

Product Summary

V_{BR} (min)	I_{PP} (max)	C_T (typ)
25.4	3A	11pF

Description and Applications

This DESD1FLEX2SOQ 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 automotive FlexRay bus lines from ElectroStatic Discharge and other transients.

- FlexRay Bus protection
- Industrial Control Network

SOT23



Bottom View



Device Schematic

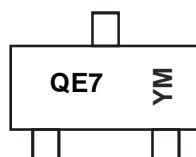
Ordering Information (Note 5)

Product	Compliance	Marking	Reel Size (inches)	Tape Width (mm)	Quantity per Reel
DESD1FLEX2SOQ-7	Automotive	QE7	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. Automotive products are AEC-Q10x qualified and are PPAP capable. Refer to http://www.diodes.com/quality/product_compliance_definitions/.
5. For packaging details, go to our website at <http://www.diodes.com/products/packages.html>.

Marking Information



QE7 = Product Type Marking Code

YM = Date Code Marking

Y = Year (ex: D = 2016)

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	Conditions
Peak Pulse Power Dissipation	P_{PP}	200	W	8/20 μs , per Figure 1
Peak Pulse Current	I_{PP}	3	A	8/20 μs , per Figure 1
ESD Protection – Contact Discharge	$V_{ESD_Contact}$	± 30	kV	IEC 61000-4-2 Standard
ESD Protection – Air Discharge	V_{ESD_Air}	± 30	kV	IEC 61000-4-2 Standard

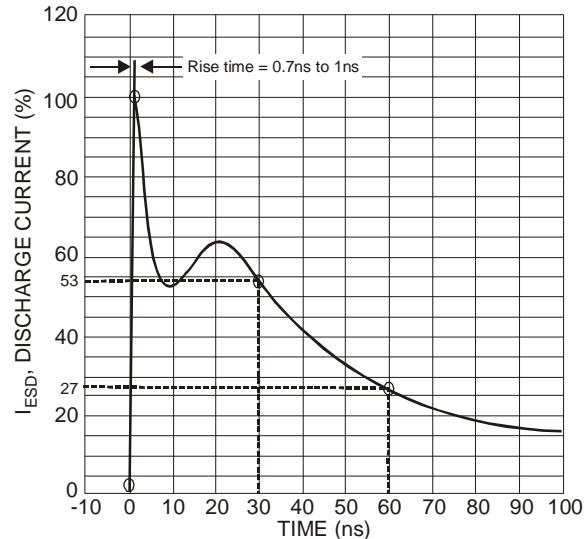
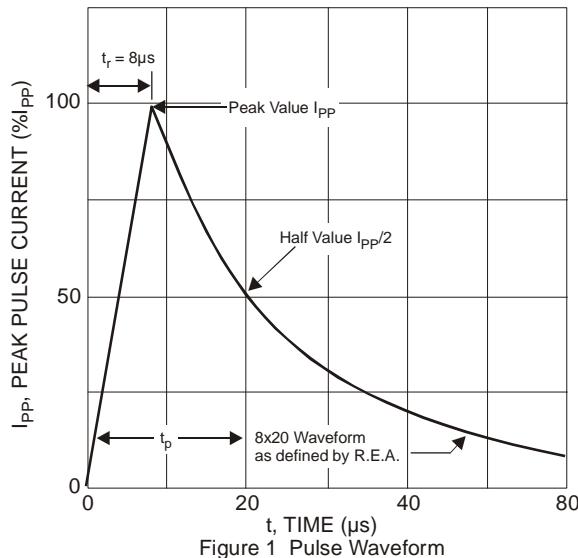
Thermal Characteristics

Characteristic	Symbol	Value	Unit
Package Power Dissipation (Note 6)	P_D	300	mW
Thermal Resistance, Junction to Ambient (Note 6)	$R_{0,JA}$	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 Conditions
Reverse Standoff Voltage	V_{RWM}	—	—	24	V	—
Channel Leakage Current (Note 7)	I_{RM}	—	<1	50	nA	$V_{RWM} = 24\text{V}$
Clamping Voltage, Positive Transients	V_{CL}	—	—	40	V	$I_{PP} = 1\text{A}$, $t_p = 8/20\mu\text{s}$, Figure 1
		—	—	70	V	$I_{PP} = 3\text{A}$, $t_p = 8/20\mu\text{s}$, Figure 1
Breakdown Voltage	V_{BR}	25.4	27.8	30.3	V	$I_R = 1\text{mA}$
Channel Input Capacitance	C_T	—	11	17	pF	$V_R = 0\text{V}$, $f = 5\text{MHz}$

Notes: 6. Device mounted on FR-4 PCB pad layout (2oz copper) as shown on Diodes, Inc. suggested pad layout AP02001, which can be found on our website at <http://www.diodes.com>.
 7. Short duration pulse test used to minimize self-heating effect.



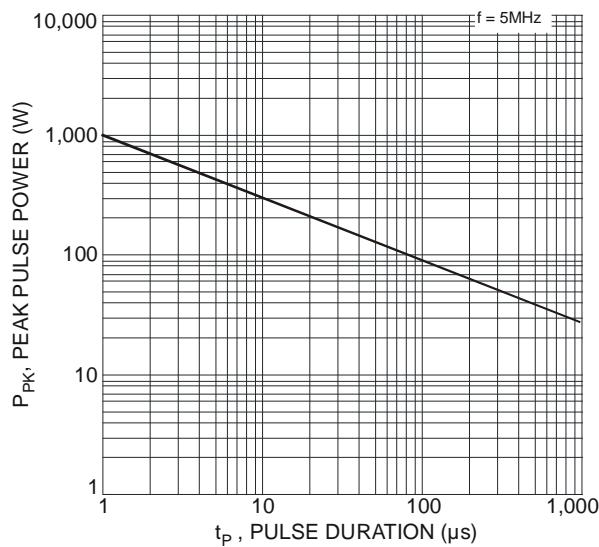


Figure 3 Peak Pulse Power vs. Pulse Duration

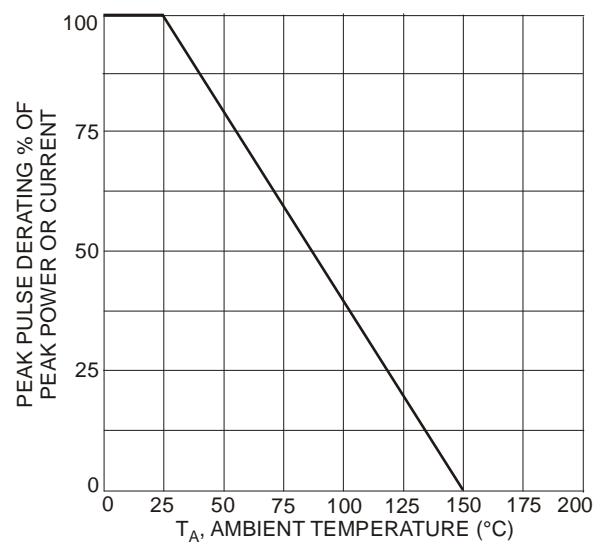


Figure 4 Pulse Derating Curve

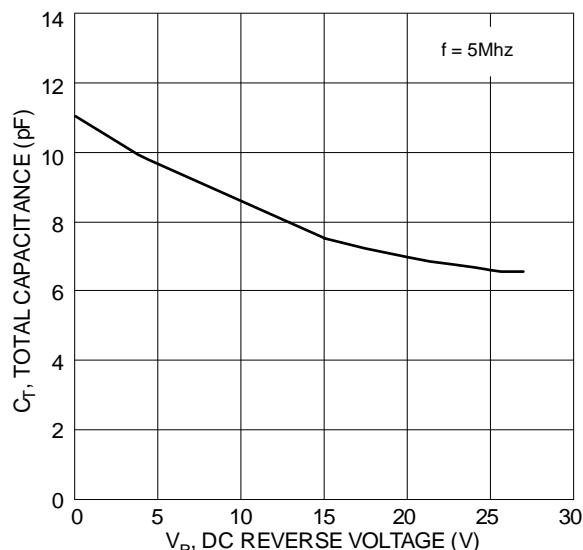
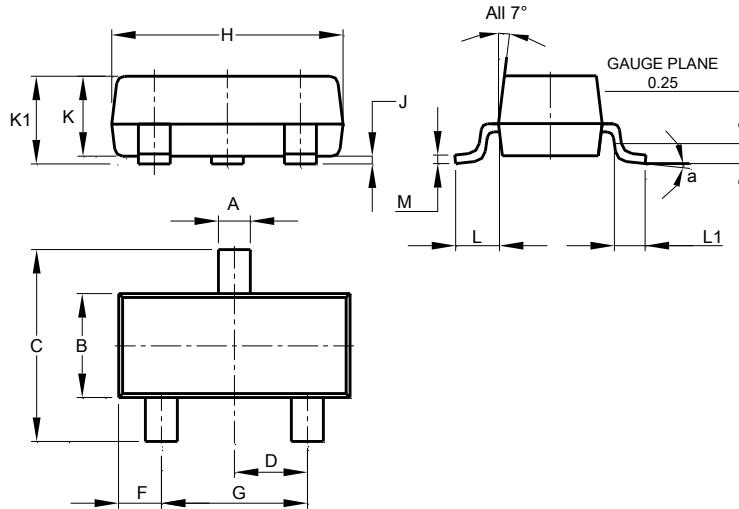


Figure 5 Total Capacitance vs. Reverse Voltage

Package Outline Dimensions

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

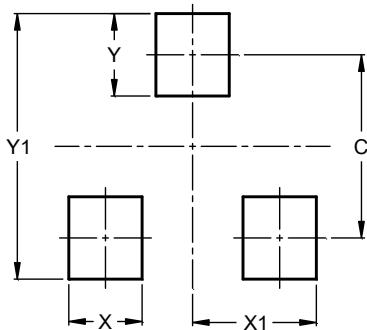


SOT23			
Dim	Min	Max	Typ
A	0.37	0.51	0.40
B	1.20	1.40	1.30
C	2.30	2.50	2.40
D	0.89	1.03	0.915
F	0.45	0.60	0.535
G	1.78	2.05	1.83
H	2.80	3.00	2.90
J	0.013	0.10	0.05
K	0.890	1.00	0.975
K1	0.903	1.10	1.025
L	0.45	0.61	0.55
L1	0.25	0.55	0.40
M	0.085	0.150	0.110
a	0°	8°	--

All Dimensions in mm

Suggested Pad Layout

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



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

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