

## Product Summary

BV <sub>DSS</sub>	R <sub>DS(ON)</sub> MAX	I <sub>D</sub> T <sub>A</sub> = +25°C
-30V	32mΩ @ V <sub>GS</sub> = -10V	-5.8A
	50mΩ @ V <sub>GS</sub> = -4.5V	-4.6A

## Description

This new generation MOSFET has been designed to minimize the on-state resistance (R<sub>DS(ON)</sub>) yet maintain superior switching performance, making it ideal for high efficiency power management applications.


## Applications

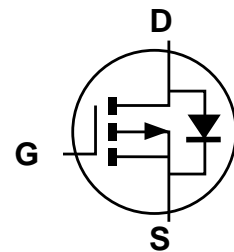
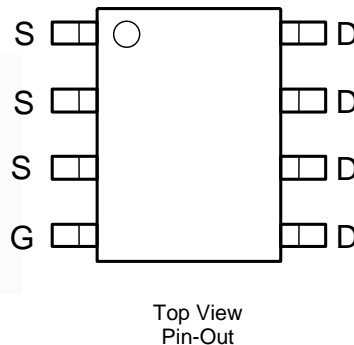
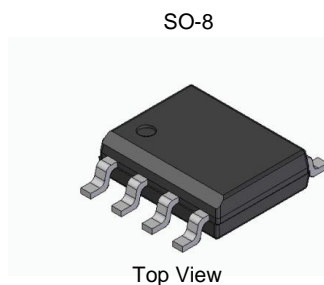
- DC-DC converters
- Power management functions
- Backlighting

## Features

- 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 ([DMP3037LSSQ](#))**

## Mechanical Data

- Package: SO-8
- Package Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Matte Tin Plated over Copper Leadframe. Solderable per MIL-STD-202, Method 208 
- Terminal Connections: See Diagram Below
- Weight: 0.072 grams (Approximate)

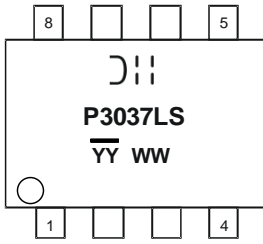


## Ordering Information (Note 4)

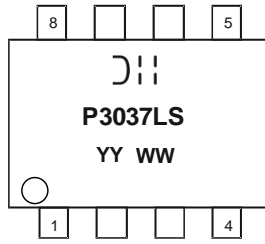
Part Number	Package	Packing	
		Qty.	Carrier
DMP3037LSS-13	SO-8	2500	Tape & Reel

- 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



Chengdu A/T Site



Shanghai A/T Site

⌋|| = Manufacturer's Marking  
 P3037LS = Product Type Marking Code  
 YYWW = Date Code Marking  
 YY or YY = Year (ex: 22 = 2022)  
 WW = Week (01 to 53)  
 YY = Date Code Marking for SAT (Shanghai Assembly/ Test Site)  
 YY = Date Code Marking for CAT (Chengdu Assembly/ Test Site)

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

Characteristic	Symbol	Value	Unit
Drain-Source Voltage	V <sub>DSS</sub>	-30	V
Gate-Source Voltage	V <sub>GSS</sub>	±20	V
Continuous Drain Current (Note 6) V <sub>GS</sub> = -10V	I <sub>D</sub>	T <sub>A</sub> = +25°C	-5.8
		T <sub>A</sub> = +70°C	-4.6
Pulsed Drain Current (10μs Pulse, Duty cycle = 1%)	I <sub>DM</sub>	-40	A
Avalanche Current (Note 7) L = 0.1mH	I <sub>AS</sub>	-17	A
Avalanche Energy (Note 7) L = 0.1mH	E <sub>AS</sub>	15	mJ

## Thermal Characteristics

Characteristic	Symbol	Value	Unit
Total Power Dissipation (Note 5)	P <sub>D</sub>	T <sub>A</sub> = +25°C	1.2
		T <sub>A</sub> = +70°C	0.8
Thermal Resistance, Junction to Ambient (Note 5)	R <sub>θJA</sub>	Steady State	100
		t < 10s	58
Total Power Dissipation (Note 6)	P <sub>D</sub>	T <sub>A</sub> = +25°C	1.6
		T <sub>A</sub> = +70°C	1.0
Thermal Resistance, Junction to Ambient (Note 6)	R <sub>θJA</sub>	Steady State	77
		t < 10s	45
Thermal Resistance, Junction to Case (Note 6)	R <sub>θJC</sub>	10	°C/W
Operating and Storage Temperature Range	T <sub>J</sub> , T <sub>STG</sub>	-55 to +150	°C

Notes: 5. Device mounted on FR-4 PC board, with minimum recommended pad layout, single sided.  
 6. Device mounted on FR-4 substrate PC board, 2oz copper, with thermal bias to bottom layer 1inch square copper plate.  
 7. I<sub>AS</sub> and E<sub>AS</sub> ratings are based on low frequency and duty cycles to keep T<sub>J</sub> = +25°C.

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

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
<b>OFF CHARACTERISTICS (Note 8)</b>						
Drain-Source Breakdown Voltage	BV <sub>DSS</sub>	-30	—	—	V	V <sub>GS</sub> = 0V, I <sub>D</sub> = -250μA
Zero Gate Voltage Drain Current T <sub>J</sub> = +25°C	I <sub>DSS</sub>	—	—	-1.0	μA	V <sub>DS</sub> = -30V, 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 (Note 8)</b>						
Gate Threshold Voltage	V <sub>GS(TH)</sub>	-1.0	—	-2.4	V	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = -250μA
Static Drain-Source On-Resistance	R <sub>DS(ON)</sub>	—	19	32	mΩ	V <sub>GS</sub> = -10V, I <sub>D</sub> = -7A
			28	50		V <sub>GS</sub> = -4.5V, I <sub>D</sub> = -5A
Diode Forward Voltage	V <sub>SD</sub>	—	-0.75	-1.2	V	V <sub>GS</sub> = 0V, I <sub>S</sub> = -1A
<b>DYNAMIC CHARACTERISTICS (Note 9)</b>						
Input Capacitance	C <sub>iss</sub>	—	931	—	pF	V <sub>DS</sub> = -15V, V <sub>GS</sub> = 0V, f = 1.0MHz
Output Capacitance	C <sub>oss</sub>	—	120	—	pF	
Reverse Transfer Capacitance	C <sub>rss</sub>	—	102	—	pF	
Gate Resistance	R <sub>g</sub>	—	23	—	Ω	V <sub>DS</sub> = 0V, V <sub>GS</sub> = 0V, f = 1MHz
Total Gate Charge (V <sub>GS</sub> = -10V)	Q <sub>g</sub>	—	19.3	—	nC	V <sub>DS</sub> = -15V, I <sub>D</sub> = -7A
Total Gate Charge (V <sub>GS</sub> = -4.5V)	Q <sub>g</sub>	—	9.7	—	nC	V <sub>DS</sub> = -15V, I <sub>D</sub> = -7A
Gate-Source Charge	Q <sub>gs</sub>	—	2.5	—	nC	
Gate-Drain Charge	Q <sub>gd</sub>	—	3.6	—	nC	
Turn-On Delay Time	t <sub>D(ON)</sub>	—	3.2	—	ns	
Turn-On Rise Time	t <sub>r</sub>	—	11.5	—	ns	V <sub>DS</sub> = -15V, V <sub>GS</sub> = -10V, R <sub>L</sub> = 2.15Ω, R <sub>GEN</sub> = 3Ω
Turn-Off Delay Time	t <sub>D(OFF)</sub>	—	55.8	—	ns	
Turn-Off Fall Time	t <sub>f</sub>	—	30.8	—	ns	
Body Diode Reverse Recovery Time	t <sub>RR</sub>	—	13.6	—	ns	I <sub>S</sub> = -7A, di/dt = 100A/μs
Body Diode Reverse Recovery Charge	Q <sub>RR</sub>	—	3.4	—	nC	I <sub>S</sub> = -7A, di/dt = 100A/μs

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

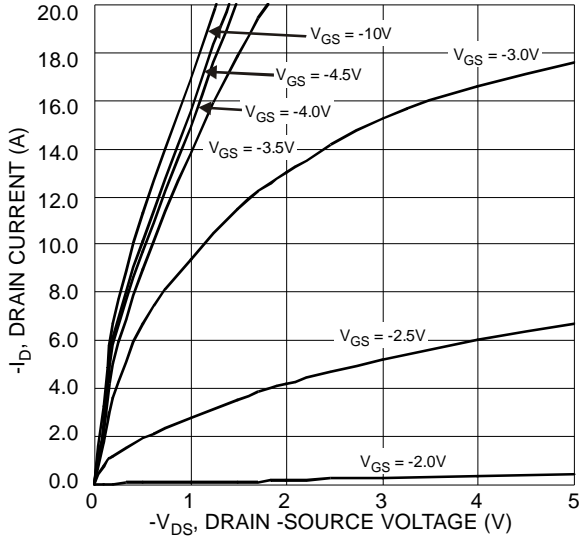


Figure 1 Typical Output Characteristics

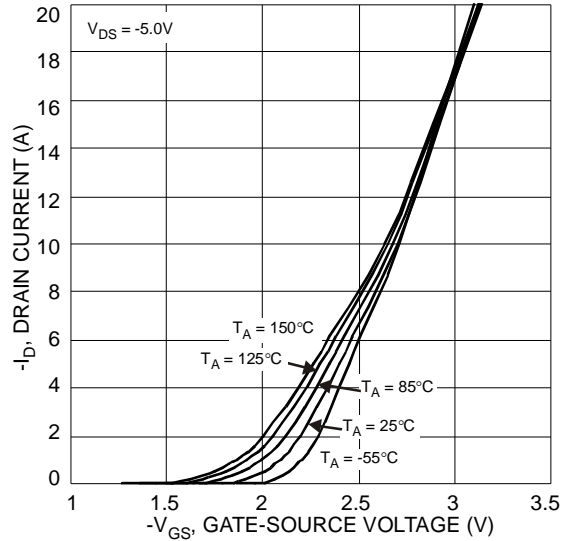


Figure 2 Typical Transfer Characteristics

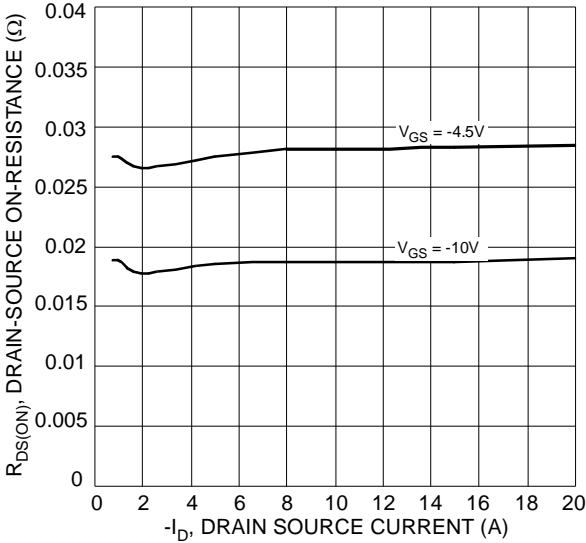


Figure 3 Typical On-Resistance vs. Drain Current and Gate Voltage

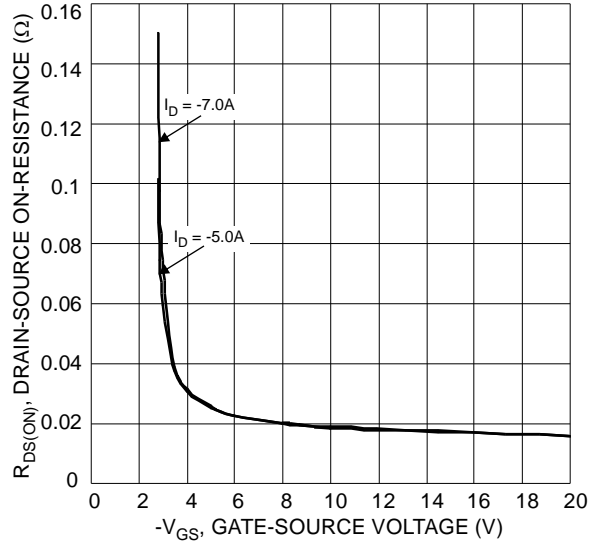


Figure 4 Typical Transfer Characteristics

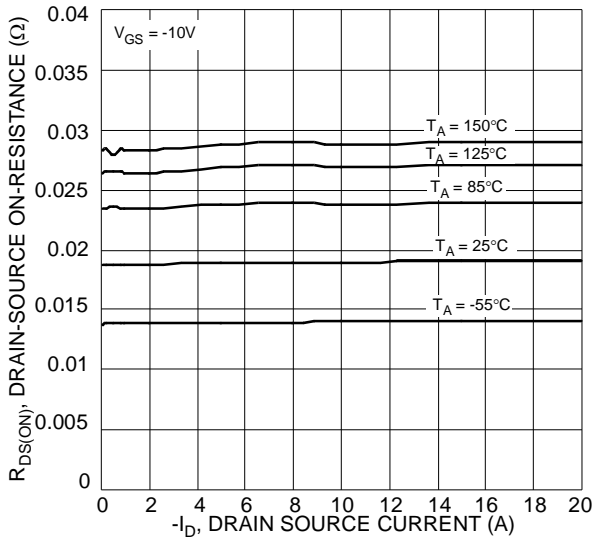


Figure 5 Typical On-Resistance vs. Drain Current and Temperature

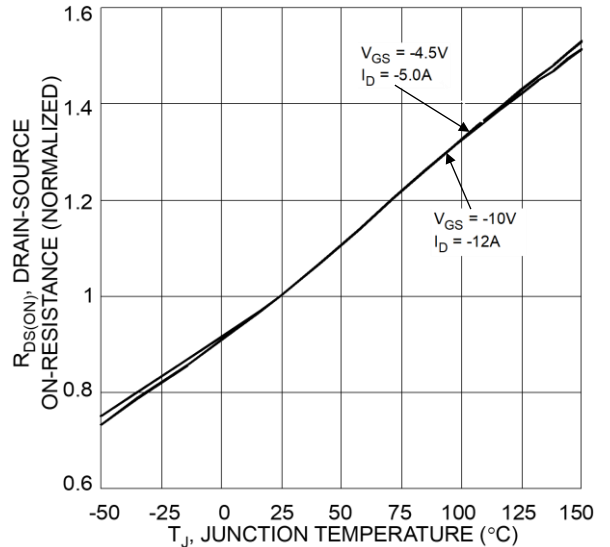


Figure 6 On-Resistance Variation with Temperature

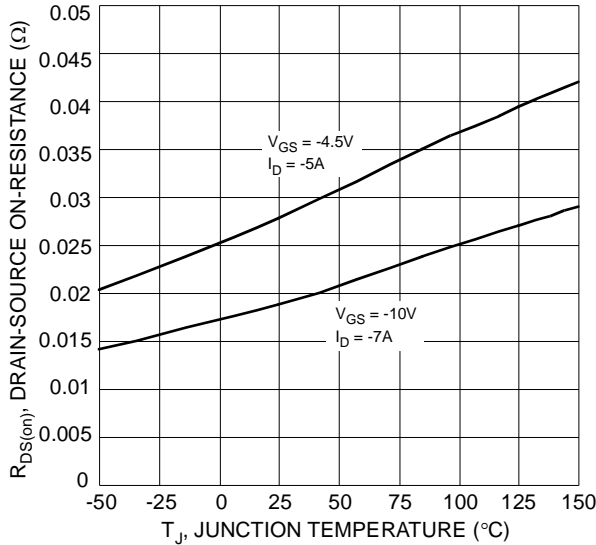


Figure 7 On-Resistance Variation with Temperature

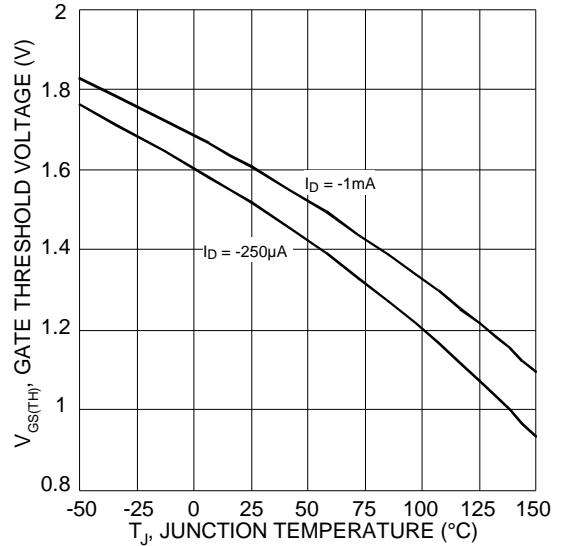


Figure 8 Gate Threshold Variation vs. Junction Temperature

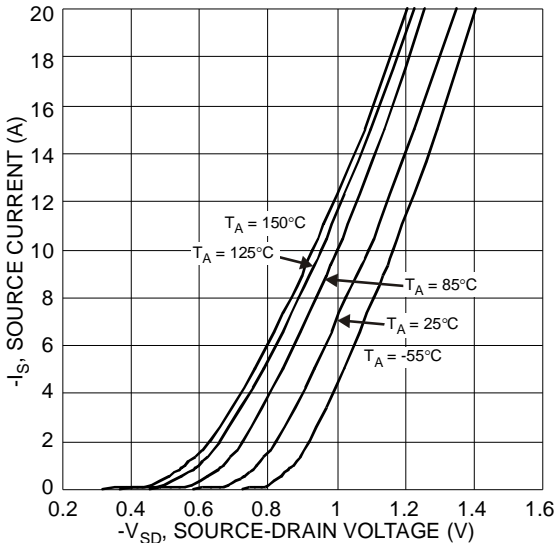


Figure 9 Diode Forward Voltage vs. Current

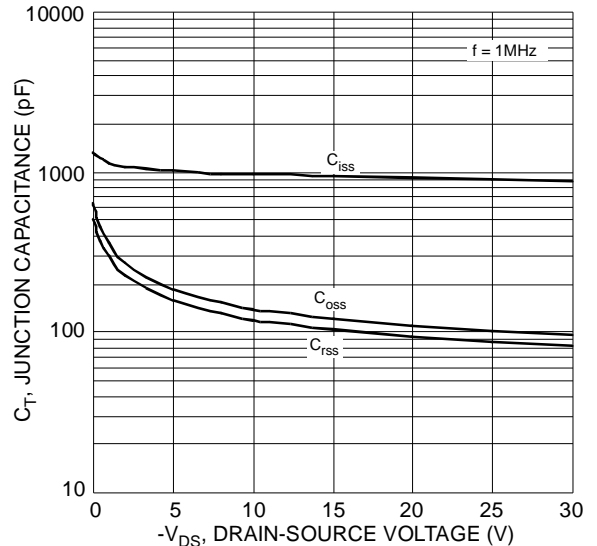


Figure 10 Typical Junction Capacitance

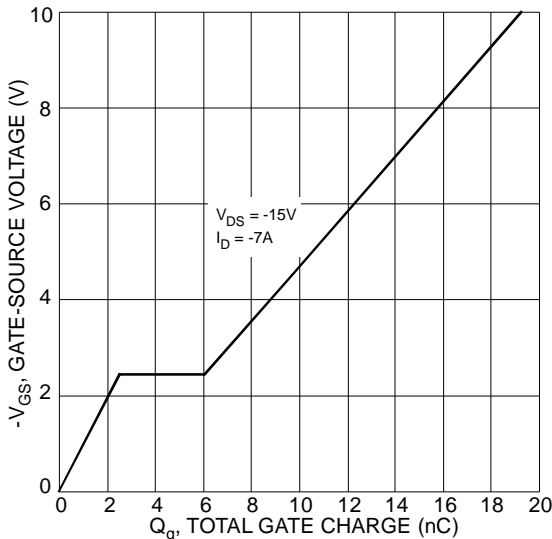


Figure 11 Gate-Charge Characteristics

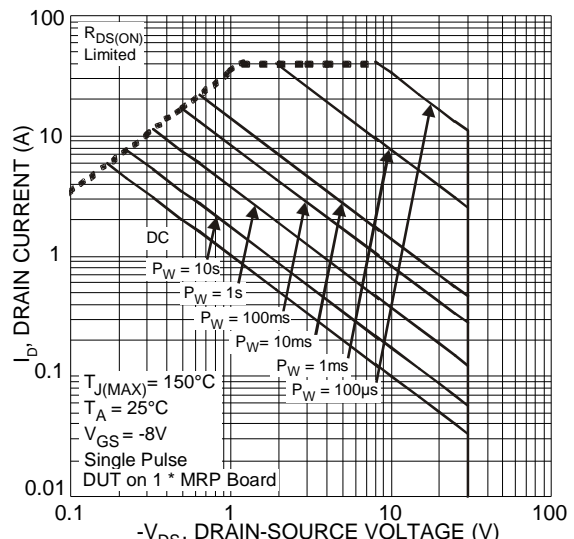
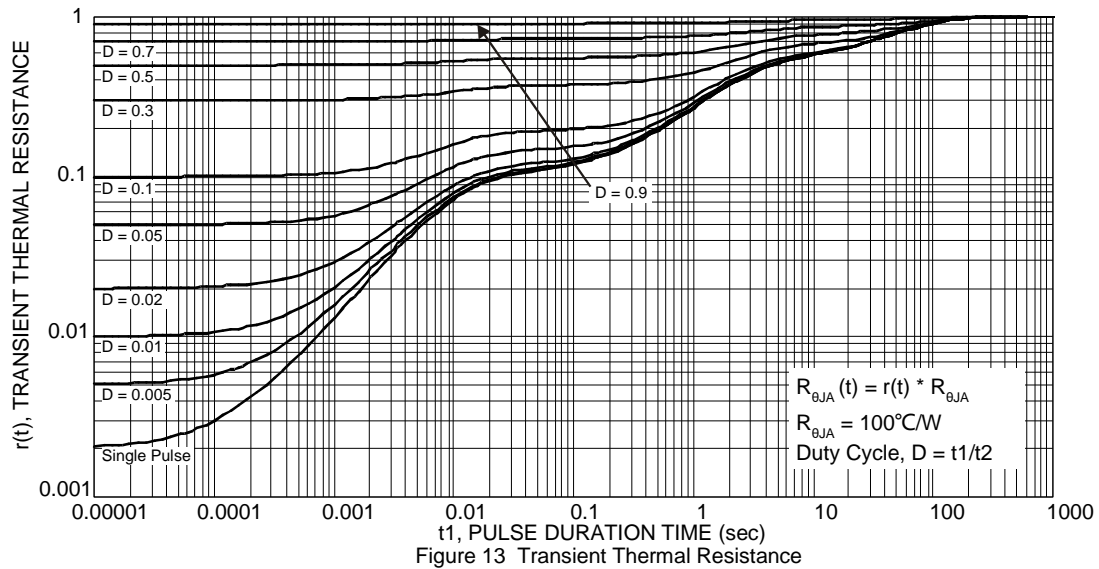


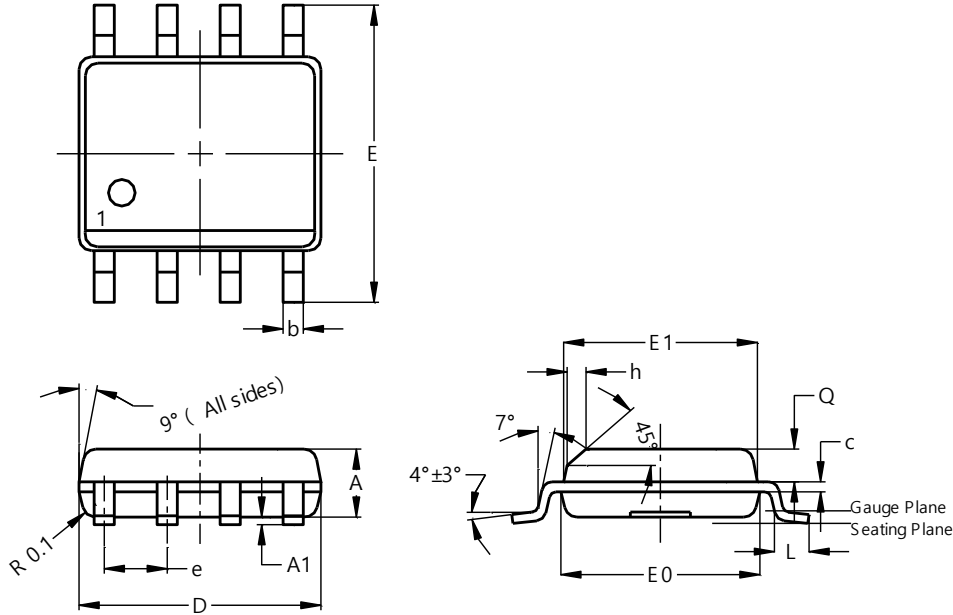
Figure 12 SOA, Safe Operation Area



**Package Outline Dimensions**

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

**SO-8**

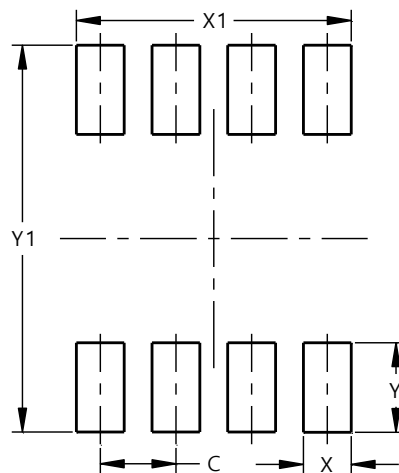


SO-8			
Dim	Min	Max	Typ
A	1.40	1.50	1.45
A1	0.10	0.20	0.15
b	0.30	0.50	0.40
c	0.15	0.25	0.20
D	4.85	4.95	4.90
E	5.90	6.10	6.00
E1	3.80	3.90	3.85
E0	3.85	3.95	3.90
e	--	--	1.27
h	--	--	0.35
L	0.62	0.82	0.72
Q	0.60	0.70	0.65
All Dimensions in mm			

**Suggested Pad Layout**

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

**SO-8**



Dimensions	Value (in mm)
C	1.27
X	0.802
X1	4.612
Y	1.505
Y1	6.50

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