

Product Summary

BV _{DSS} (V)	R _{DS(ON)} (Ω)	I _D (A)
60	0.3 @ V _{GS} = 10V	1.6

Description and Applications

This new generation of trench MOSFETs utilizes a unique structure that combines the benefits of low on-resistance with fast switching speed. This makes them ideal for high-efficiency, low-voltage power-management applications.

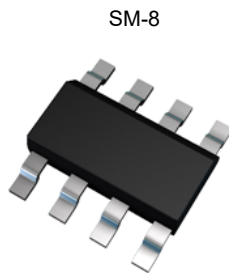
- DC-AC converters
- Motor control

Features

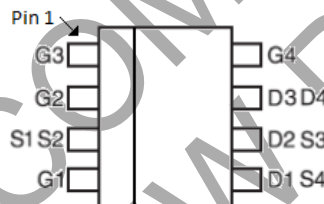
- Compact Package
- Low On-State Losses
- Low Drive Requirements
- Operates up to 60V
- 1 Amp Continuous Rating
- **Lead-Free Finish; RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **For automotive applications requiring specific change control (i.e. parts qualified to AEC-Q100/101/104/200, PPAP capable, and manufactured in IATF 16949 certified facilities), please [contact us](#) or your local Diodes representative.**
<https://www.diodes.com/quality/product-definitions/>

Mechanical Data

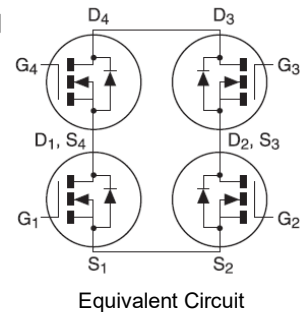
- Package: SM-8
- Package Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish - Matte Tin Plated Leads. Solderable per MIL-STD-202, Method 208 (B3)
- Weight: 0.117 grams (Approximate)



Top View



Top View
Pinout



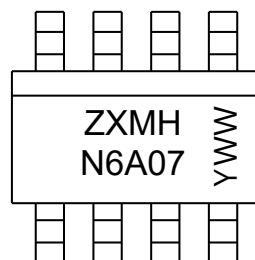
Equivalent Circuit

Ordering Information (Note 4)

Orderable Part Number	Package	Reel Size (inches)	Tape Width (mm)	Packing	
				Qty.	Carrier
ZXMHN6A07T8TA	SM-8	7	12	1,000	Reel
ZXMHN6A07T8TC	SM-8	13	12	4,000	Reel

- Notes:
1. EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant. All applicable RoHS exemptions applied.
 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



ZXMHN6A07 = Product Type Marking Code
 YWW = Date Code Marking
 Y or YY = Last Digit of Year (ex: 6 = 2026)
 WW or YYWW = Week Code (01 to 53)

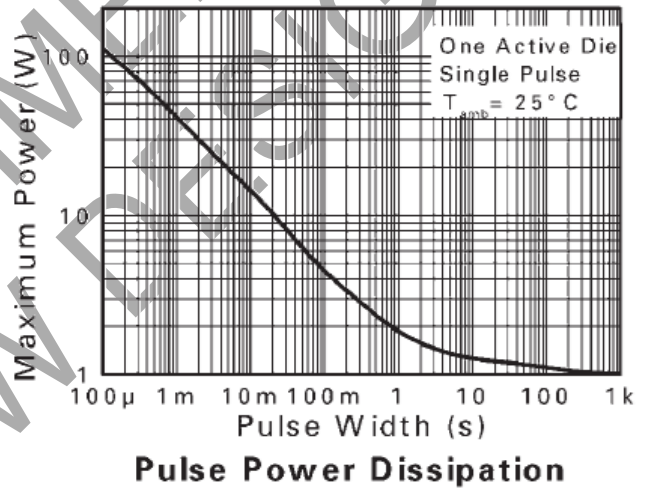
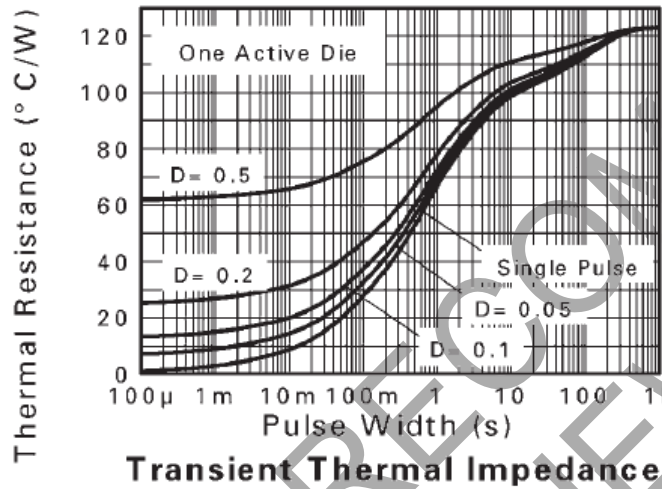
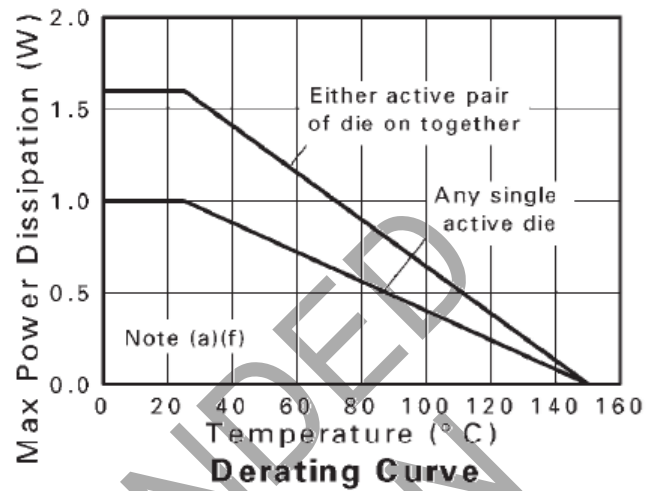
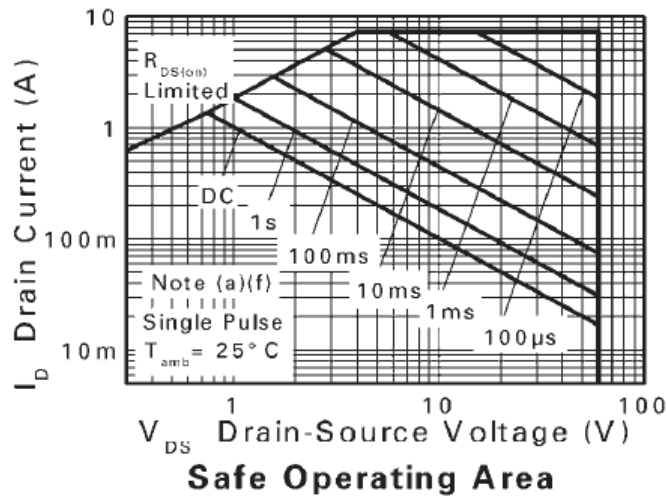
Absolute Maximum Ratings

Characteristic			Symbol	Value	Unit
Drain-Source Voltage			V_{DSS}	60	V
Gate-Source Voltage			V_{GSS}	±20	V
Continuous Drain Current	$V_{GS} = 10V$	$T_A = +25^{\circ}C$ (Notes 6, 8)	I_D	1.6	A
		$T_A = +70^{\circ}C$ (Notes 6, 8)		1.3	
		$T_A = +25^{\circ}C$ (Notes 5, 8)		1.4	
Pulsed Drain Current (Note 7)			I_{DM}	9	A
Continuous Source Current (Body Diode) (Notes 6, 8)			I_S	1	A
Pulsed Source Current (Body Diode) (Note 7)			I_{SM}	9	A

Thermal Characteristics

Characteristic		Symbol	Value	Unit
Total Power Dissipation at $T_A = +25^\circ C$	Any Single Transistor "On" (Notes 5, 8)	P_{TOT}	1.1	W
	Single Transistor "On" (Notes 6, 8)		1.4	
	Two Transistors "On" Equally (Notes 5, 9)		1.6	
Linear Derating Factor Above $+25^\circ C$	Single Transistor "On" (Notes 5, 8)	P_{TOT}	8.8	mW/ $^\circ C$
	Single Transistor "On" (Notes 6, 8)		11.2	
	Two Transistors "On" Equally (Notes 5, 9)		13.2	
Thermal Resistance - Junction to Ambient	Single Transistor "On" (Notes 5, 8)	$R_{\theta JA}$	114	$^\circ C/W$
	Single Transistor "On" (Notes 6, 8)		89	
	Two Transistors "On" Equally (Notes 5, 9)		76	
Operating and Storage Temperature Range		T_J, T_{STG}	-55 to +150	$^\circ C$

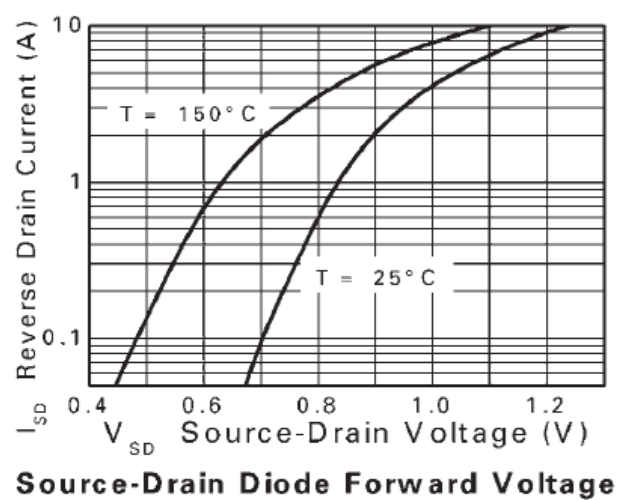
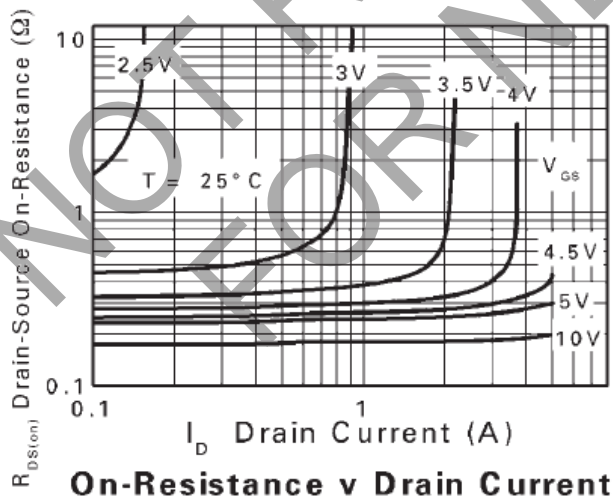
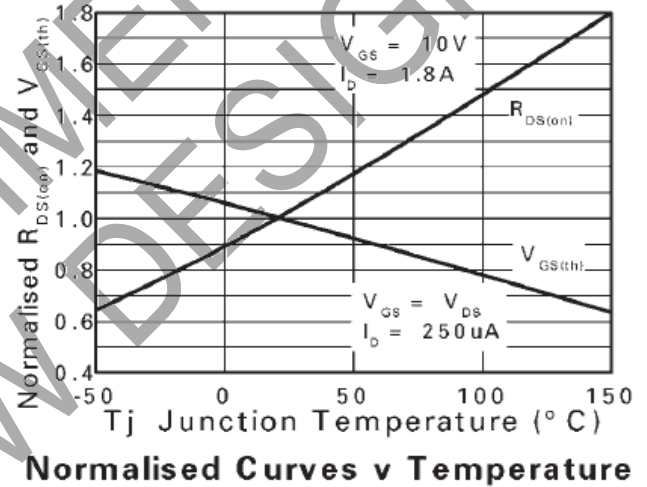
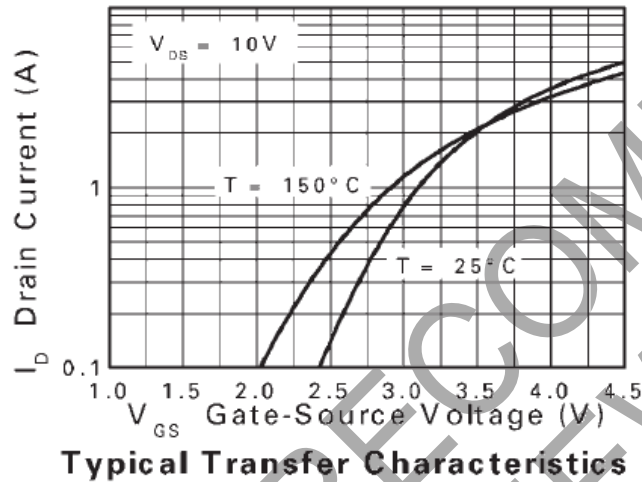
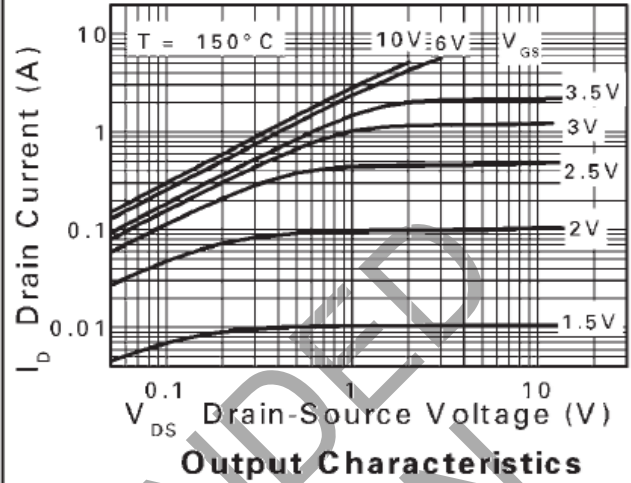
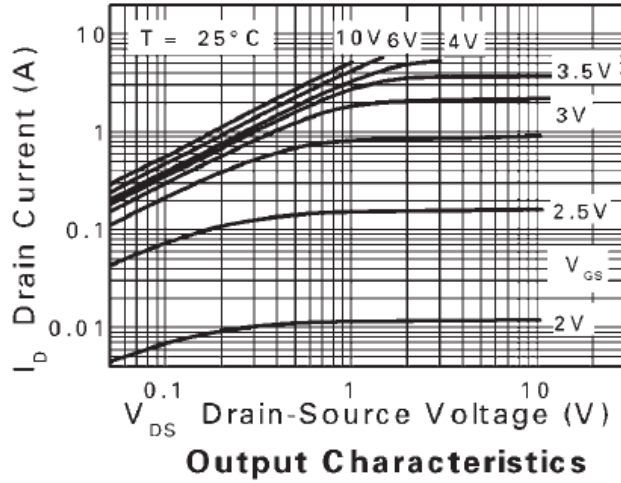
- Notes:
- For a device mounted on 50mm x 50mm x 1.6mm FR-4 PCB with a high coverage of single sided 2oz weight copper in still air conditions with the heat sink split into three equal areas, one for each drain connection.
 - For a device surface mounted on a FR-4 PCB at $t \leq 10$ sec.
 - Repetitive rating on 50mm x 50mm x 1.6mm FR-4 PCB, duty cycle 2%, pulse width 300 μs in still air conditions with the heat sink split into three equal areas, one for each drain connection.
 - For device with one active die.
 - For any two die not sharing the same drain connection.

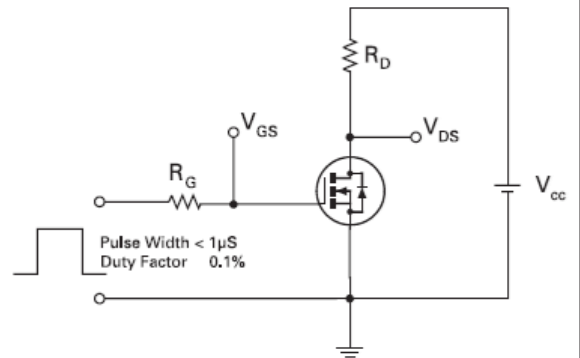
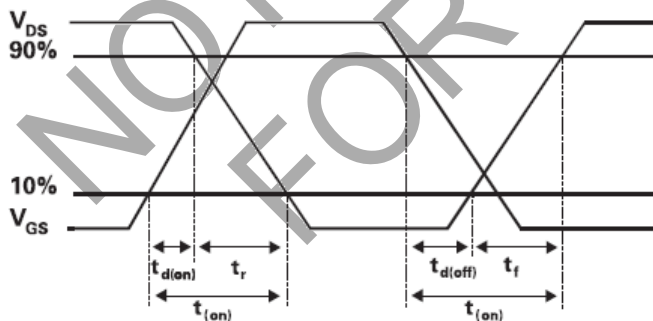
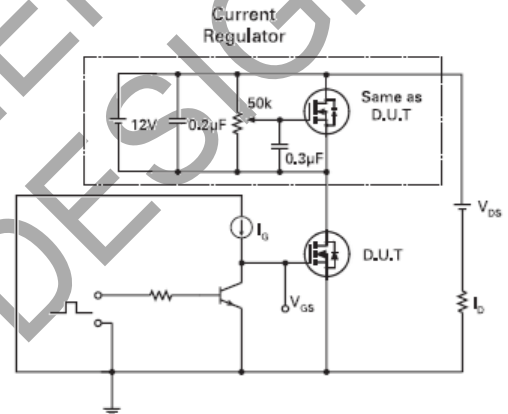
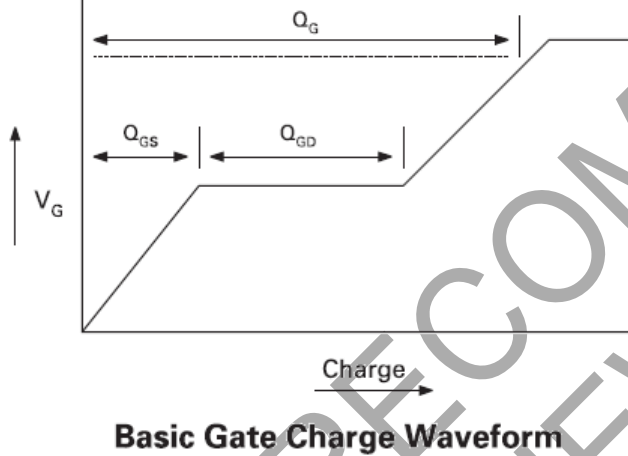
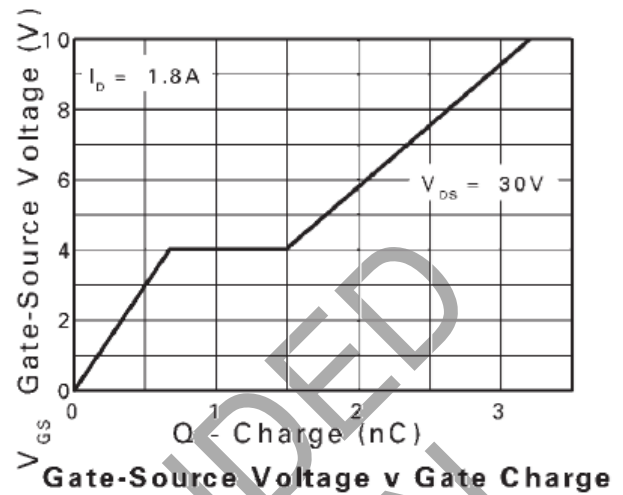
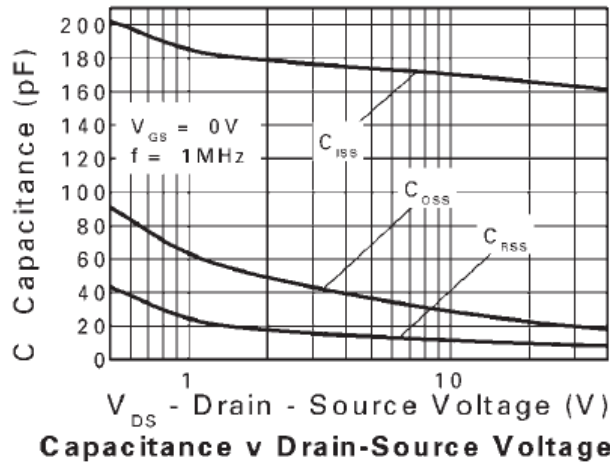


Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
STATIC						
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}	—	—	100	nA	V _{GS} = ±20V, V _{DS} = 0V
Gate Threshold Voltage	V _{GS(TH)}	1.0	—	3.0	V	V _{DS} = V _{GS} , I _D = 250μA
Static Drain-Source On-State Resistance (Note 10)	R _{DS(ON)}	—	—	0.3	Ω	V _{GS} = 10V, I _D = 1.8A
		—	—	0.45	Ω	V _{GS} = 4.5V, I _D = 1.3A
Forward Transconductance (Notes 10,12)	g _{fs}	—	2.3	—	S	V _{DS} =15V, I _D =1.8A
DYNAMIC (Note 12)						
Input Capacitance	C _{iss}	—	166	—	pF	V _{DS} = 40V, V _{GS} = 0V, f = 1MHz
Output Capacitance	C _{oss}	—	20	—	pF	
Reverse Transfer Capacitance	C _{rss}	—	9	—	pF	
SWITCHING (Notes 11, 12)						
Turn-On Delay Time	t _{D(ON)}	—	1.8	—	ns	V _{DD} = 30V, I _D = 1.8A, R _G ≅ 6.0Ω, V _{GS} = 10V
Turn-On Rise Time	t _R	—	1.4	—	ns	
Turn-Off Delay Time	t _{D(OFF)}	—	4.9	—	ns	
Turn-Off Fall Time	t _F	—	2.0	—	ns	
Gate Charge	Q _g	—	3.2	—	nC	V _{DS} = 30V, V _{GS} = 10V, I _D = 1.8A
Gate-Source Charge	Q _{gs}	—	0.7	—	nC	
Gate Drain Charge	Q _{gd}	—	0.8	—	nC	
Source-Drain Diode						
Diode Forward Voltage (Note 10)	V _{SD}	—	—	0.95	V	T _J = +25°C, I _S = 0.45A, V _{GS} = 0V
Reverse-Recovery Time (Note 12)	t _{RR}	—	21	—	ns	T _J = +25°C, I _S = 1.0A, di/dt = 100A/μs
Reverse-Recovery Charge (Note 12)	Q _{RR}	—	21	—	nC	

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

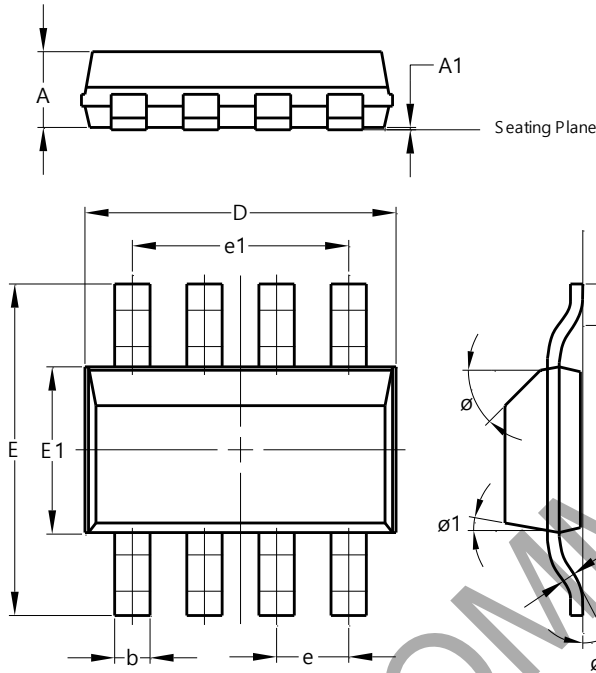




Package Outline Dimensions

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

SM-8

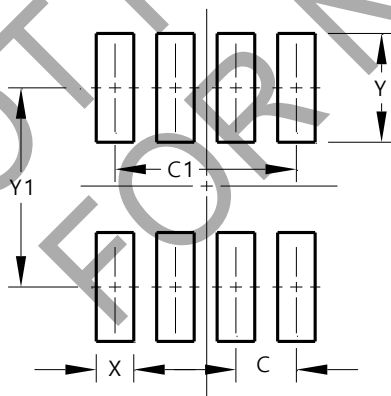


SM-8			
Dim	Min	Max	Typ
A	--	1.70	1.60
A1	0.02	0.10	0.04
b	0.70	0.90	0.80
c	0.24	0.32	0.28
D	6.30	6.70	6.60
e	1.53 REF		
e1	4.59 REF		
E	6.70	7.30	7.00
E1	3.30	3.70	3.50
L	0.75	1.00	0.90
Ø	--	--	45°
Ø1	--	15°	--
Ø2	--	--	10°
All Dimensions in mm			

Suggested Pad Layout

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

SM-8



Dimensions	Value (in mm)
C	1.52
C1	4.60
X	0.95
Y	2.80
Y1	6.80

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