

Product Summary

BV _{DSS}	R _{DS(ON)} max	I _D max
40V	42mΩ @ V _{GS} = 10V	4.6A
	52mΩ @ V _{GS} = 4.5V	4.1A

Features and Benefits

- Low On-Resistance
- Low Input Capacitance
- Fast Switching Speed
- Low Input/Output Leakage
- **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 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/>
- An Automotive-Compliant Part is Available Under Separate Datasheet ([DMN4035LQ](#))

Description and Applications

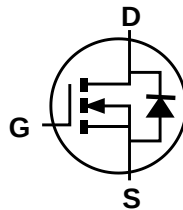
This MOSFET is designed to minimize the on-state resistance (R_{DS(ON)}) and yet maintain superior switching performance, making it ideal for high efficiency power management applications.

- Battery Charging
- Power Management Functions
- DC-DC Converters
- Portable Power Adaptors

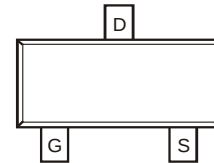
SOT23



Top View



Internal Schematic


 Top View
Pin-Out

Mechanical Data

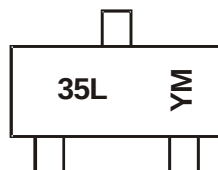
- Case: SOT23
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish — Matte Tin Annealed over Copper Leadframe. Solderable per MIL-STD-202, Method 208 (3)
- Terminals Connections: See Diagram Below
- Weight: 0.008 grams (Approximate)

Ordering Information (Note 4)

Part Number	Case	Packaging
DMN4035L-7	SOT23	3000/Tape & Reel
DMN4035L-13	SOT23	10000/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



35L = Product Type Marking Code
 YM = Date Code Marking
 Y or $\bar{Y}$ = Year (ex: G = 2019)
 M = Month (ex: 9 = September)

Date Code Key

Year	2019	2020	2021	2022	2023	2024	2025	2026	2027
Code	G	H	I	J	K	L	M	N	O

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}	40	V
Gate-Source Voltage			V _{GSS}	±20	V
Continuous Drain Current (Note 6) V _{GS} = 10V	Steady State	T _A = +25°C	I _D	4.6	A
		T _A = +70°C		3.7	
Maximum Body Diode Forward Current (Note 6)			I _S	1.5	A
Pulsed Drain Current (10μs Pulse, Duty Cycle = 1%)			I _{DM}	25	A
Pulsed Source Current (10μs Pulse, Duty Cycle = 1%)			I _{SM}	25	A

Thermal Characteristics

Characteristic		Symbol	Value	Unit
Power Dissipation (Note 5)		P _D	0.72	W
Thermal Resistance, Junction to Ambient (Note 5)	Steady State	R _{θJA}	171	°C/W
Power Dissipation (Note 6)		P _D	1.4	W
Thermal Resistance, Junction to Ambient (Note 6)	Steady State	R _{θJA}	93	°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}	40	—	—	V	V _{GS} = 0V, I _D = 250μA
Zero Gate Voltage Drain Current	I _{DSS}	—	—	1	μA	V _{DS} = 40V, 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	V	V _{DS} = V _{GS} , I _D = 250μA
Static Drain-Source On-Resistance	R _{DS(ON)}	—	30	42	mΩ	V _{GS} = 10V, I _D = 4.3A
		—	40	52		V _{GS} = 4.5V, I _D = 3.9A
Diode Forward Voltage	V _{SD}	—	0.7	1.1	V	V _{GS} = 0V, I _S = 1.25A
DYNAMIC CHARACTERISTICS (Note 8)						
Input Capacitance	C _{iss}	—	574	—	pF	V _{DS} = 20V, V _{GS} = 0V, f = 1MHz
Output Capacitance	C _{oss}	—	87.8	—		
Reverse Transfer Capacitance	C _{rss}	—	38.7	—		
Gate Resistance	R _g	—	1.6	—	Ω	V _{DS} = 0V, V _{GS} = 0V, f = 1MHz
Total Gate Charge (V _{GS} = 4.5V)	Q _g	—	5.9	—	nC	V _{DS} = 20V, I _D = 3.9A
Total Gate Charge (V _{GS} = 10V)	Q _g	—	12.5	—		
Gate-Source Charge	Q _{gs}	—	1.7	—		
Gate-Drain Charge	Q _{gd}	—	2.2	—		
Turn-On Delay Time	t _{D(ON)}	—	3.1	—	ns	V _{DD} = 20V, V _{GS} = 10V, R _L = 20Ω, R _G = 6Ω
Turn-On Rise Time	t _r	—	2.6	—		
Turn-Off Delay Time	t _{D(OFF)}	—	15	—		
Turn-Off Fall Time	t _f	—	5.5	—		
Reverse Recovery Time	t _{RR}	—	6.5	—	ns	I _F = 3.9A, di/dt = 500A/μs
Reverse Recovery Charge	Q _{RR}	—	1.2	—	nC	

- Notes:
- Device mounted on FR-4 substrate PC board, 2oz copper, with minimum recommended pad layout.
 - Device mounted on FR-4 substrate PC board, 2oz copper, with thermal bias to bottom layer 1inch square copper plate.
 - Short duration pulse test used to minimize self-heating effect.
 - Guaranteed by design. Not subject to product testing.

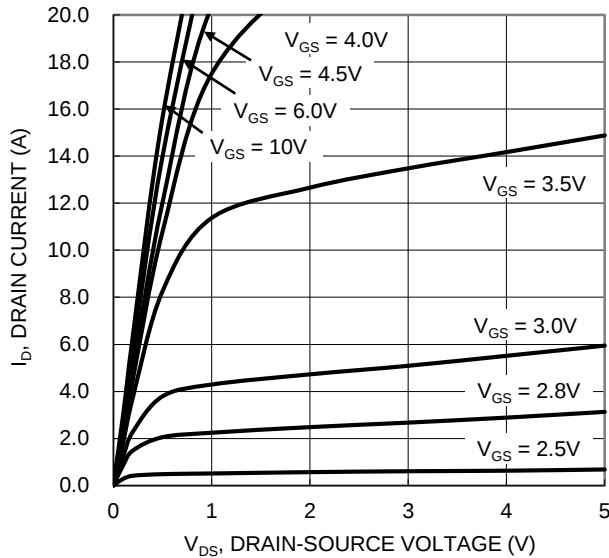


Figure 1. Typical Output Characteristic

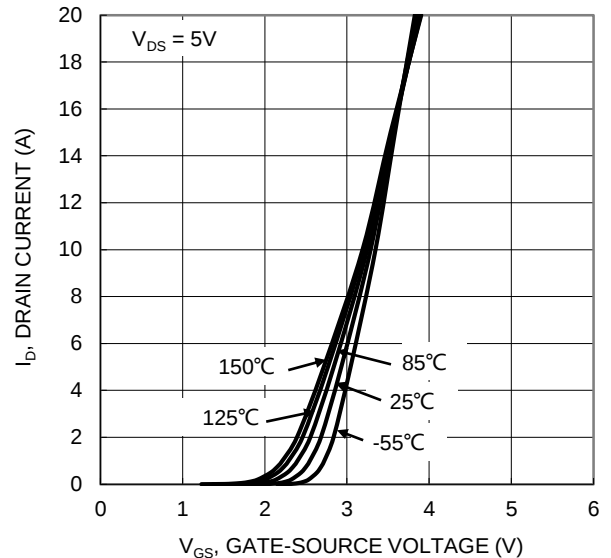


Figure 2. Typical Transfer Characteristic

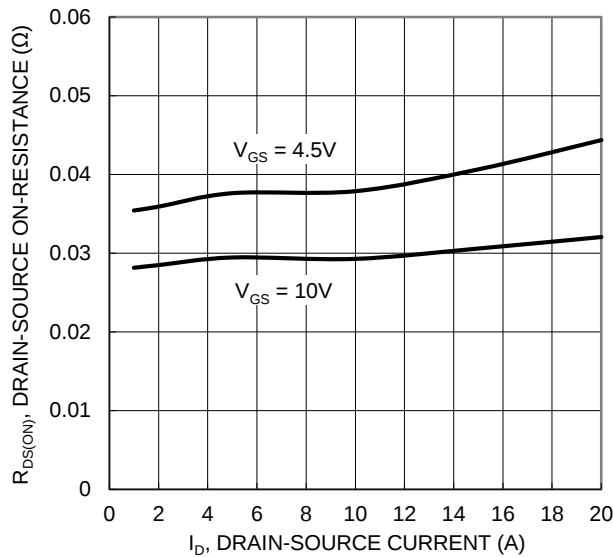


Figure 3. Typical On-Resistance vs. Drain Current and Gate Voltage

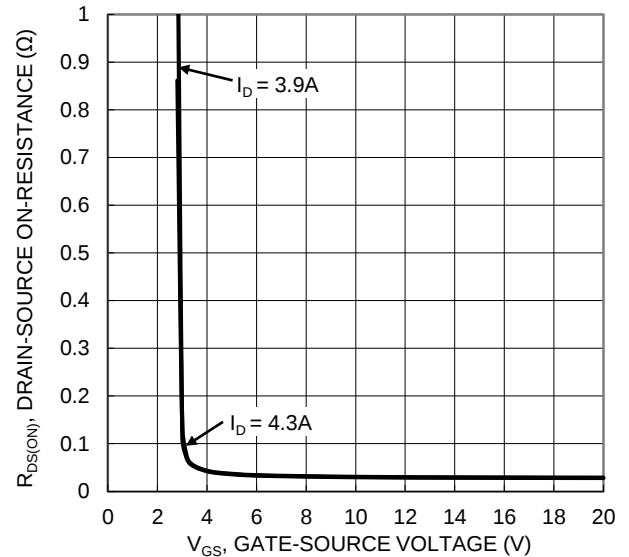


Figure 4. Typical Transfer Characteristic

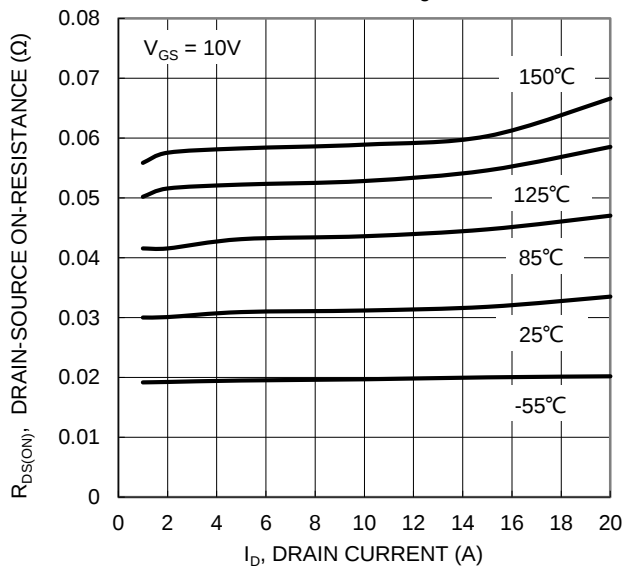


Figure 5. Typical On-Resistance vs. Drain Current and Temperature

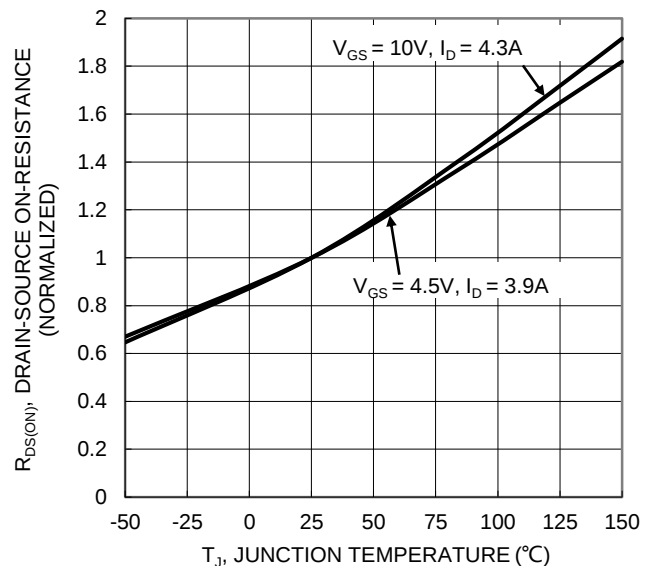
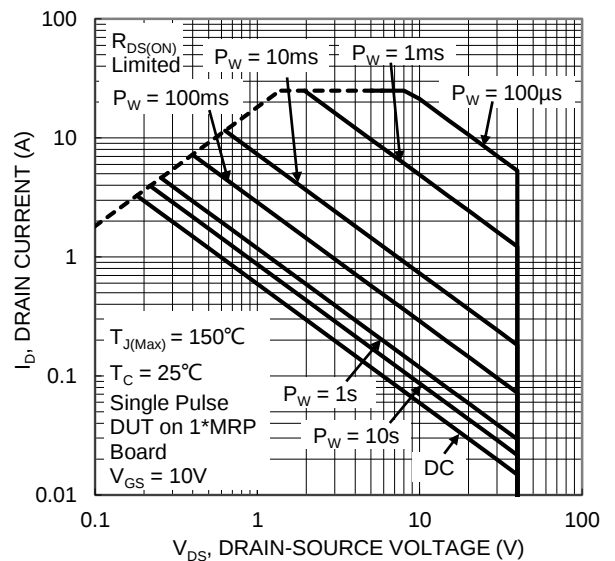
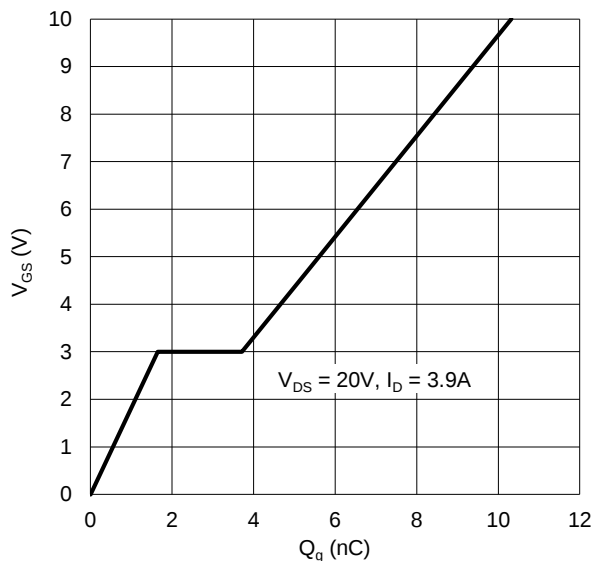
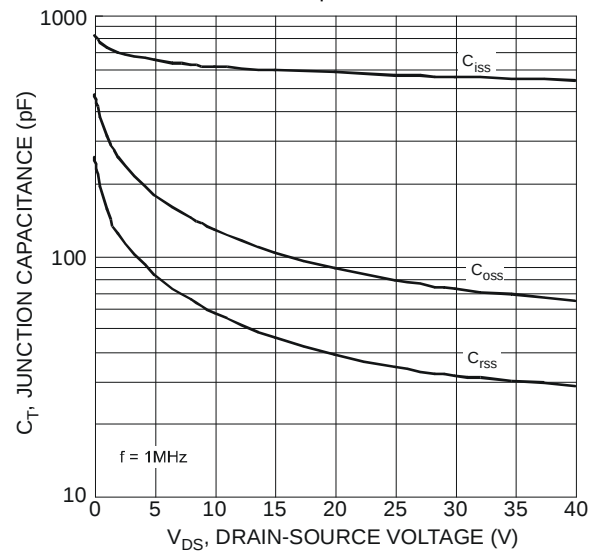
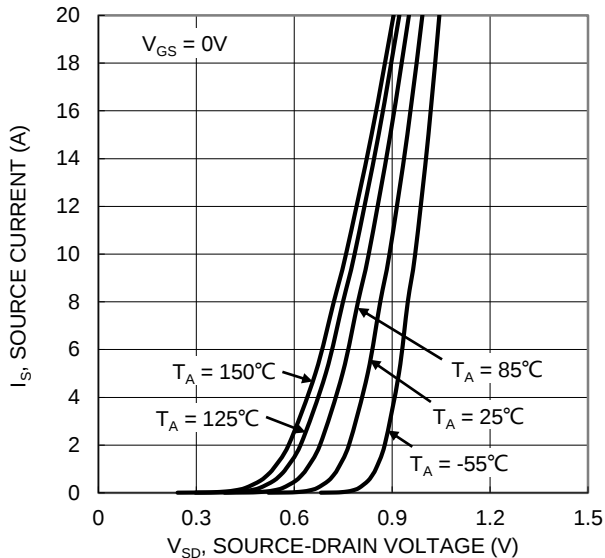
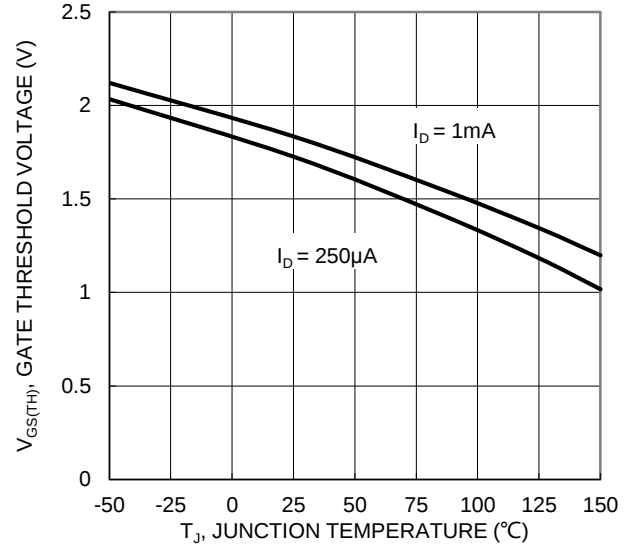
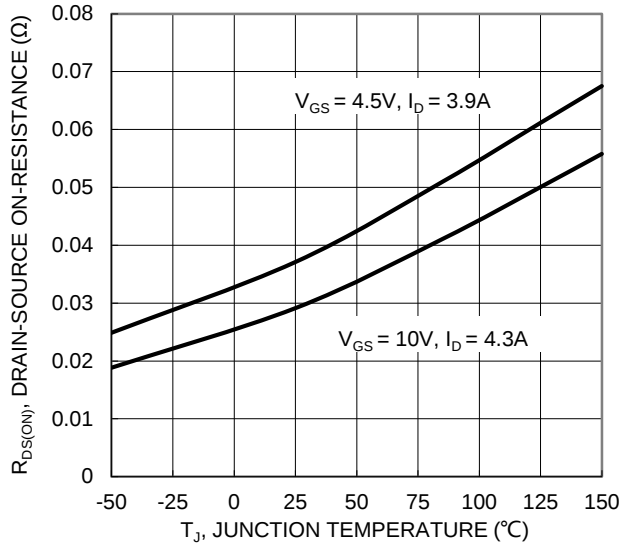


Figure 6. On-Resistance Variation with Temperature



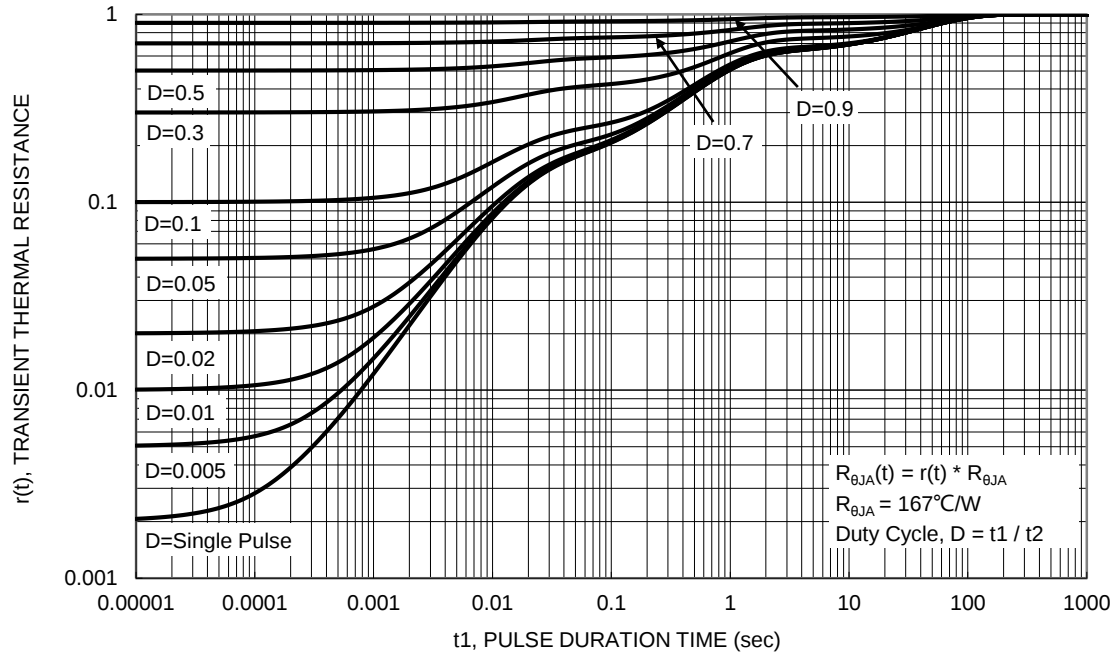
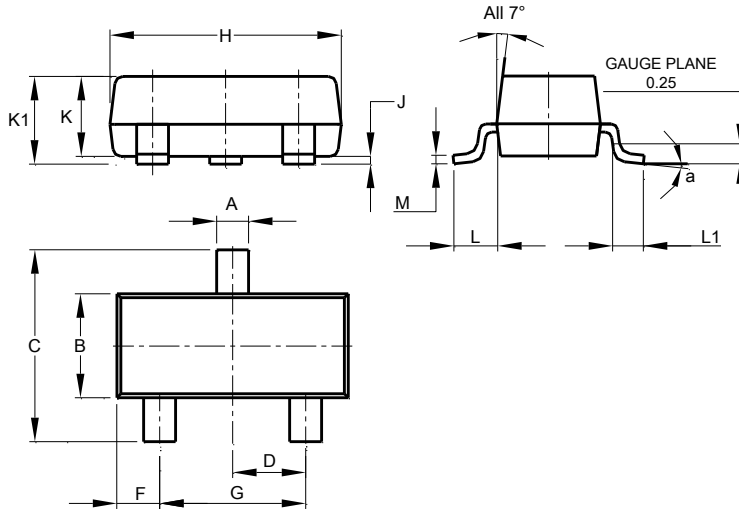


Figure 13. Transient Thermal Resistance

Package Outline Dimensions

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

SOT23

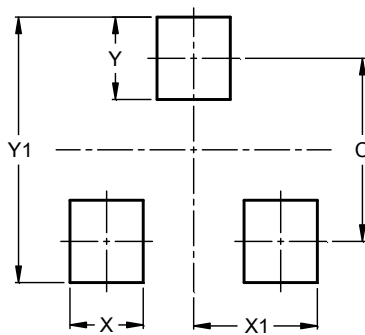


SOT23			
Dim	Min	Max	Typ
A	0.37	0.51	0.40
B	1.20	1.40	1.30
C	2.30	2.50	2.40
D	0.89	1.03	0.915
F	0.45	0.60	0.535
G	1.78	2.05	1.83
H	2.80	3.00	2.90
J	0.013	0.10	0.05
K	0.890	1.00	0.975
K1	0.903	1.10	1.025
L	0.45	0.61	0.55
L1	0.25	0.55	0.40
M	0.085	0.150	0.110
a	0°	8°	--
All Dimensions in mm			

Suggested Pad Layout

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

SOT23



Dimensions	Value (in mm)
C	2.0
X	0.8
X1	1.35
Y	0.9
Y1	2.9

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