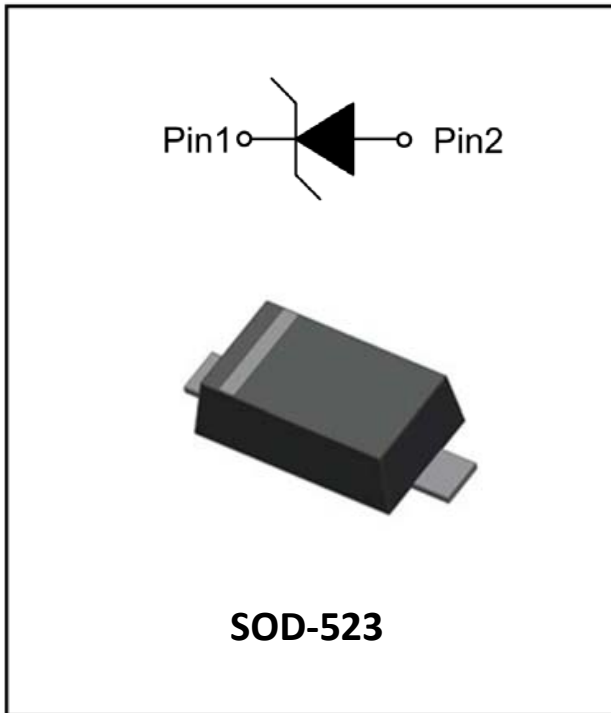


## 1- Line, Uni-directional, ESD protection diode



### Features

- Transient protection for each line according to IEC61000-4-2(ESD):  $\pm 30\text{kV}$  contact,  $\pm 30\text{kV}$  air IEC61000-4-5:10A( $t_p=8/20\mu\text{s}$ )
- Low leakage current
- Ultra low clamping voltage
- RoHS Compliant
- Part no. with suffix "Q" means AEC-Q101 qualified

### Applications

- Switches / Buttons
- Test Equipment/Instrumentation
- Point-of-Sale Terminals
- Medical Equipment
- Notebooks / Desktops / Servers
- Computer Peripherals
- CAN Bus protection
- Automotive applications

### Mechanical Data

- Package: SOD-523
- Lead Finish: Matte Tin
- Case Material: "Green" Molding Compound
- Moisture Sensitivity: Level 1 per J-STD-020

### ■ Definitions of electrical characteristics





# ESD12VD5HQ

## ■Maximum Ratings

PARAMETER	SYMBOL	LIMITS	UNIT
Peak pulse power ( $t_p = 8/20\mu s$ )	$P_{pk}$	280	W
ESD according to IEC61000-4-2 air discharge	$V_{ESD}$	$\pm 30$	KV
ESD according to IEC61000-4-2 contact discharge		$\pm 30$	
Junction temperature	$T_J$	-55~150	$^{\circ}C$
Storage temperature	$T_{STG}$	-55~150	$^{\circ}C$

Notes:

CAUTION: Stresses above those listed in "Absolute Maximum Ratings" may cause permanent damage to the component. This is a stress only rating and operation of the component at these or any other conditions above those indicated in the operational sections of this specification is not implied.

## ■Electrical Characteristics ( $T_J=25^{\circ}C$ )

PARAMETER	Symbol	UNIT	Conditions	Min	Typ	Max
Reverse Standoff Voltage	$V_{RWM}$	V				12
Reverse breakdown voltage	$V_{BR}$	V	$I_{BR} = 1mA$	13.3		16.5
Reverse leakage current	$I_R$	$\mu A$	$V_{RWM} = 12V$			0.5
Forward Voltage	$V_F$	V	$I_F = 10mA$			1.1
Clamping voltage <sup>1)</sup>	$V_C$	V	$I_{PP} = 1A, t_p = 8/20\mu s$			18.5
			$I_{PP} = 10A, t_p = 8/20\mu s$			28
Dynamic resistance <sup>2)</sup>	$R_{DYN}$	$\Omega$	TLP, $t_p = 100ns$ , I/O to Ground		0.23	
Peak Pulse Current	$I_{PP}$	A	$t_p = 8/20\mu s$			10
Junction capacitance	$C_J$	$\mu F$	$V_R = 0V, f = 1MHz$		57	70

Notes:

(1). Non-repetitive current pulse, according to IEC61000-4-5.

(2). TLP parameter:  $Z_0 = 50\Omega$ ,  $t_p = 100ns$ ,  $t_r = 2ns$ , averaging window from 60ns to 80ns.  $R_{DYN}$  is calculated from 4A to 16A.

## ■Ordering Information (Example)

PREFERRED P/N	PACKING CODE	UNIT WEIGHT(mg)	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
ESD12VD5HQ	F2	Approximate 2	8000	80000	320000	7 reel



## ■ Characteristics (Typical)

Fig.1: 8/20 $\mu$ s Pulse Waveform

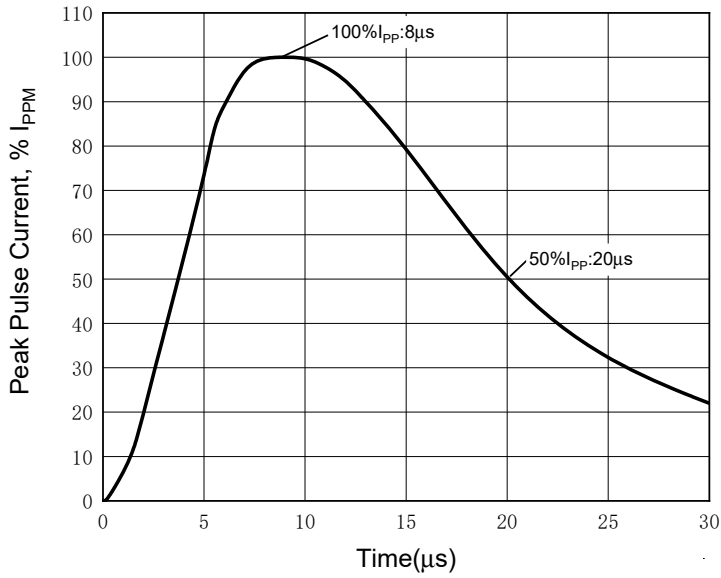


Fig.2: Peak Pulse Current vs Clamping Voltage

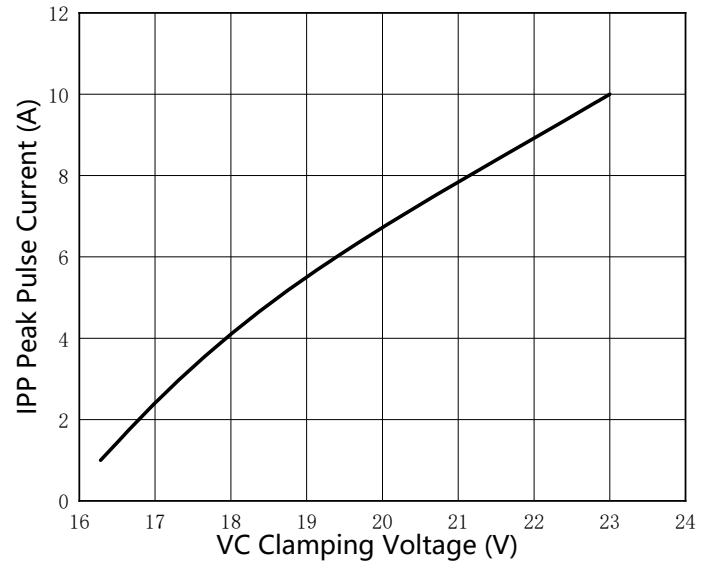


Fig.3: Power Derating Curve

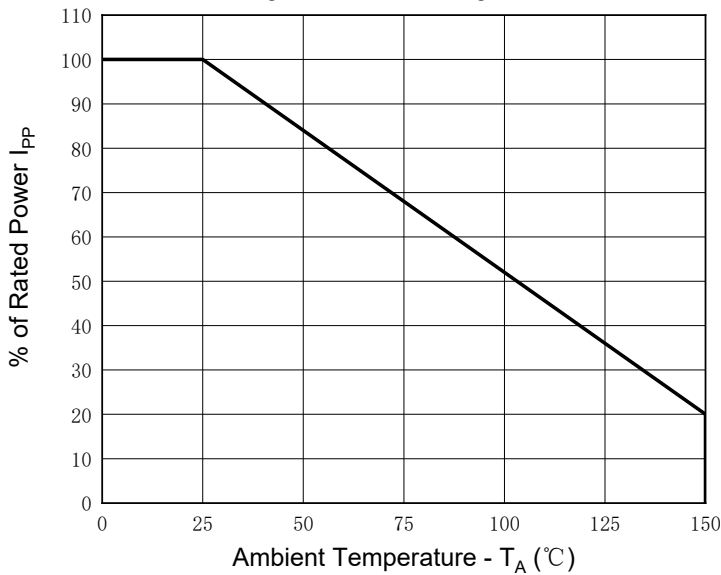


Fig.4: Capacitance vs. Bias

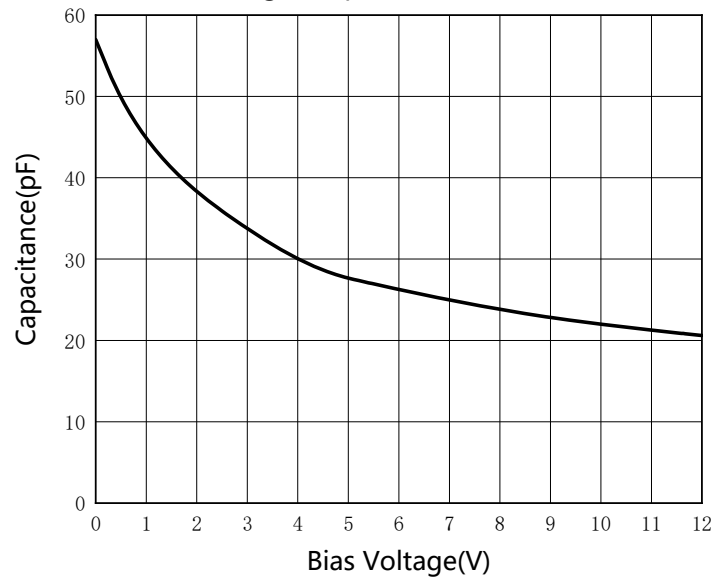
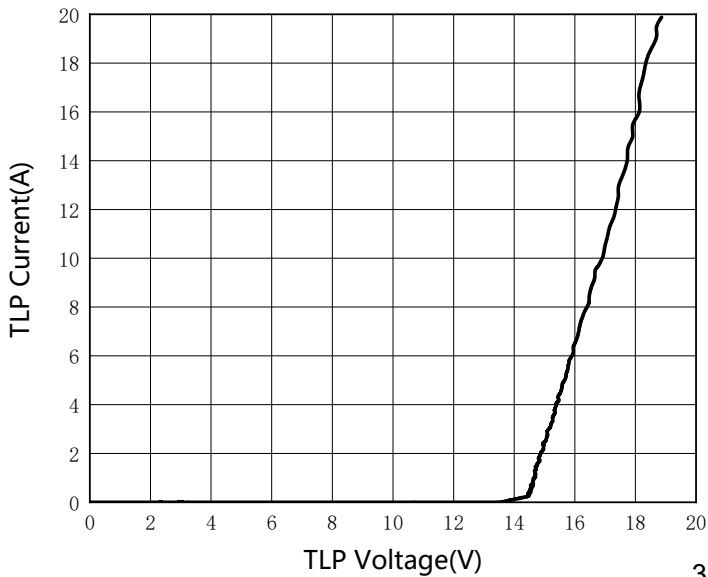


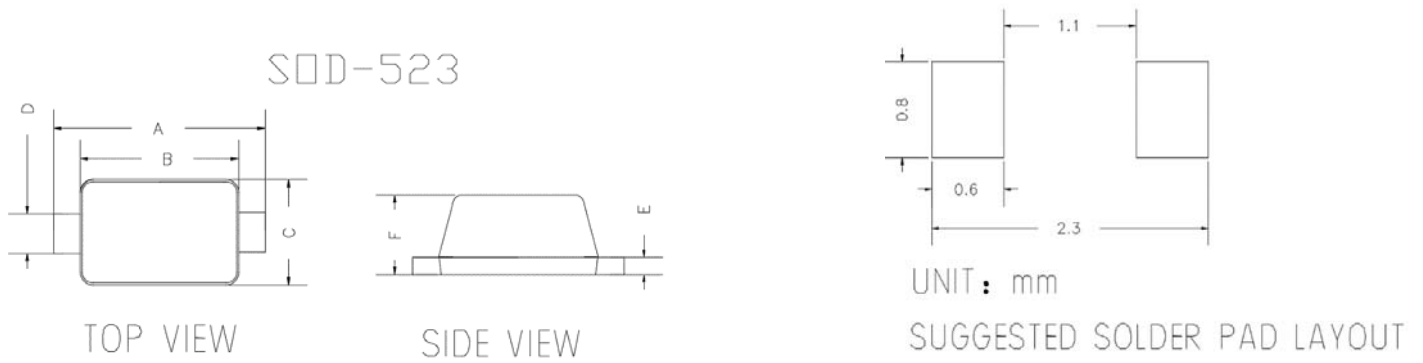
Fig.5: Transmission Line Pulsing (TLP) Plot





# ESD12VD5HQ

## ■ Outline Dimensions



DIMENSIONS				
DIM	INCHES		MM	
	MIN	MAX	MIN	MAX
A	0.059	0.067	1.500	1.700
B	0.043	0.051	1.100	1.300
C	0.028	0.035	0.700	0.900
D	0.010	0.014	0.250	0.350
E	0.002	0.008	0.050	0.200
F	0.020	0.028	0.500	0.700

## ■ Marking Information



**Note:**

1. All marking is at middle of the product body
2. All marking is in laser marking
3. Body color: Black
4. D% is Marking Code (%=placeholder for date code)

\*Date Code vary depending upon production date.



## ESD12VD5HQ

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