

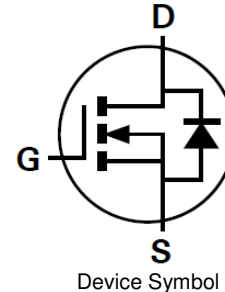
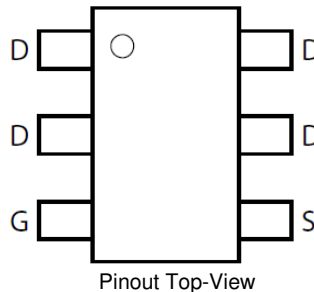
**100V N-CHANNEL ENHANCEMENT MODE MOSFET**
**Product Summary**

$V_{(BR)DSS}$	Max $R_{DS(on)}$	Max $I_D$ $T_A = +25^\circ\text{C}$ (Note 7)
100V	230m $\Omega$ @ $V_{GS} = 10\text{V}$	1.9A
	300m $\Omega$ @ $V_{GS} = 4.5\text{V}$	1.68A

**Description and Applications**

This MOSFET utilizes a unique structure that combines the benefits of low on-resistance with fast switching speed. It is ideal for high-efficiency, low voltage, power management applications.

- DC - DC Converters
- Power Management Functions
- Disconnect Switches
- Motor Control


**Features and Benefits**

- Low On-Resistance
- Fast Switching Speed
- Low Threshold
- Low Gate Drive
- SOT26 Package
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **Qualified to AEC-Q101 standards for High Reliability**
- **PPAP Available (Note 4)**

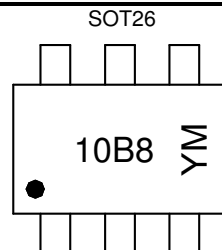
**Mechanical Data**

- Case: SOT26
- 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 (E3)
- Weight: 0.015 grams (Approximate)

**Ordering Information (Note 5)**

Part Number	Compliance	Case	Packing
ZXMN10B08E6QTA	Automotive	SOT26	3,000
ZXMN10B08E6QTC	Automotive	SOT26	10,000

- 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. Automotive products are AEC-Q101 qualified and are PPAP capable. Automotive, AEC-Q101 and standard products are electrically and thermally the same, except where specified. For more information, please refer to [http://www.diodes.com/quality/product\\_grade\\_definitions/](http://www.diodes.com/quality/product_grade_definitions/).
  5. For packaging details, go to our website at <http://www.diodes.com/products/packages.html>.

**Marking Information**


10B8 = Product Type Marking Code  
 YM = Date Code Marking  
 Y or  $\bar{Y}$  = Year (ex: C = 2015)  
 M or  $\bar{M}$  = Month (ex: 9 = September)

**Date Code Key**

Year	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Code	C	D	E	F	G	H	I	J	K	L	M

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

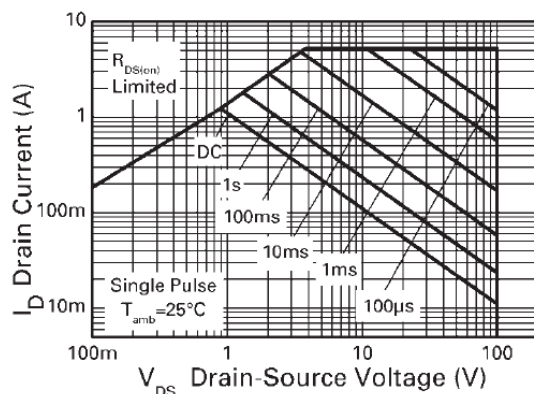
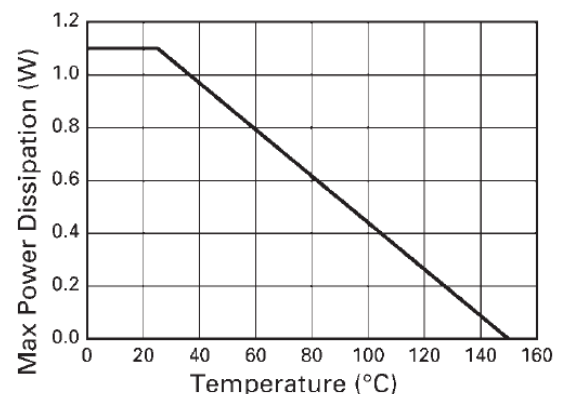
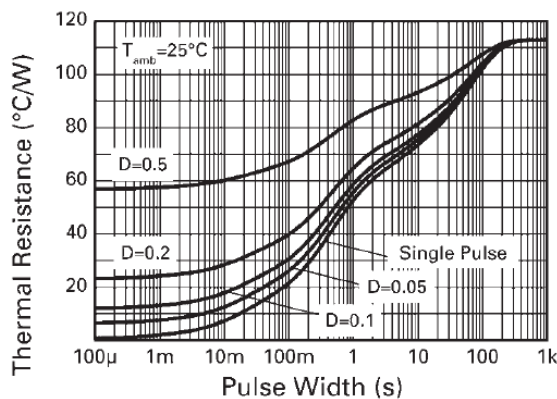
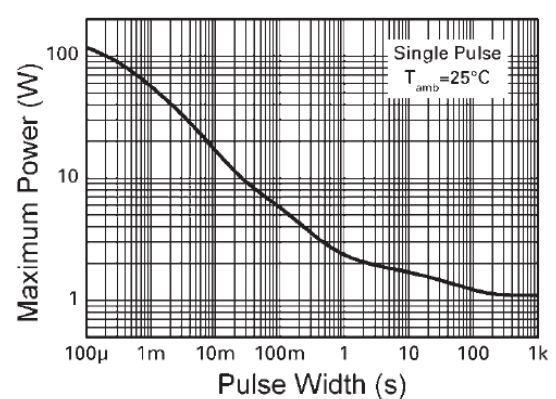
**Maximum Ratings** (@T<sub>A</sub> = +25°C, unless otherwise specified.)

Characteristic			Symbol	Value	Unit
Drain-Source Voltage			V <sub>DSS</sub>	100	V
Gate-Source Voltage			V <sub>GS</sub>	±20	V
Continuous Drain Current	V <sub>GS</sub> = 10V	(Note 7)	I <sub>D</sub>	1.9	A
		T <sub>A</sub> = +70 °C (Note 7)		1.5	
		(Note 6)		1.6	
Pulsed Drain Current		(Note 8)	I <sub>DM</sub>	9	A
Continuous Source Current (Body Diode)		(Note 7)	I <sub>S</sub>	2.5	A
Pulsed Source Current (Body Diode)		(Note 8)	I <sub>SM</sub>	9	A

**Thermal Characteristics** (@T<sub>A</sub> = +25°C, unless otherwise specified.)

Characteristic		Symbol	Value	Unit
Power Dissipation (Note 6)		P <sub>D</sub>	1.1	W
Linear Derating Factor			8.8	mW/°C
Power Dissipation (Note 7)		P <sub>D</sub>	1.7	W
Linear Derating Factor			13.6	mW/°C
Thermal Resistance, Junction to Ambient	(Note 6)	R <sub>θJA</sub>	113	°C/W
	(Note 7)		73	
Operating and Storage Temperature Range		T <sub>J</sub> , T <sub>STG</sub>	-55 to +150	°C

- Notes:
6. For a device surface mounted on 25mm x 25mm FR4 PCB with high coverage of single sided 1oz copper, in still air conditions.
  7. For a device surface mounted on FR4 PCB measured at t ≤ 5 secs.
  8. Repetitive rating 25mm x 25mm FR4 PCB, D = 0.02, pulse width 300μs - pulse width limited by maximum junction temperature. Refer to Transient Thermal Impedance graph.

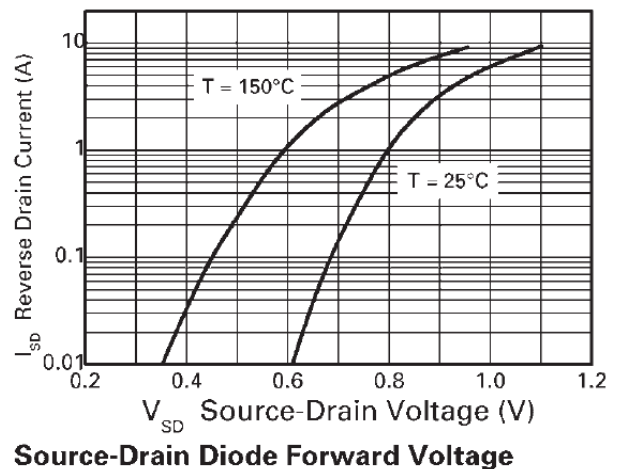
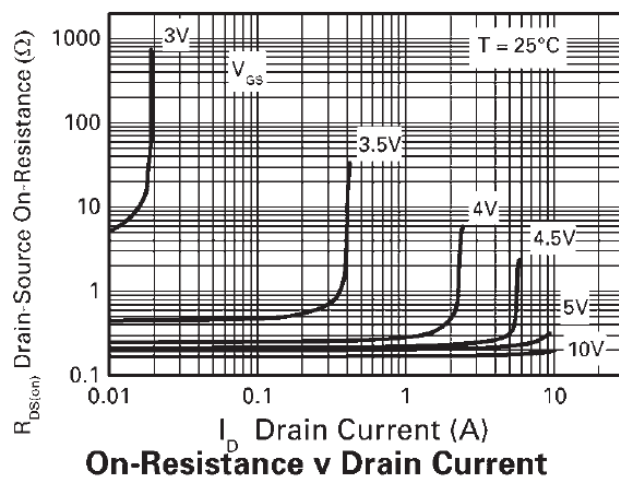
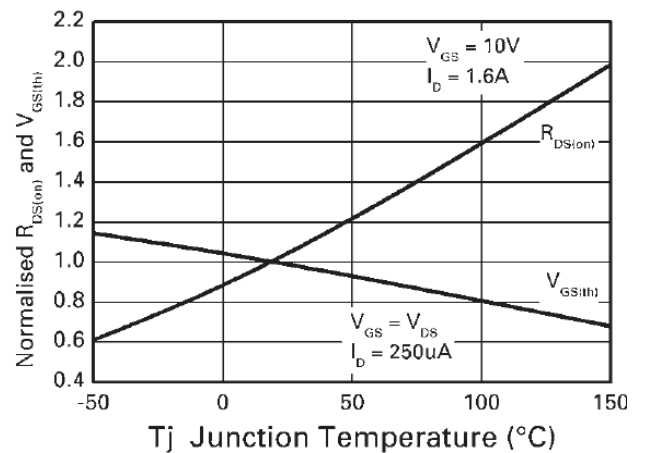
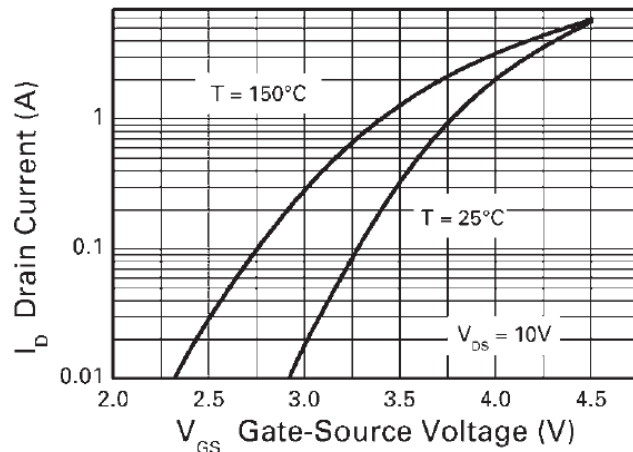
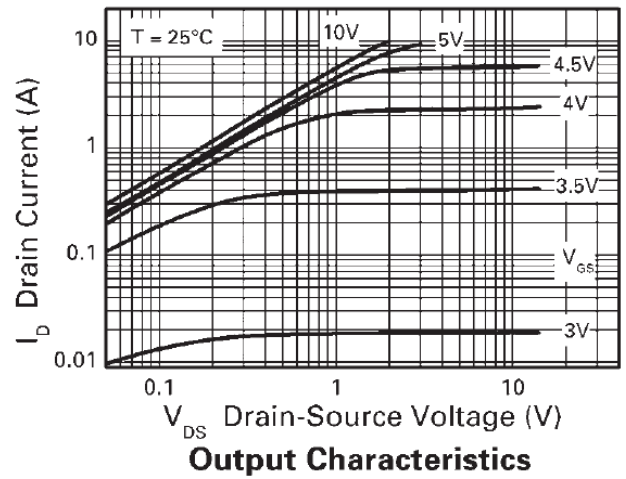
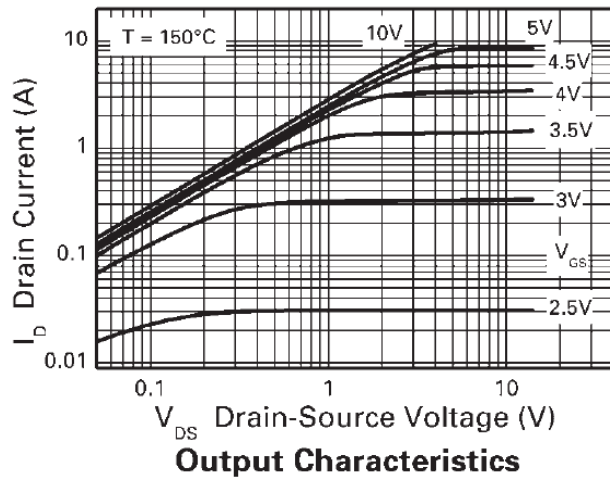
**Thermal Characteristics**

**Safe Operating Area**

**Derating Curve**

**Transient Thermal Impedance**

**Pulse Power Dissipation**

**Electrical Characteristics** (@T<sub>A</sub> = +25 °C, unless otherwise specified.)

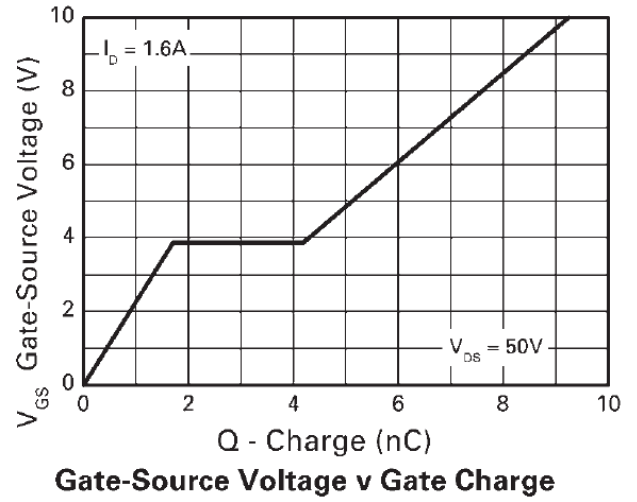
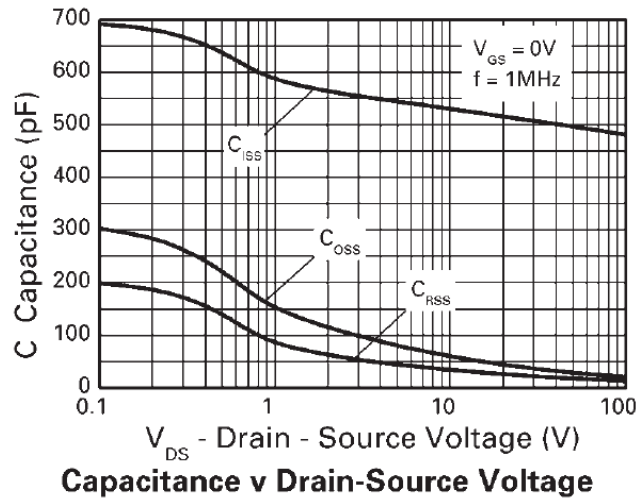
Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
<b>OFF CHARACTERISTICS</b>						
Drain-Source Breakdown Voltage	BV <sub>DSS</sub>	100	—	—	V	I <sub>D</sub> = 250μA, V <sub>GS</sub> = 0V
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	—	—	0.5	μA	V <sub>DS</sub> = 100V, V <sub>GS</sub> = 0V
Gate-Source Leakage	I <sub>GSS</sub>	—	—	100	nA	V <sub>GS</sub> = ±20V, V <sub>DS</sub> = 0V
<b>ON CHARACTERISTICS</b>						
Gate Threshold Voltage	V <sub>GS(th)</sub>	1.0	—	3.0	V	I <sub>D</sub> = 250μA, V <sub>DS</sub> = V <sub>GS</sub>
Static Drain-Source On-Resistance (Note 9)	R <sub>DS(ON)</sub>	—	—	0.23	Ω	V <sub>GS</sub> = 10V, I <sub>D</sub> = 1.6A
				0.30		V <sub>GS</sub> = 4.5V, I <sub>D</sub> = 1.4A
				0.50		V <sub>GS</sub> = 4.3V, I <sub>D</sub> = 1.1A
Forward Transconductance (Notes 9 & 11)	g <sub>fs</sub>	—	4.8	—	S	V <sub>DS</sub> = 15V, I <sub>D</sub> = 1.6A
Diode Forward Voltage (Note 9)	V <sub>SD</sub>	—	0.85	0.95	V	T <sub>J</sub> = +25 °C, I <sub>S</sub> = 2.0A, V <sub>GS</sub> = 0V
<b>DYNAMIC CHARACTERISTICS (Note 11)</b>						
Input Capacitance	C <sub>iss</sub>	—	497	—	pF	V <sub>DS</sub> = 50V, V <sub>GS</sub> = 0V f = 1.0MHz
Output Capacitance	C <sub>oss</sub>	—	29	—	pF	
Reverse Transfer Capacitance	C <sub>rss</sub>	—	18	—	pF	
Gate Charge (Note 10)	Q <sub>g</sub>	—	5.0	—	nC	V <sub>DS</sub> = 50V, V <sub>GS</sub> = 5V, I <sub>D</sub> = 1.6A
Total Gate Charge (Note 10)	Q <sub>g</sub>	—	9.2	—	nC	V <sub>DS</sub> = 50V, V <sub>GS</sub> = 10V, I <sub>D</sub> = 1.6A
Gate-Source Charge (Note 10)	Q <sub>gs</sub>	—	1.7	—	nC	
Gate-Drain Charge (Note 10)	Q <sub>gd</sub>	—	2.5	—	nC	
Turn-On Delay Time (Note 10)	t <sub>d(on)</sub>	—	2.9	—	ns	V <sub>DD</sub> = 50V, I <sub>D</sub> = 1.0A, R <sub>G</sub> ≅ 6.0Ω, V <sub>GS</sub> = 10V
Turn-On Rise Time (Note 10)	t <sub>r</sub>	—	2.1	—	ns	
Turn-Off Delay Time (Note 10)	t <sub>d(off)</sub>	—	12.1	—	ns	
Turn-Off Fall Time (Note 10)	t <sub>f</sub>	—	5.0	—	ns	
Reverse Recovery Time	t <sub>rr</sub>	—	32	—	ns	T <sub>J</sub> = +25 °C, I <sub>F</sub> = 1.7A, di/dt = 100A/μs
Reverse Recovery Charge	Q <sub>rr</sub>	—	40	—	nC	

Notes: 9. Measured under pulsed conditions. Width ≤ 300μs. Duty cycle ≤ 2%.  
10. Switching characteristics are independent of operating junction temperature.  
11. For design aid only, not subject to production testing.

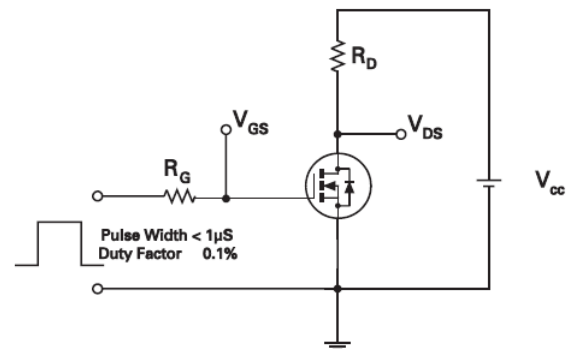
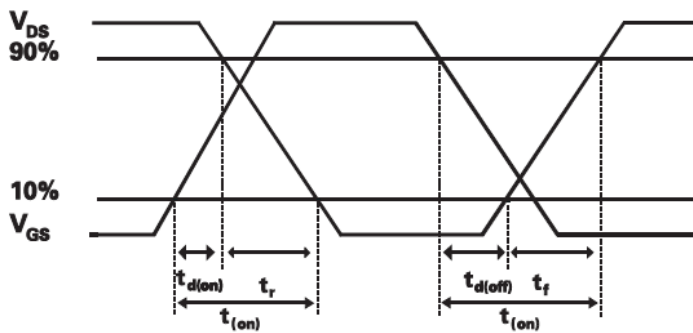
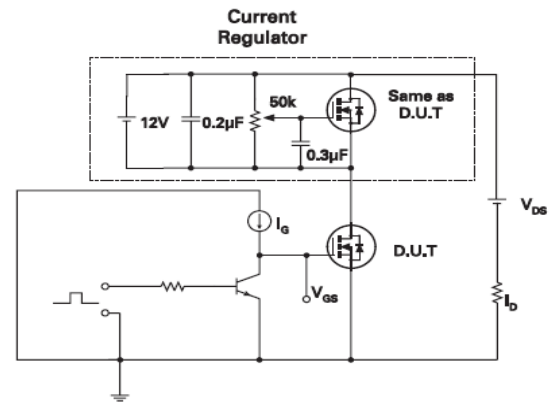
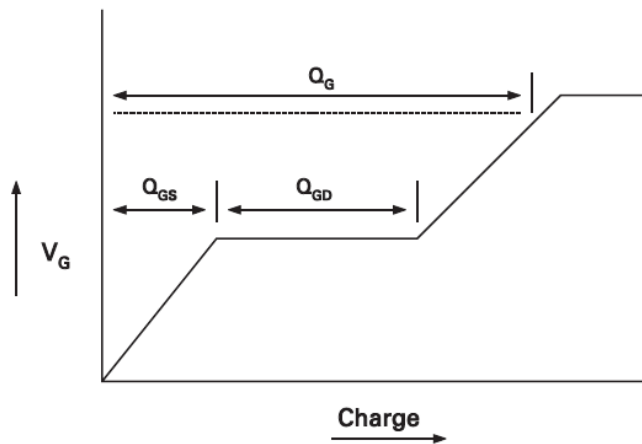
## Typical Characteristics



## Typical Characteristics (continued)

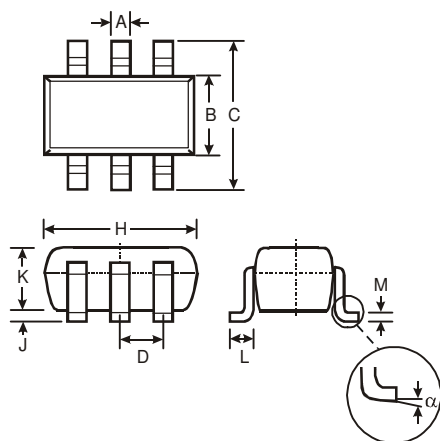


## Test Circuits



## Package Outline Dimensions

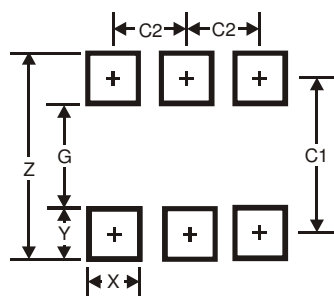
Please see AP02002 at <http://www.diodes.com/datasheets/ap02002.pdf> for the latest version.



SOT26			
Dim	Min	Max	Typ
A	0.35	0.50	0.38
B	1.50	1.70	1.60
C	2.70	3.00	2.80
D	—	—	0.95
H	2.90	3.10	3.00
J	0.013	0.10	0.05
K	1.00	1.30	1.10
L	0.35	0.55	0.40
M	0.10	0.20	0.15
α	0°	8°	—
All Dimensions in mm			

## Suggested Pad Layout

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



Dimensions	Value (in mm)
Z	3.20
G	1.60
X	0.55
Y	0.80
C1	2.40
C2	0.95

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