

Product Summary

V _{BR(MIN)}	I _{PP(MAX)}	C _{T(TYP)}
36V & 13.3V	4A & 11A	32pF

Description and Applications

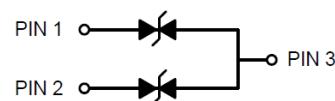
This DESD3512SO is a next generation ESD and surge protection device packaged in a small footprint surface mount package. It is qualified to AEC-Q101, supported by a PPAP and is designed to protect two data lines of the Controller Area Network (CAN) in an automotive.

- CAN Bus Protection
- Industrial Control Network

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Bottom View



Device Schematic

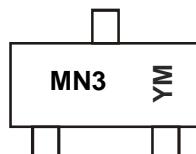
Ordering Information (Note 4)

Product	Compliance	Marking	Reel Size (inches)	Tape Width (mm)	Quantity per Reel
DESD3512SO-7	Commercial	MN3	7	8	3,000/Tape & Reel

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 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 <http://www.diodes.com/products/packages.html>.

Marking Information



MN3 = Product Type Marking Code
 YM = Date Code Marking
 Y = Year (ex: E = 2017)
 M = Month (ex: 9 = September)

Date Code Key

Year	2014	2015	2016	2017	2018	2019	2020					
Code	B	C	D	E	F	G	H					
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 (@ $T_A = +25^\circ\text{C}$, unless otherwise specified.)

Characteristic	Symbol	Value	Unit	Condition
Peak Pulse Power Dissipation	P_{PP}	240 & 330	W	8/20 μs , per Figure 3
Peak Pulse Current	I_{PP}	4 & 11	A	8/20 μs , per Figure 3
ESD Protection – Contact Discharge	$V_{ESD_CONTACT}$	± 30	kV	IEC61000-4-2 Standard
ESD Protection – Air Discharge	V_{ESD_AIR}	± 30	kV	IEC61000-4-2 Standard

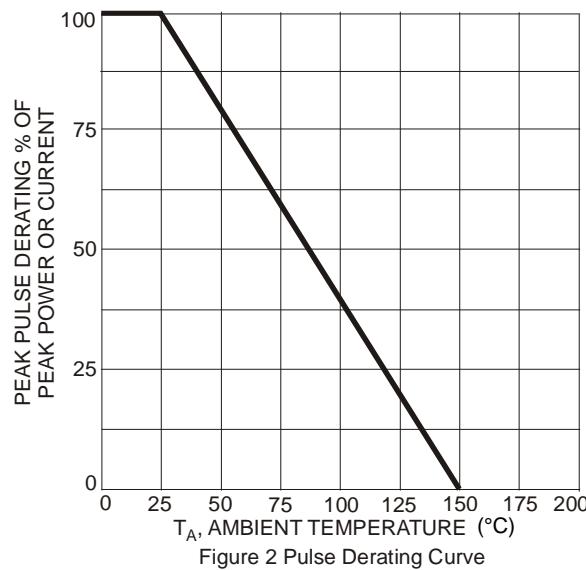
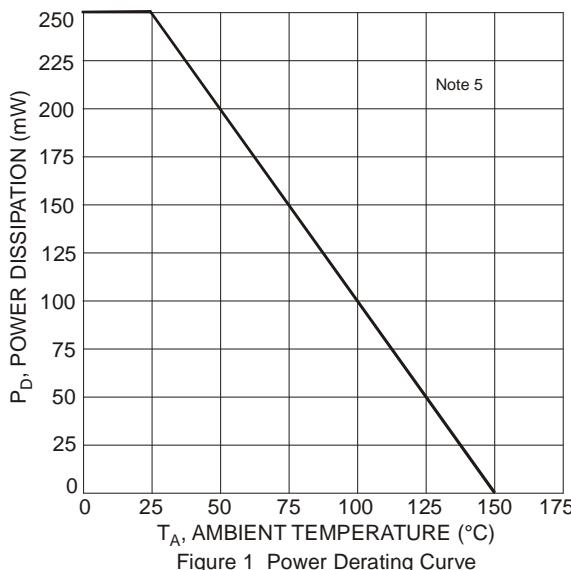
Thermal Characteristics

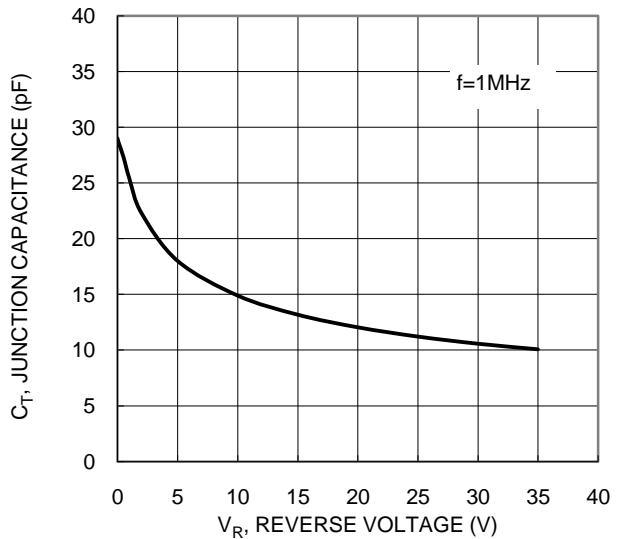
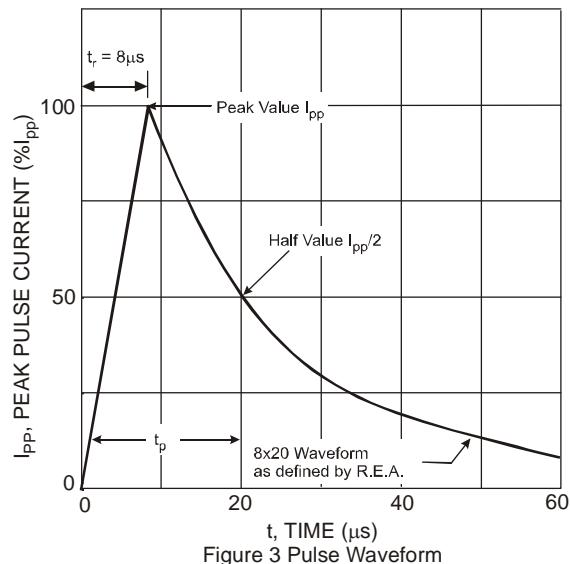
Characteristic	Symbol	Value	Unit
Package Power Dissipation (Note 5)	P_D	300	mW
Thermal Resistance, Junction to Ambient (Note 5)	$R_{0,JA}$	417	$^\circ\text{C}/\text{W}$
Operating and Storage Temperature Range	T_J, T_{STG}	-65 to +150	$^\circ\text{C}$

Electrical Characteristics (@ $T_A = +25^\circ\text{C}$, unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Standoff Voltage, from Pin 1 or Pin 2 to Pin 3	V_{RWM1}	-	-	35	V	-
Reverse Standoff Voltage, from Pin 3 to Pin 1 or Pin 2	V_{RWM2}	-	-	12	V	-
Channel Leakage Current, from Pin 1 or Pin 2 to Pin 3 (Note 6)	I_{RM1}	-	-	500	nA	$V_{RWM} = 35\text{V}$
Channel Leakage Current, from Pin 3 to Pin 1 or Pin 2 (Note 6)	I_{RM2}	-	-	500	nA	$V_{RWM} = 12\text{V}$
Breakdown Voltage, from Pin 1 or Pin 2 to Pin 3	V_{BR1}	36	-	-	V	$I_R = 1\text{mA}$
Breakdown Voltage, from Pin 3 to Pin 1 or Pin 2	V_{BR2}	13.3	-	-	V	$I_R = 1\text{mA}$
Clamping Voltage, from Pin 1 or Pin 2 to Pin 3	V_{CL1}	-	-	53	V	$I_{PP} = 1\text{A}, t_p = 8/20\mu\text{s}$
		-	-	60	V	$I_{PP} = 4\text{A}, t_p = 8/20\mu\text{s}$
Clamping Voltage, from Pin 3 to Pin 1 or Pin 2	V_{CL2}	-	-	20	V	$I_{PP} = 1\text{A}, t_p = 8/20\mu\text{s}$
		-	-	30	V	$I_{PP} = 11\text{A}, t_p = 8/20\mu\text{s}$
Channel Input Capacitance	C_T	-	32	-	pF	$V_R = 0\text{V}, f = 1\text{MHz}$

Notes: 5. Device mounted on FR-4 PCB pad layout (2oz copper) as shown on Diodes Incorporated suggested pad layout, which can be found on our website at <http://www.diodes.com/package-outlines.html>.
 6. Short duration pulse test used to minimize self-heating effect.

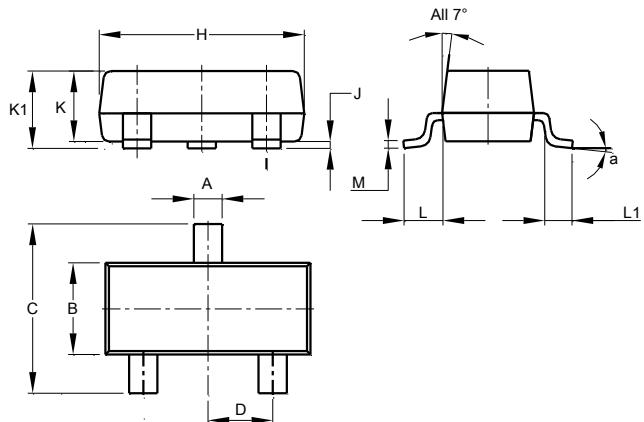




Package Outline Dimensions

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

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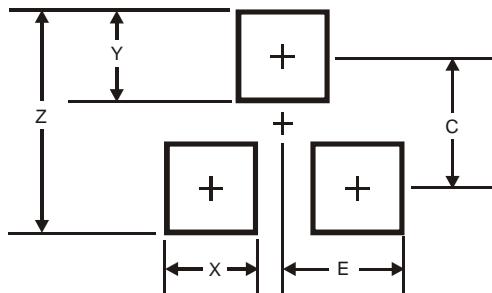
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Dim	Min	Max	Typ
A	0.37	0.51	0.40
B	1.20	1.40	1.30
C	2.30	2.50	2.40
D	0.89	1.03	0.915
F	0.45	0.60	0.535
G	1.78	2.05	1.83
H	2.80	3.00	2.90
J	0.013	0.10	0.05
K	0.890	1.00	0.975
K1	0.903	1.10	1.025
L	0.45	0.61	0.55
L1	0.25	0.55	0.40
M	0.085	0.150	0.110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

All Dimensions in mm

Suggested Pad Layout

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

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Dimensions	Value (in mm)
Z	2.9
X	0.8
Y	0.9
C	2.0
E	1.35

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