

Product Summary

BV _{DSS}	R _{DS(ON)} Max	I _D Max T _A = +25°C
60V	2.0Ω @ V _{GS} = 5.0V	450mA
	2.5Ω @ V _{GS} = 2.5V	403mA
	4.0Ω @ V _{GS} = 1.8V	348mA

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.

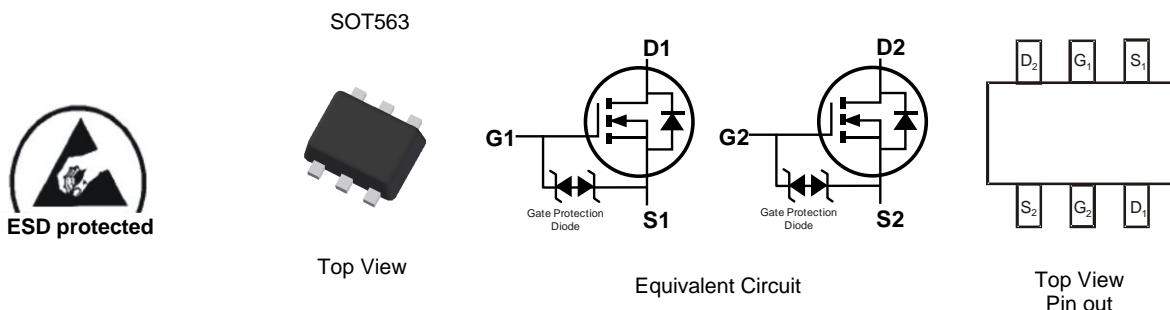
- Motor controls
- Power-management functions
- Backlighting

Features and Benefits

- Dual N-Channel MOSFET
- Low On-Resistance
- Low Input Capacitance
- Fast Switching Speed
- Low Input/Output Leakage
- **ESD Protected**
- **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-Q100/101/104/200, PPAP capable, and manufactured in IATF 16949 certified facilities), please refer to the related automotive grade (Q-suffix) part. A listing can be found at <https://www.diodes.com/products/automotive/automotive-products/>.
- This part is qualified to JEDEC standards (as references in AEC-Q) for High Reliability. <https://www.diodes.com/quality/product-definitions/>

Mechanical Data

- Package: SOT563
- Package Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminal Connections: See Diagram
- Terminals: Finish – Matte Tin Annealed over Copper Leadframe. Solderable per MIL-STD-202, Method 208 (E3)
- Weight: 0.006 grams (Approximate)

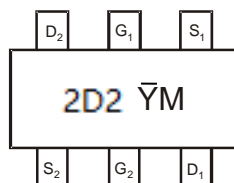


Ordering Information (Note 4)

Part Number	Package	Packing	
		Qty.	Carrier
DMN62D2UV-7	SOT563	3,000	Tape & Reel
DMN62D2UV-13	SOT563	10,000	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



2D2 = Product Type Marking Code

YM = Date Code Marking

Y = Year (ex: K = 2023)

M = Month (ex: 9 = September)

Date Code Key

Year	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Code	J	K	L	M	N	P	R	S	T	U	V	W

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°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} = 5.0V	Steady State	T _A = +25°C T _A = +70°C	I _D	450 360	mA
Maximum Continuous Body Diode Forward Current (Note 6)			I _S	450	A
Pulsed Drain Current (10μs Pulse, Duty Cycle = 1%)			I _{DM}	1.25	A

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

Characteristic			Symbol	Value	Unit
Total Power Dissipation (Note 5)			P _D	0.5	mW
Thermal Resistance, Junction to Ambient (Note 5)		Steady State	R _{θJA}	245	°C/W
Total Power Dissipation (Note 6)			P _D	0.8	mW
Thermal Resistance, Junction to Ambient (Note 6)		Steady State	R _{θJA}	156	°C/W
Operating and Storage Temperature Range			T _J , T _{STG}	-55 to +150	°C

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.

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	V _{GS} = 0V, I _D = 250μA
Zero Gate Voltage Drain Current	I _{DSS}	—	—	1.0	μA	V _{DS} = 60V, V _{GS} = 0V
Gate-Source Leakage	I _{GSS}	—	—	±10	μA	V _{GS} = ±20V, V _{DS} = 0V
ON CHARACTERISTICS (Note 7)						
Gate Threshold Voltage	V _{GS(TH)}	0.5	—	1.0	V	V _{DS} = 10V, I _D = 250μA
Static Drain-Source On-Resistance	R _{DS(ON)}	—	1.0	2.0	Ω	V _{GS} = 5.0V, I _D = 0.05A
			1.3	2.5		V _{GS} = 2.5V, I _D = 0.05A
			1.6	4.0		V _{GS} = 1.8V, I _D = 0.05A
Diode Forward Voltage	V _{SD}	—	0.7	1.4	V	V _{GS} = 0V, I _S = 115mA
DYNAMIC CHARACTERISTICS (Note 8)						
Input Capacitance	C _{iss}	—	41	—	pF	V _{DS} = 30V, V _{GS} = 0V f = 1.0MHz
Output Capacitance	C _{oss}	—	5.4	—	pF	
Reverse Transfer Capacitance	C _{rss}	—	4.2	—	pF	
Gate Resistance	R _g	—	52	—	Ω	f = 1MHz, V _{GS} = 0V, V _{DS} = 0V
Total Gate Charge	Q _g	—	0.8	—	nC	V _{GS} = 4.5V, V _{DS} = 10V, I _D = 250mA
Gate-Source Charge	Q _{gs}	—	0.2	—	nC	
Gate-Drain Charge	Q _{gd}	—	0.1	—	nC	
Turn-On Delay Time	t _{D(ON)}	—	1.5	—	ns	V _{DD} = 30V, V _{GS} = 10V, R _G = 25Ω, I _D = 200mA
Turn-On Rise Time	t _R	—	9.7	—	ns	
Turn-Off Delay Time	t _{D(OFF)}	—	22.6	—	ns	
Turn-Off Fall Time	t _F	—	19.5	—	ns	

Notes: 7. Short duration pulse test used to minimize self-heating effect.
8. Guaranteed by design. Not subject to product testing.

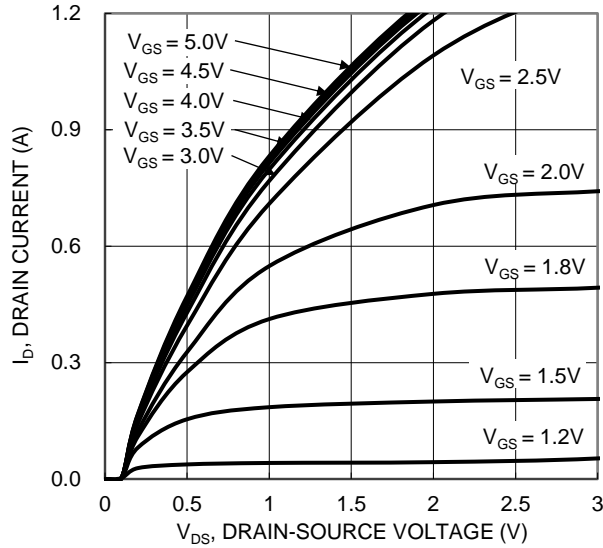


Figure 1. Typical Output Characteristic

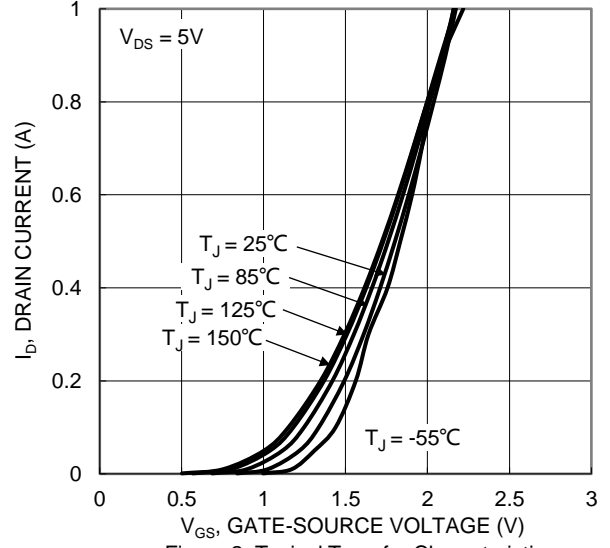


Figure 2. Typical Transfer Characteristic

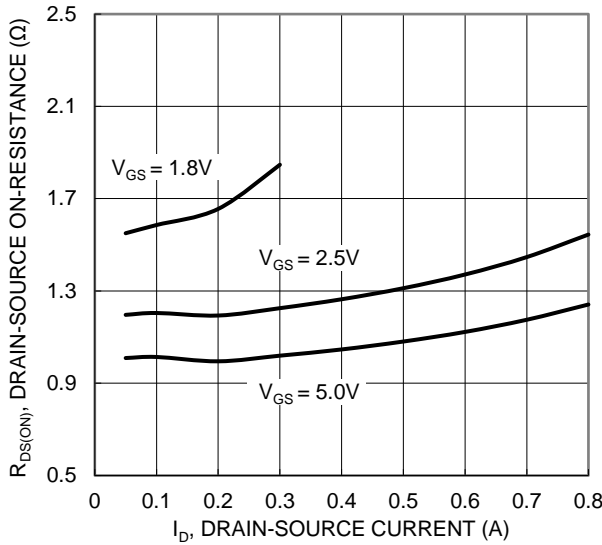


Figure 3. Typical On-Resistance vs. Drain Current and Gate Voltage

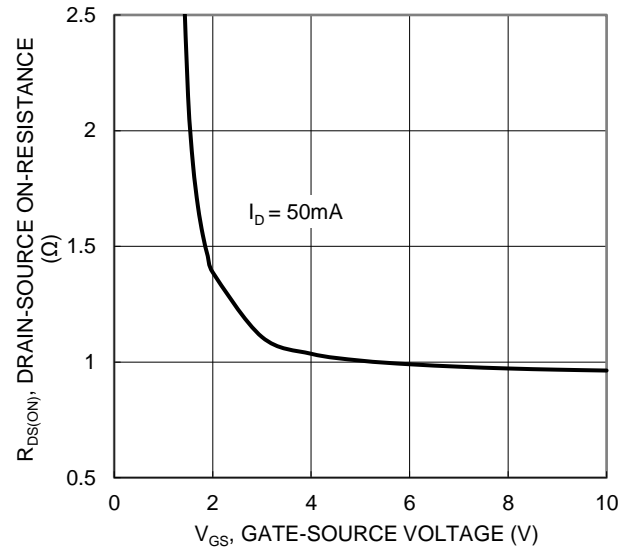


Figure 4. Typical Transfer Characteristic

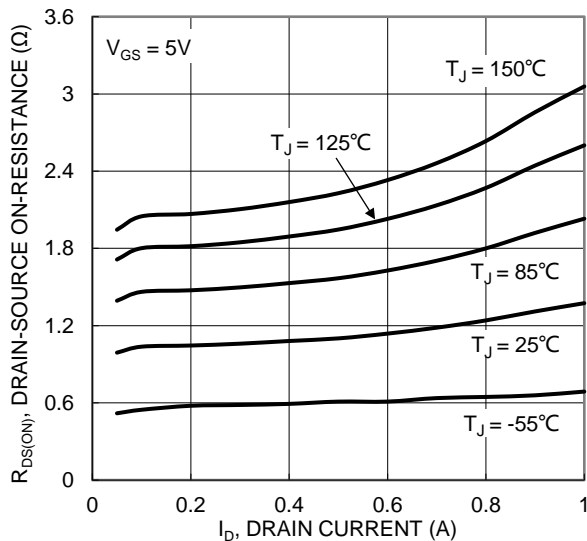


Figure 5. Typical On-Resistance vs. Drain Current and Junction Temperature

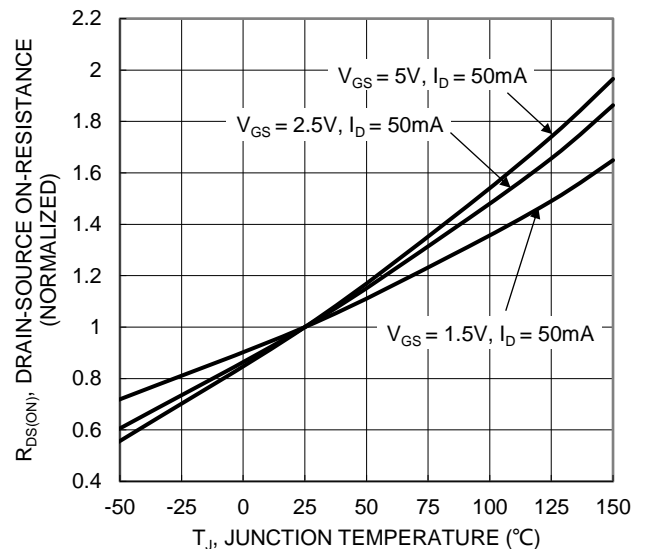
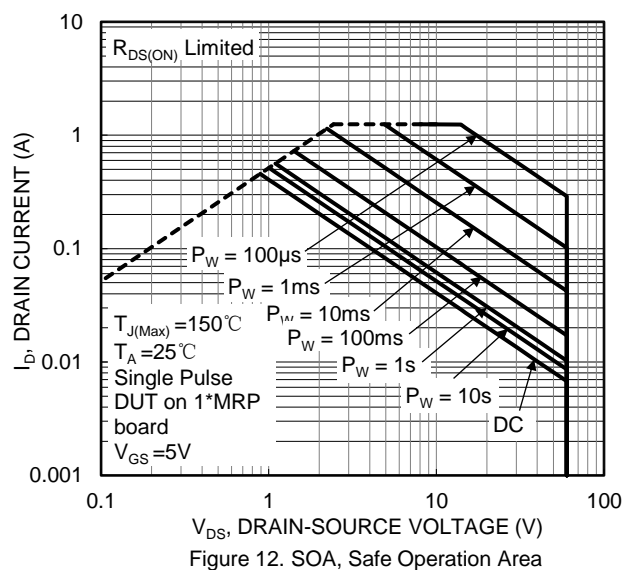
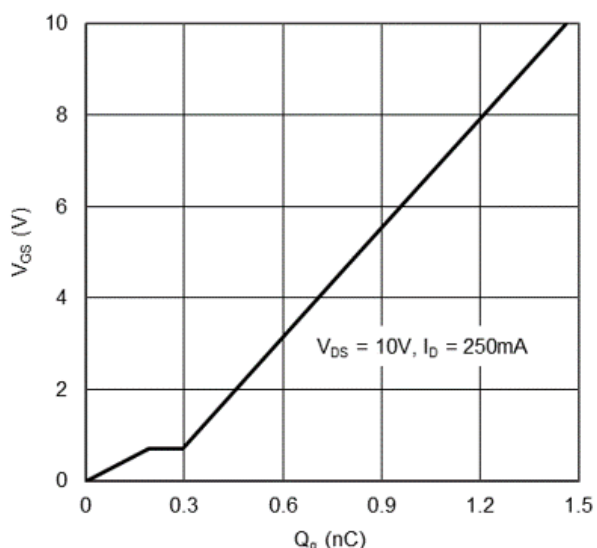
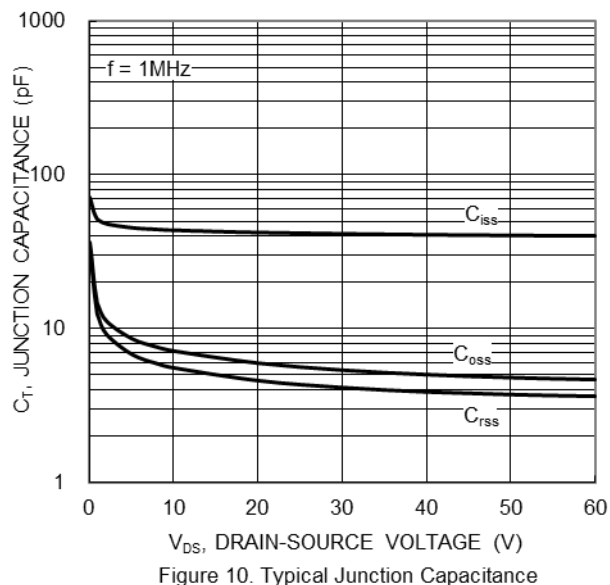
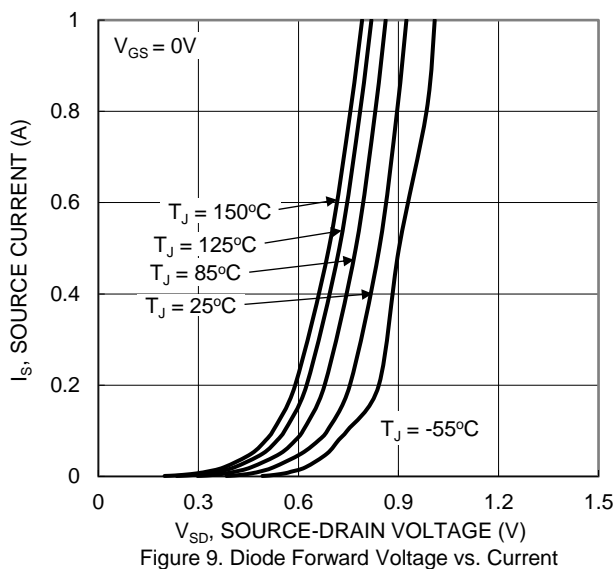
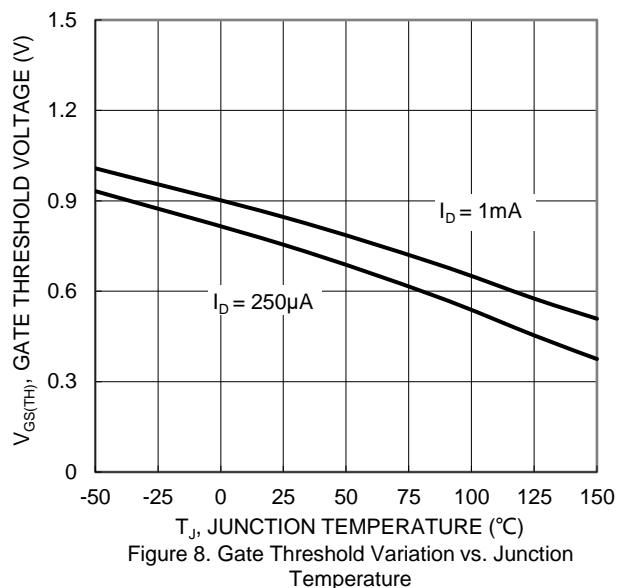
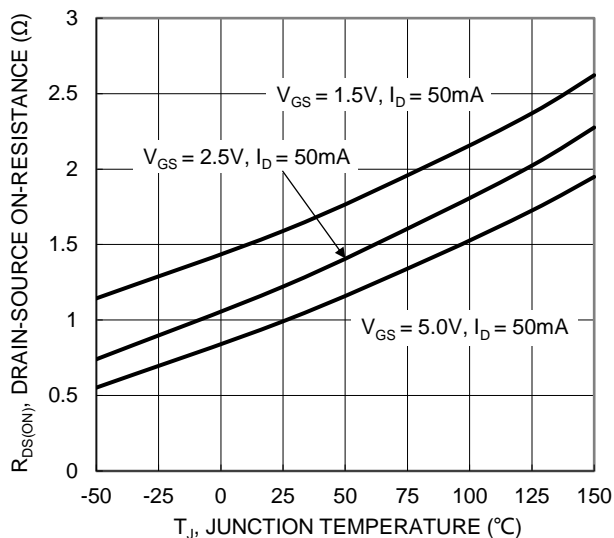


Figure 6. On-Resistance Variation with Junction Temperature



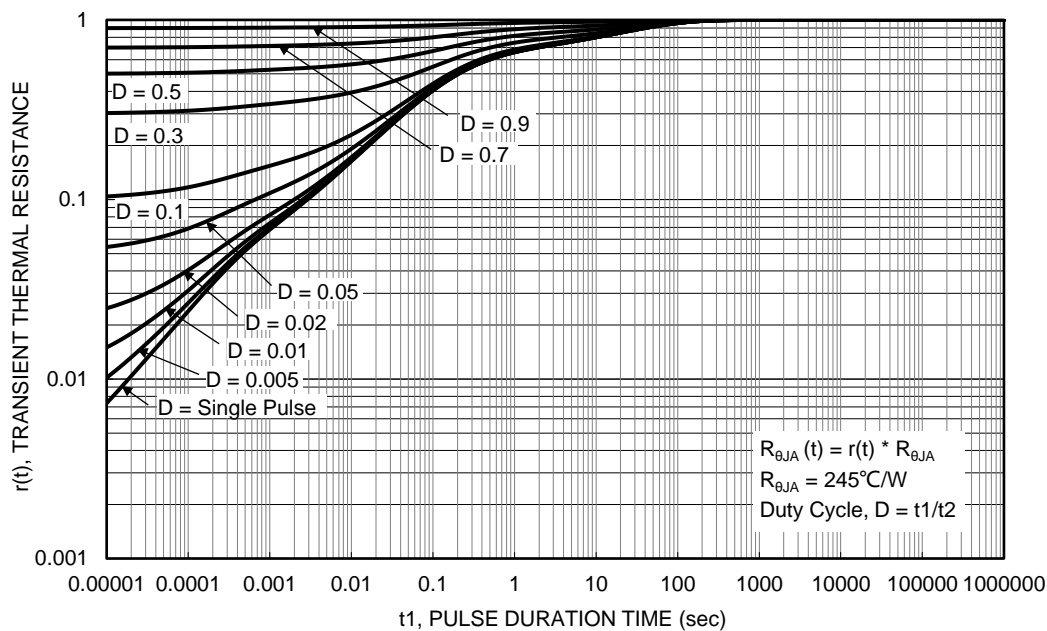
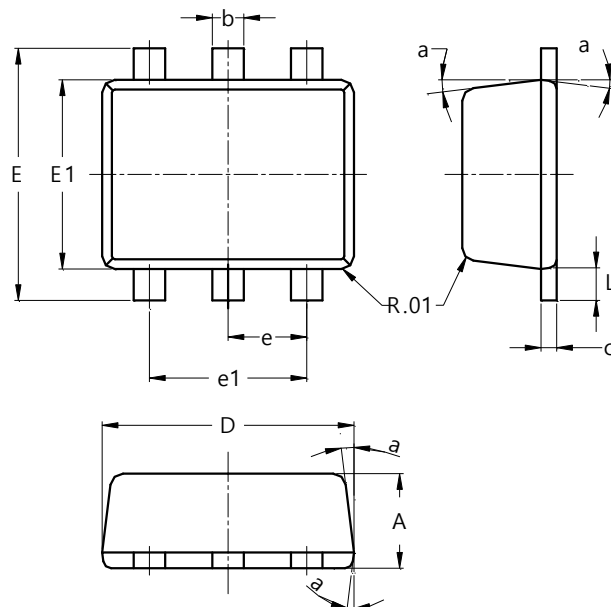


Figure 13. Transient Thermal Resistance

Package Outline Dimensions

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

SOT563

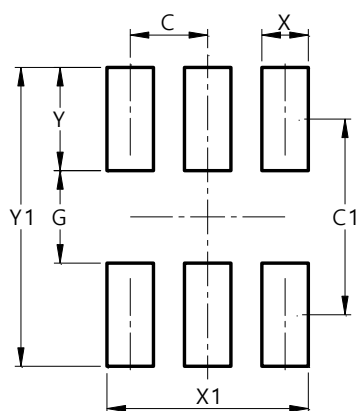


SOT563			
Dim	Min	Max	Typ
A	0.55	0.60	--
b	0.15	0.30	0.20
c	0.10	0.18	0.11
D	1.50	1.70	1.60
E	1.55	1.70	1.60
E1	1.10	1.25	1.20
e	--	--	0.50
e1	0.90	1.10	1.00
L	0.10	0.30	0.20
a	8°	9°	7°
All Dimensions in mm			

Suggested Pad Layout

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

SOT563



Dimensions	Value (in mm)
C	0.500
C1	1.270
G	0.600
X	0.300
X1	1.300
Y	0.670
Y1	1.940

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