

## Product Summary

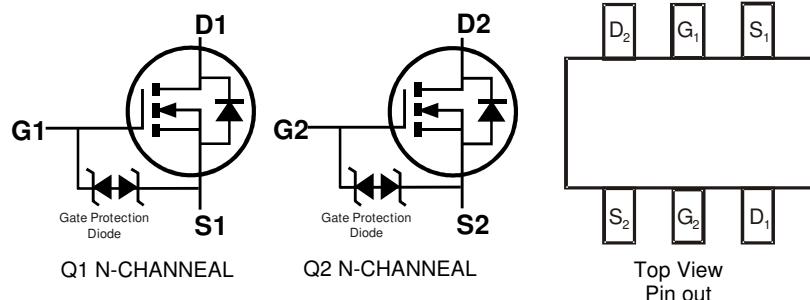
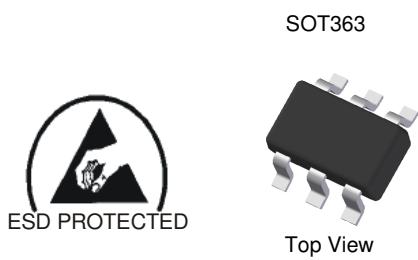
$V_{(BR)DSS}$	$R_{DS(ON)}$ max	$I_D$ max $T_A = +25^\circ\text{C}$
30V	0.4Ω @ $V_{GS} = 10\text{V}$	0.65A
	0.7Ω @ $V_{GS} = 4.5\text{V}$	0.52A

## Description

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

## Applications

- Motor Control
- Power Management Functions
- DC-DC Converters
- Backlighting



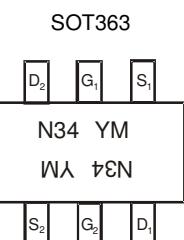
## Ordering Information (Note 4)

Part Number	Case	Packaging
DMN32D4SDW-7	SOT363	3,000K/Tape & Reel
DMN32D4SDW-13	SOT363	10,000K/Tape & Reel

## Notes:

1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant.
2. See [http://www.diodes.com/quality/lead\\_free.html](http://www.diodes.com/quality/lead_free.html) 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 <http://www.diodes.com/products/packages.html>

## Marking Information



N34 = Product Type Marking Code  
 YM = Date Code Marking  
 Y or YM = Year (ex: B = 2014)  
 M = Month (ex: 9 = September)

## Date Code Key

Year	2014	2015	2016	2017	2018	2019	2020					
Code	B	C	D	E	F	G	H					
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** (@ $T_A = +25^\circ\text{C}$ , unless otherwise specified.)

Characteristic			Symbol	Value	Units
Drain-Source Voltage			$V_{DSS}$	30	V
Gate-Source Voltage			$V_{GSS}$	$\pm 20$	V
Continuous Drain Current (Note 6) $V_{GS} = 10\text{V}$	Steady State	$T_A = 25^\circ\text{C}$ $T_A = 70^\circ\text{C}$	$I_D$	0.65 0.50	A
Maximum Continuous Body Diode Forward Current (Note 6)			$I_S$	0.4	A
Pulsed Drain Current (10 $\mu\text{s}$ pulse, duty cycle = 1%)			$I_{DM}$	4	A

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

Characteristic		Symbol	Value	Units
Total Power Dissipation (Note 5)		$P_D$	0.29	W
Thermal Resistance, Junction to Ambient (Note 5)	Steady State	$R_{\theta JA}$	420	$^\circ\text{C/W}$
Total Power Dissipation (Note 6)		$P_D$	0.35	W
Thermal Resistance, Junction to Ambient (Note 6)	Steady State	$R_{\theta JA}$	360	$^\circ\text{C/W}$
Thermal Resistance, Junction to Case		$R_{\theta JC}$	128	$^\circ\text{C/W}$
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
<b>OFF CHARACTERISTICS (Note 7)</b>						
Drain-Source Breakdown Voltage	$BV_{DSS}$	30	-	-	V	$V_{GS} = 0\text{V}, I_D = 250\mu\text{A}$
Zero Gate Voltage Drain Current	$I_{DSS}$	-	-	1	$\mu\text{A}$	$V_{DS} = 30\text{V}, V_{GS} = 0\text{V}$
Gate-Source Leakage	$I_{GSS}$	-	-	$\pm 10$	$\mu\text{A}$	$V_{GS} = \pm 20\text{V}, V_{DS} = 0\text{V}$
<b>ON CHARACTERISTICS (Note 7)</b>						
Gate Threshold Voltage	$V_{GS(\text{th})}$	0.8	-	1.6	V	$V_{DS} = V_{GS}, I_D = 250\mu\text{A}$
Static Drain-Source On-Resistance	$R_{DS(\text{ON})}$	-	0.2	0.4	$\Omega$	$V_{GS} = 10\text{V}, I_D = 0.25\text{A}$
		-	0.3	0.7		$V_{GS} = 4.5\text{V}, I_D = 0.25\text{A}$
		-	0.4	1.0		$V_{GS} = 4.0\text{V}, I_D = 0.25\text{A}$
		-	0.9	-		$V_{GS} = 2.5\text{V}, I_D = 0.01\text{A}$
Diode Forward Voltage	$V_{SD}$	-	0.8	1.2	V	$V_{GS} = 0\text{V}, I_S = 0.23\text{A}$
<b>DYNAMIC CHARACTERISTICS (Note 8)</b>						
Input Capacitance	$C_{iss}$	-	50	-	pF	$V_{DS} = 15\text{V}, V_{GS} = 0\text{V}, f = 1.0\text{MHz}$
Output Capacitance	$C_{oss}$	-	10	-	pF	
Reverse Transfer Capacitance	$C_{rss}$	-	6.8	-	pF	
Gate Resistance	$R_g$	-	114	-	$\Omega$	$V_{DS} = V_{GS} = 0\text{V}, f = 1.0\text{MHz}$
Total Gate Charge ( $V_{GS} = 4.5\text{V}$ )	$Q_g$	-	0.6	-	nC	$V_{DS} = 10\text{V}, I_D = 250\text{mA}$
Total Gate Charge ( $V_{GS} = 10\text{V}$ )	$Q_g$	-	1.3	-	nC	
Gate-Source Charge	$Q_{gs}$	-	0.2	-	nC	
Gate-Drain Charge	$Q_{gd}$	-	0.1	-	nC	
Turn-On Delay Time	$t_{D(\text{on})}$	-	2.8	-	ns	$V_{GS} = 10\text{V}, V_{DS} = 30\text{V}, I_D = 100\text{mA}, R_G = 10\Omega$
Turn-On Rise Time	$t_r$	-	3.2	-	ns	
Turn-Off Delay Time	$t_{D(\text{off})}$	-	26.3	-	ns	
Turn-Off Fall Time	$t_f$	-	22.8	-	ns	

Notes:

5. Device mounted on FR-4 PCB, with minimum recommended pad layout.
6. Device mounted on 1" x 1" FR-4 PCB with high coverage 2oz. Copper, single sided.
7. Short duration pulse test used to minimize self-heating effect.
8. Guaranteed by design. Not subject to product testing.

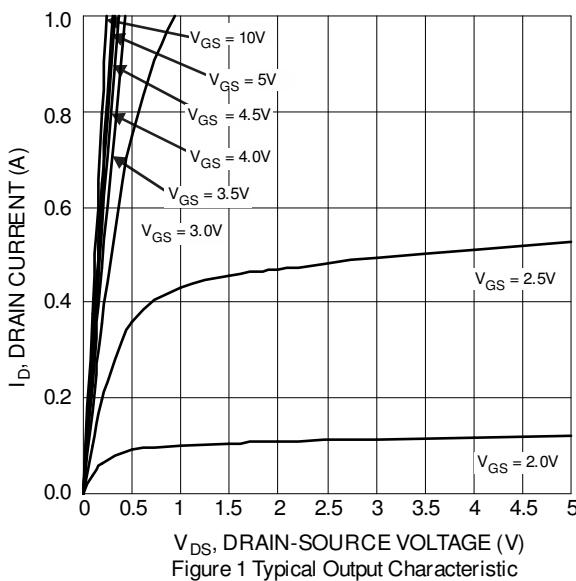


Figure 1 Typical Output Characteristic

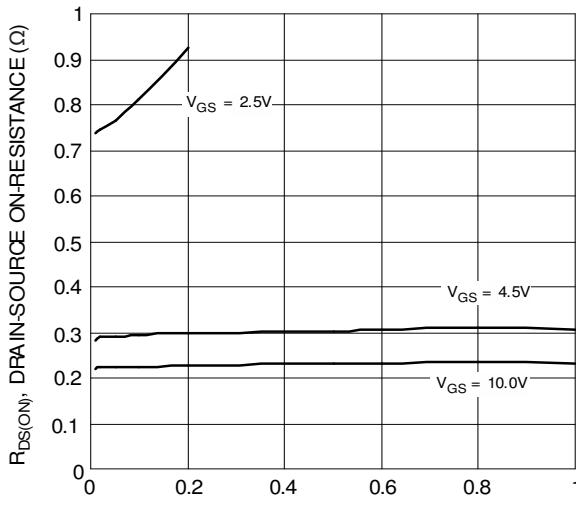


Figure 3 Typical On-Resistance vs.  
Drain Current and Gate Voltage

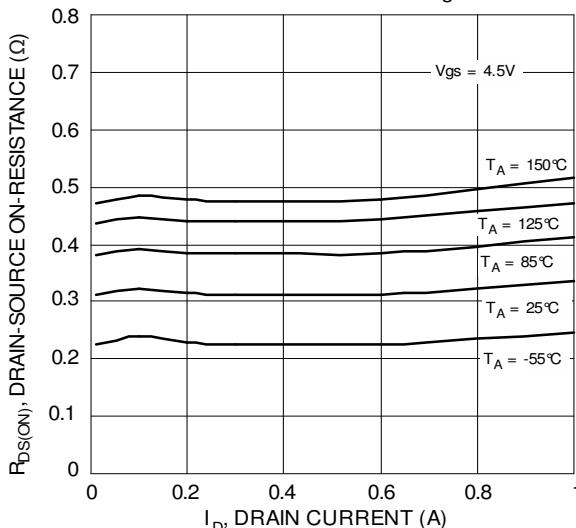


Figure 5 Typical On-Resistance vs.  
Drain Current and Temperature

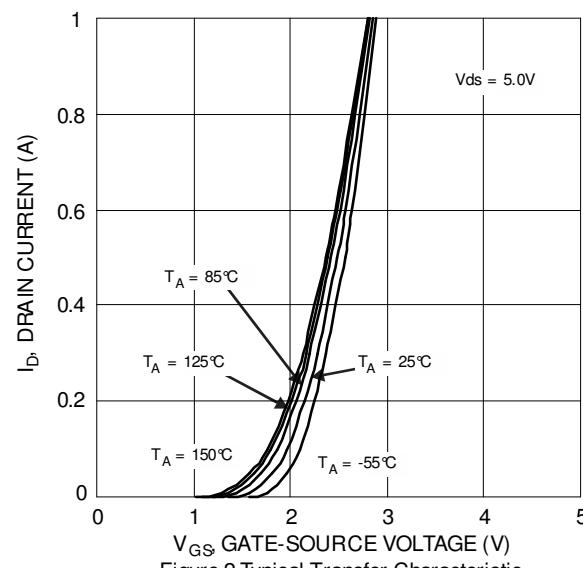


Figure 2 Typical Transfer Characteristic

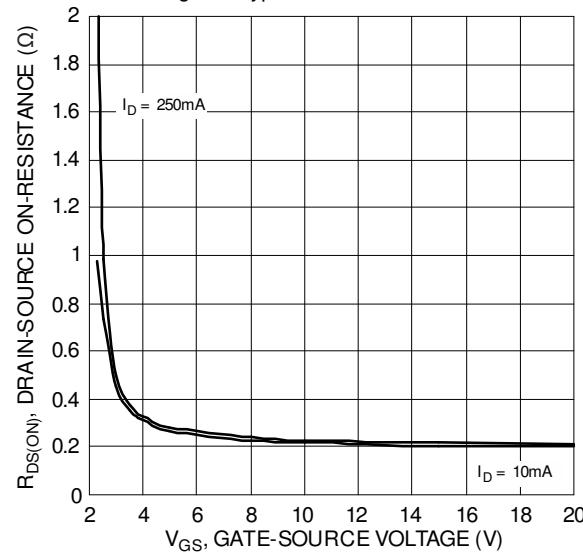


Figure 4 Typical Transfer Characteristic

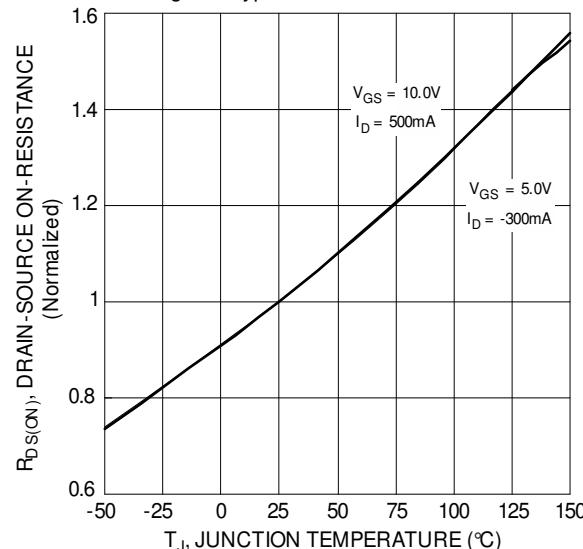
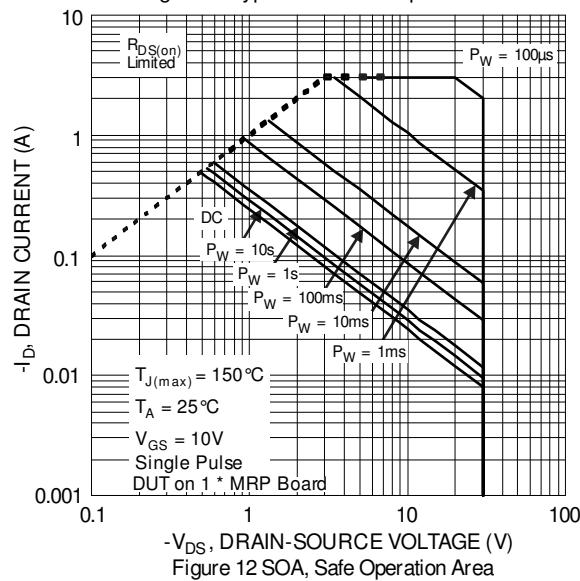
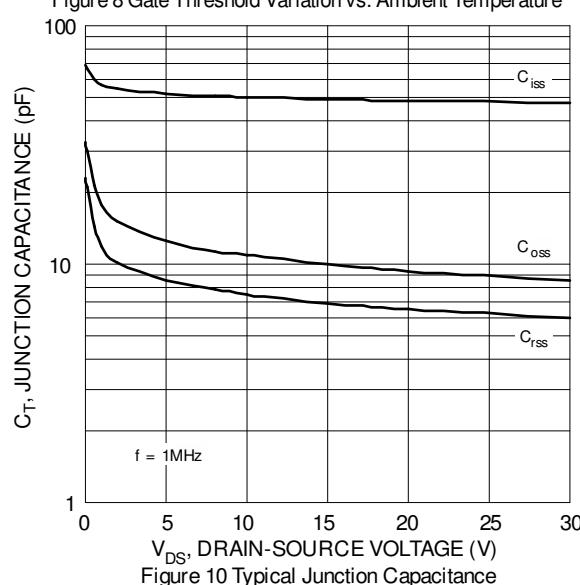
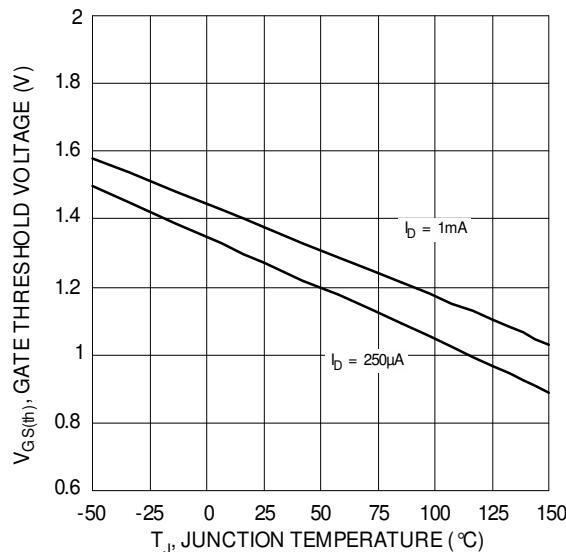
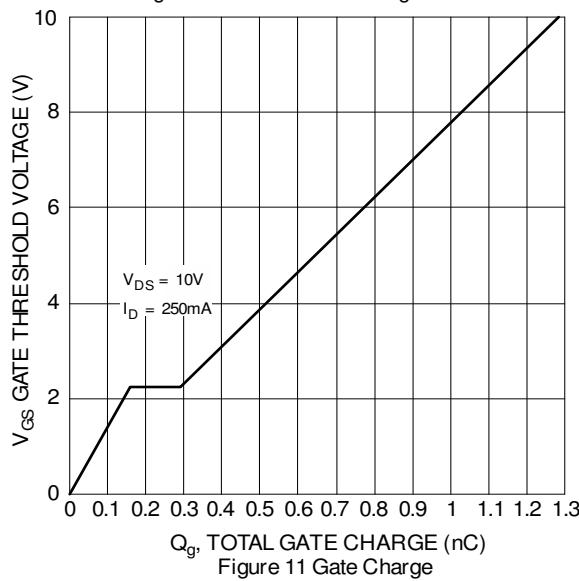
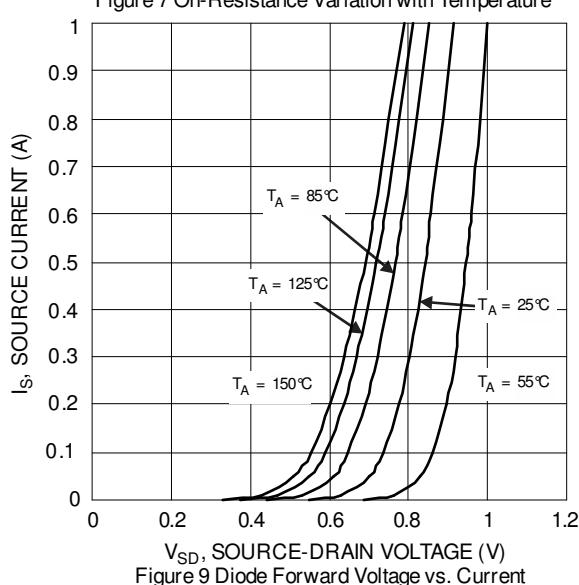
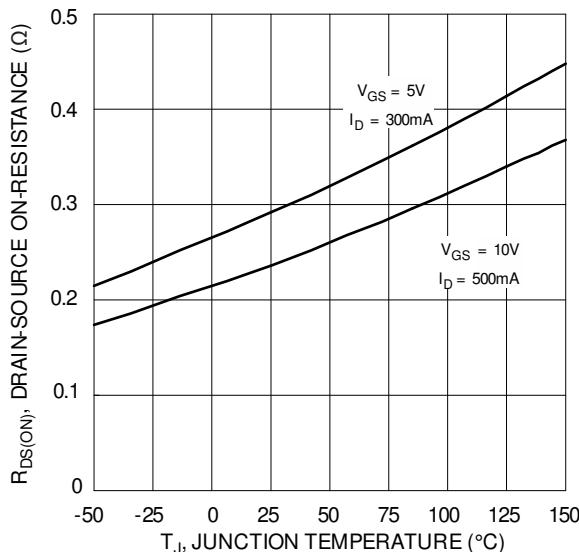


Figure 6 On-Resistance Variation with Temperature



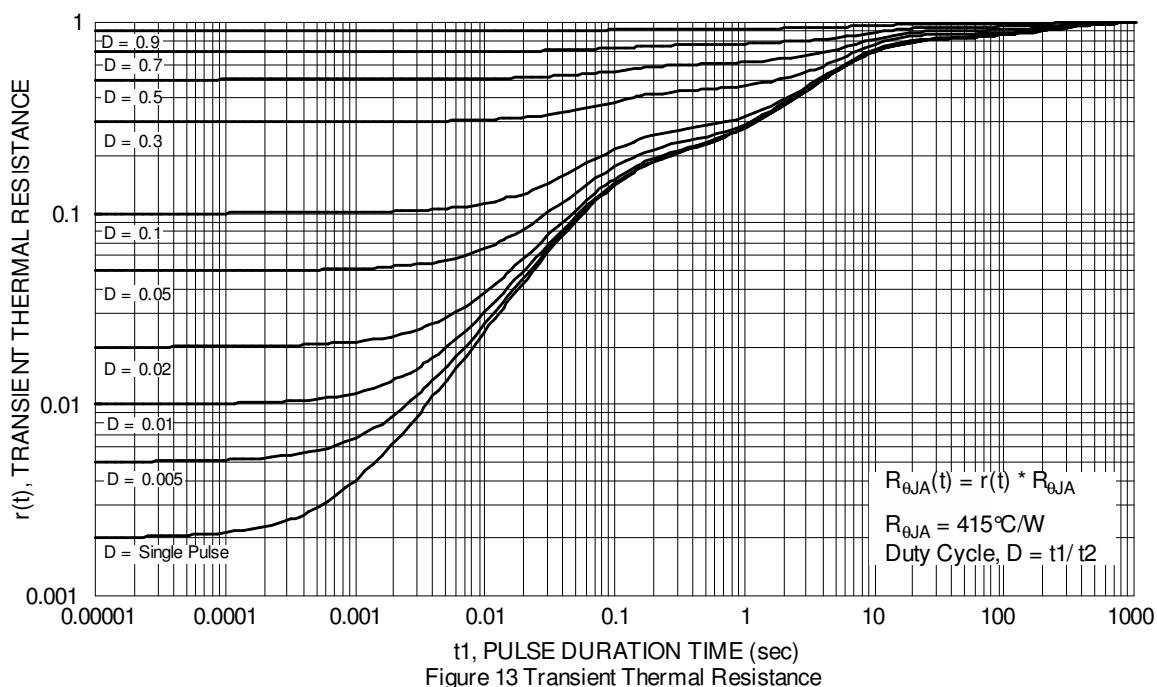
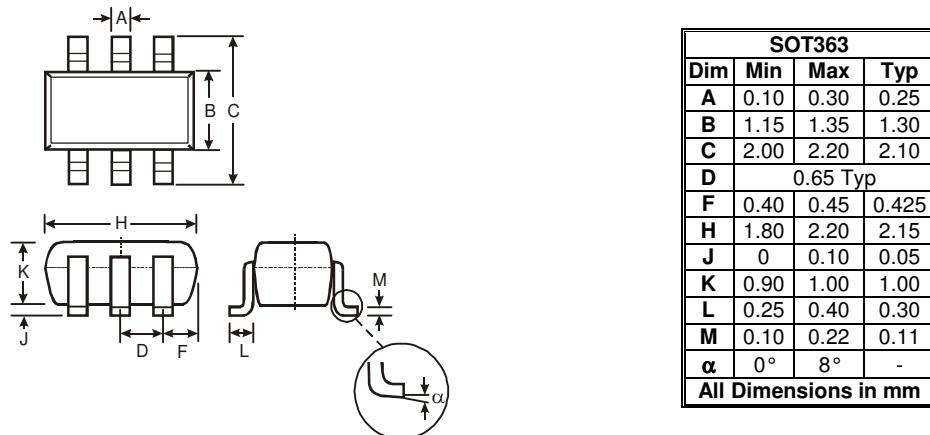


Figure 13 Transient Thermal Resistance

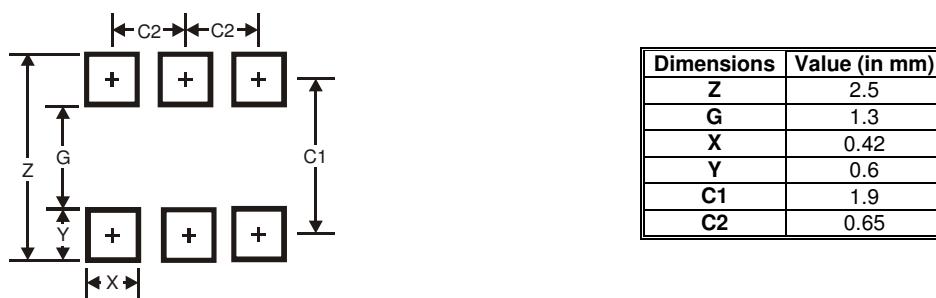
## Package Outline Dimensions

Please see AP02002 at <http://www.diodes.com/datasheets/ap02002.pdf> for the latest version.



## Suggested Pad Layout

Please see AP02001 at <http://www.diodes.com/datasheets/ap02001.pdf> for the latest version.



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