}	—	5.6	—	nC	$V_{DD} = 50\text{V}, I_D = 20\text{A}$
Gate-Drain Charge	Q_{gd}	—	6.5	—		
Turn-On Delay Time	$t_{D(ON)}$	—	6.7	—		
Turn-On Rise Time	t_R	—	7	—	ns	$V_{DD} = 50\text{V}, V_{GS} = 10\text{V}, I_D = 20\text{A}, R_g = 11\Omega$
Turn-Off Delay Time	$t_{D(OFF)}$	—	15.5	—		
Turn-Off Fall Time	t_F	—	6.9	—		
Body Diode Reverse Recovery Time	t_{RR}	—	38.2	—	ns	$I_F = 20\text{A}, di/dt = 100\text{A}/\mu\text{s}$
Body Diode Reverse Recovery Charge	Q_{RR}	—	59.5	—		

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.

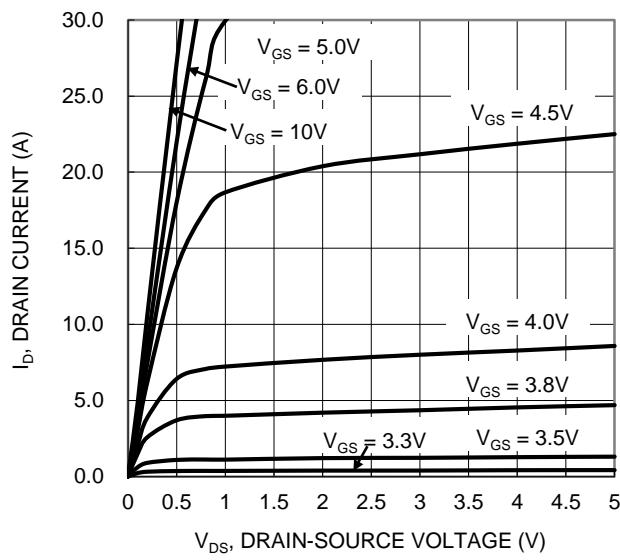


Figure 1. Typical Output Characteristic

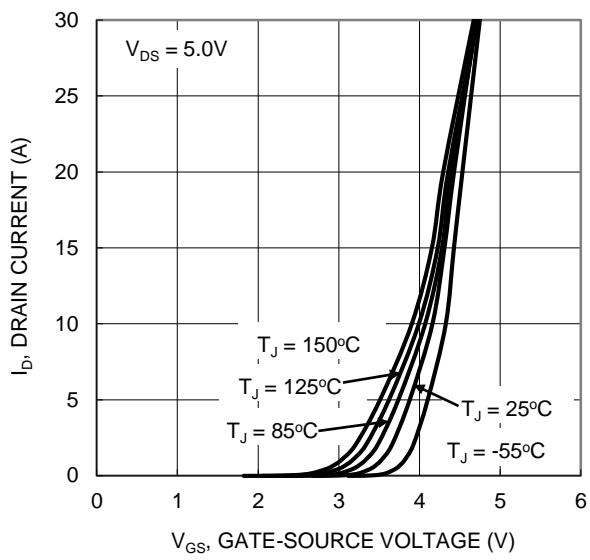


Figure 2. Typical Transfer Characteristic

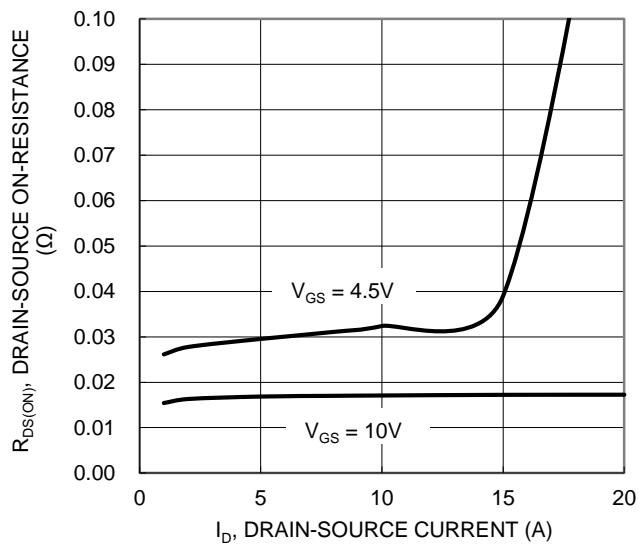


Figure 3. Typical On-Resistance vs. Drain Current and Gate Voltage

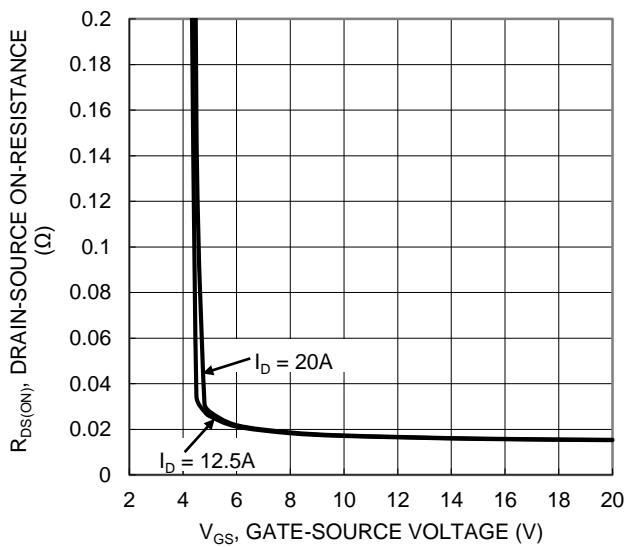


Figure 4. Typical Transfer Characteristic

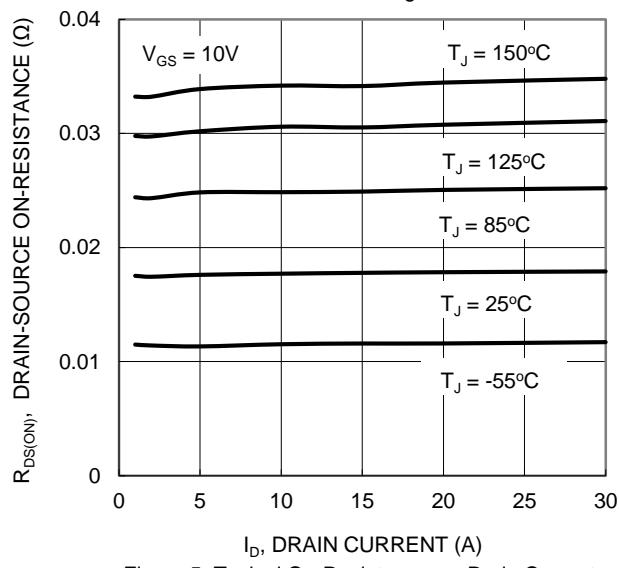


Figure 5. Typical On-Resistance vs. Drain Current and Temperature

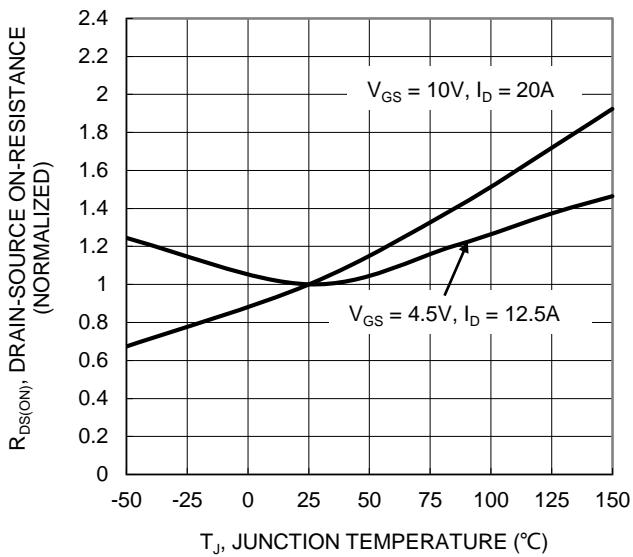
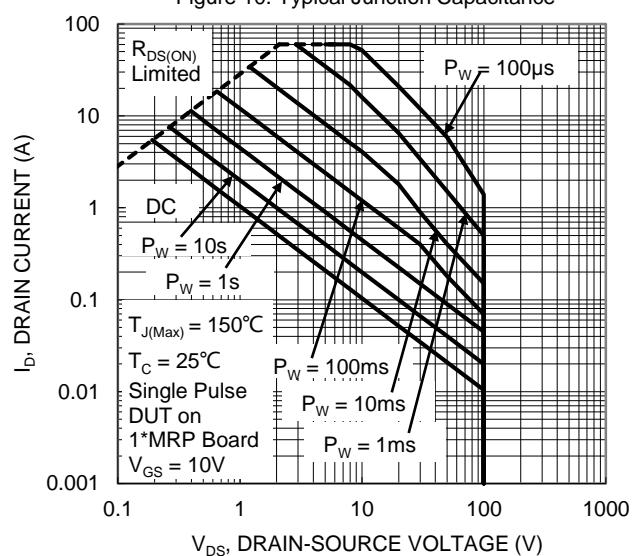
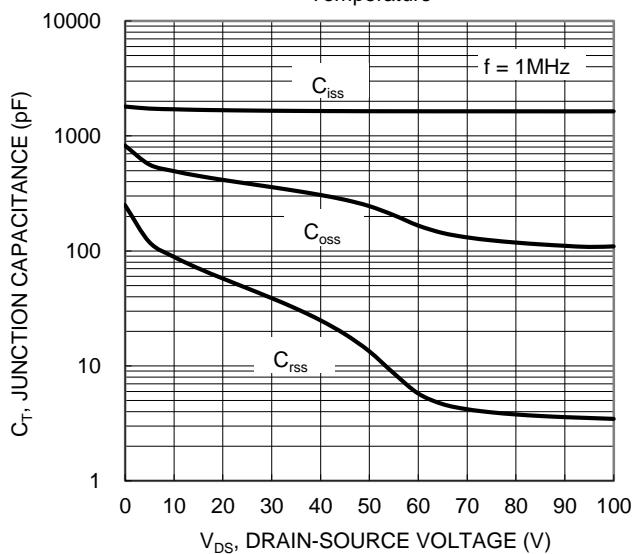
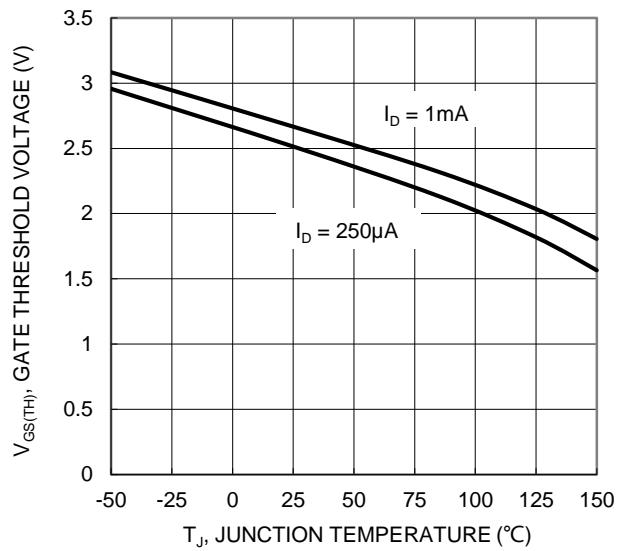
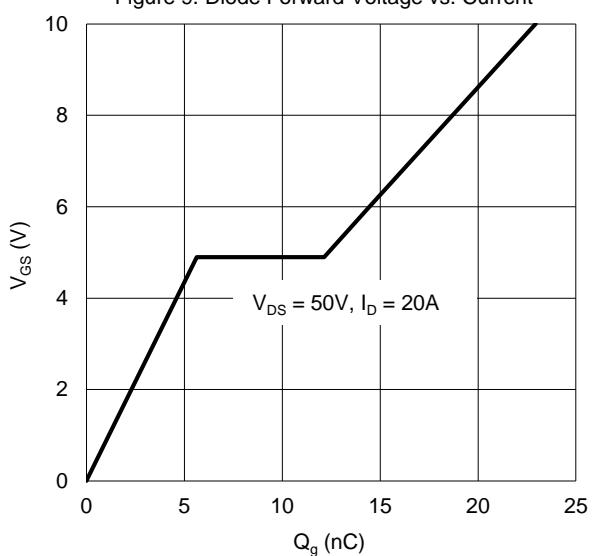
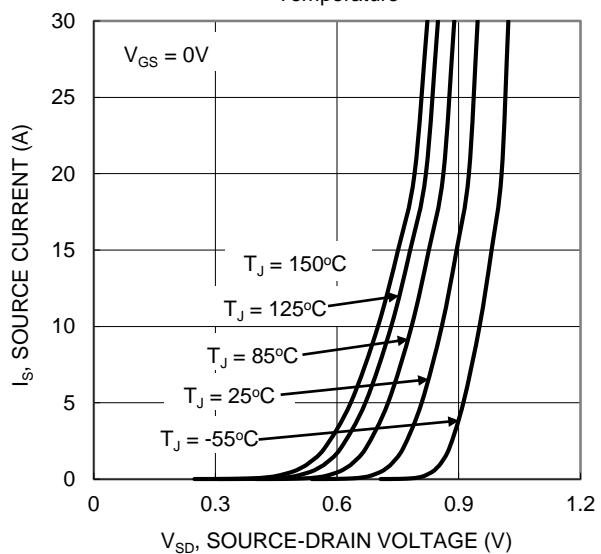
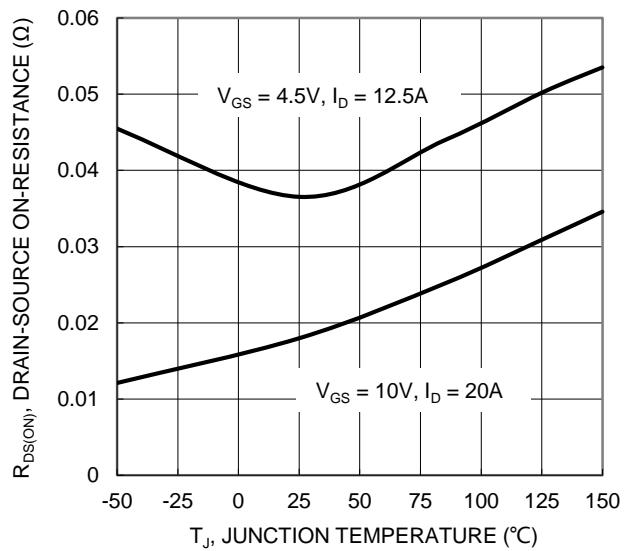


Figure 6. On-Resistance Variation with Temperature



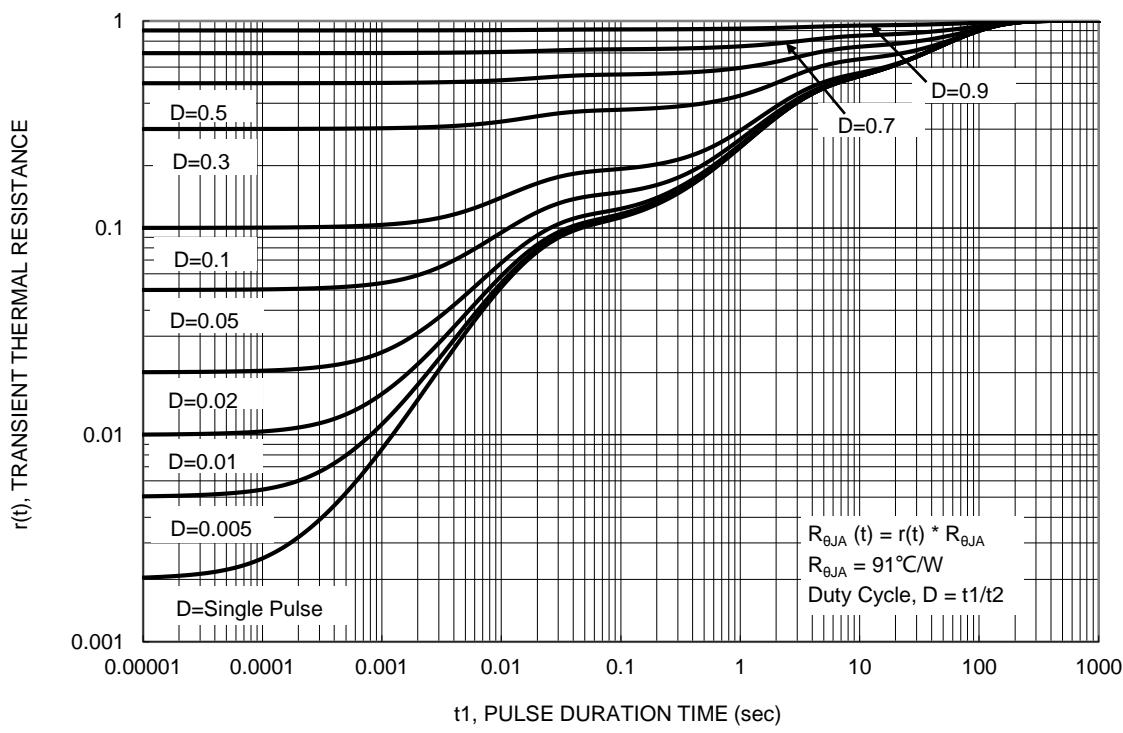
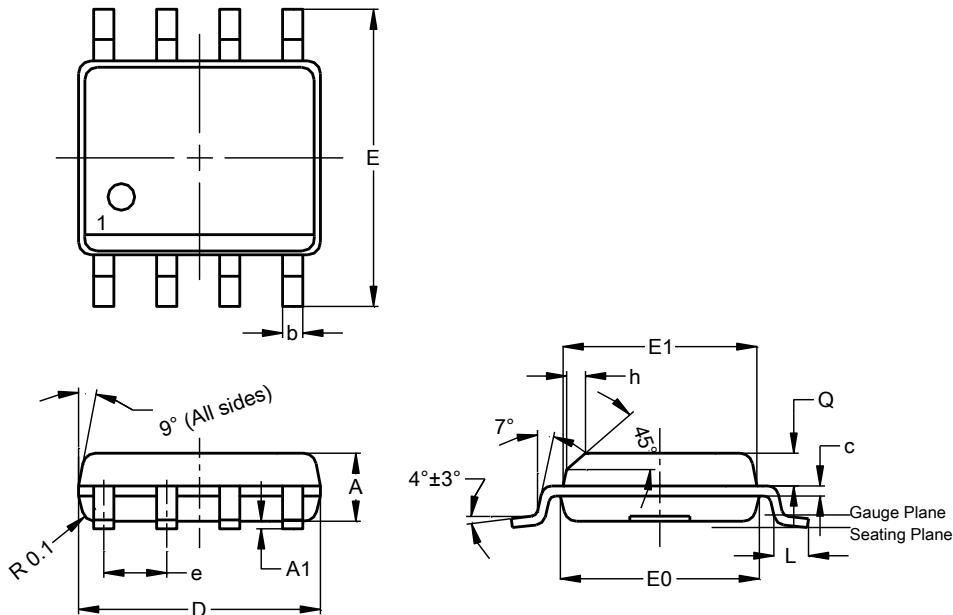


Figure 13. Transient Thermal Resistance

Package Outline Dimensions

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

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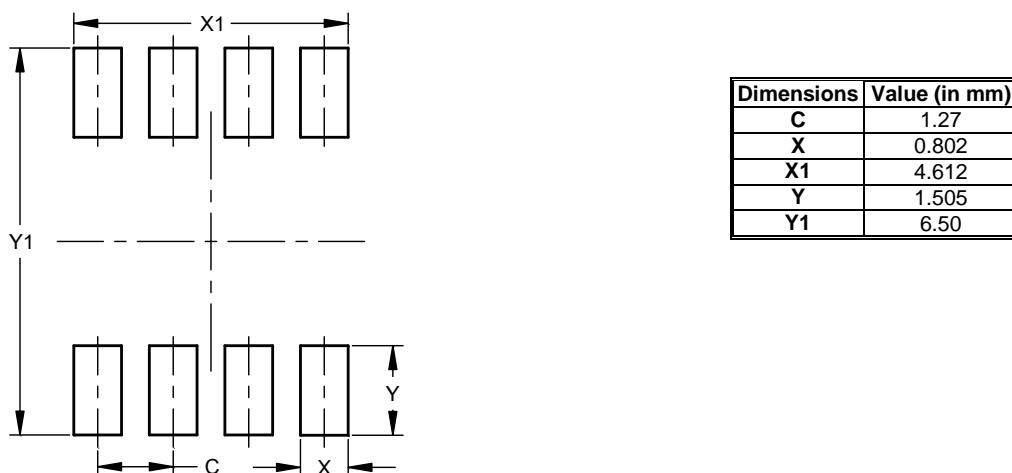
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Dim	Min	Max	Typ
A	1.40	1.50	1.45
A1	0.10	0.20	0.15
b	0.30	0.50	0.40
c	0.15	0.25	0.20
D	4.85	4.95	4.90
E	5.90	6.10	6.00
E1	3.80	3.90	3.85
E0	3.85	3.95	3.90
e	--	--	1.27
h	--	--	0.35
L	0.62	0.82	0.72
Q	0.60	0.70	0.65

All Dimensions in mm

Suggested Pad Layout

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

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