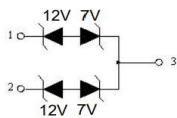
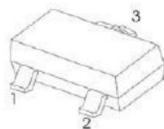


Features

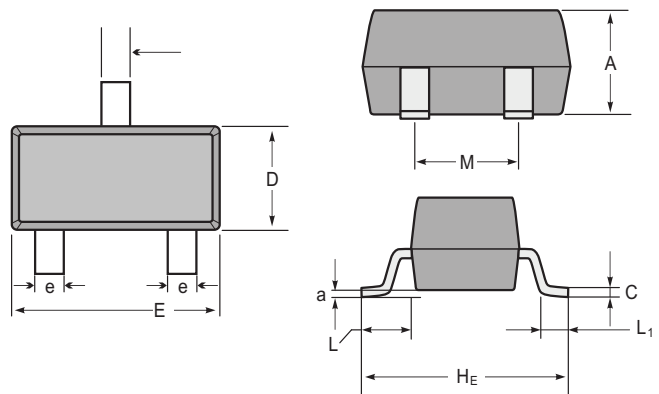
- Bi-directional ESD protection of one line
- Reverse stand-off voltage: 7V/12V
- Low reverse clamping voltage
- Low leakage current
- Fast response time
- IEC 61000-4-2 (ESD) immunity test :
- Air discharge: ±30kV
- Contact discharge: ±30kV

SOT-23



Marking Diagram

712



SOT-23 mechanical data

UNIT	A	C	D	E	He	e	M	L	L ₁	a	
mm	max	1.1	0.15	1.4	3.0	2.6	0.5	1.95	0.55 (ref)	0.36 (ref)	0.0
	min	0.9	0.08	1.2	2.8	2.2	0.3	1.7			0.15
mil	max	43	6	55	118	102	20	77	22 (ref)	14 (ref)	0.0
	min	35	3	47	110	87	12	67			6

Description

Designed to protect voltage sensitive electronic components from ESD and other transients. Excellent clamping capability, low leakage, low capacitance, and fast response time provide best in class protection on designs that are exposed to ESD.

The combination of small size, low capacitance, and high level of ESD protection makes them a flexible solution for applications such as HDMI, Display Port TM, and MDDI interfaces. It is designed to replace multiplayer varistors (MLV) in consumer equipments applications such as mobile phone, notebook, PAD, STB, LCD TV etc.

Applications

- Computers and peripherals
- High speed data lines
- Audio and video equipment
- Cellular handsets and accessories
- Subscriber identity module(SIM) card protection
- Portable electronics
- FireWire
- Other electronics equipments communi- cation systems

ES712D2HA23

Absolute Maximum Ratings ($T_A=25^{\circ}\text{C}$ unless otherwise specified)

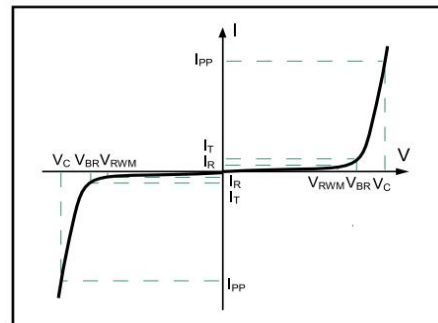
Parameter	Symbol	Value	Unit
Peak Pulse Power (PIN1/PIN2 to PIN3)	Ppk	360	W
Peak Pulse Power (PIN3 to PIN1/PIN2)	Ppk	400	W
Peak Pulse Current (PIN1/PIN2 to PIN3)	IPP	15	A
Peak Pulse Current (PIN3 to PIN1/PIN2)	IPP	20	A
ESD per IEC 61000-4-2 (Air)	VESD	± 30	kV
ESD per IEC 61000-4-2 (Contact)		± 30	
Operating Temperature Range	TJ	-55to +125	$^{\circ}\text{C}$
Storage Temperature Range	Tstg	-55 to +150	$^{\circ}\text{C}$

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

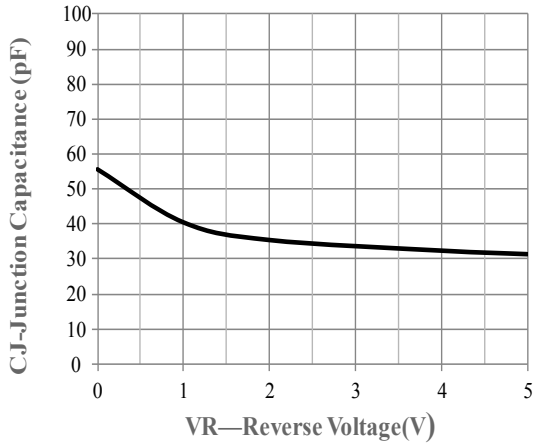
Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Reverse Working Voltage	V_{RWM}	PIN1/PIN2 to PIN3			12	V
		PIN3 to PIN1/PIN2			7	V
Breakdown Voltage	VBR	$I_T=1\text{mA}$, $t_p=8/20\mu\text{s}$, PIN1/PIN2 to PIN3	14.2		16.2	V
		$I_T=1\text{mA}$, $t_p=8/20\mu\text{s}$, PIN3 to PIN1/PIN2	9.4		12.4	V
Reverse Leakage Current	IR	$V_{RWM} = 12\text{V}$, PIN1/PIN2 to PIN3			0.2	μA
	IR	$V_{RWM} = 7\text{V}$, PIN3 to PIN1/PIN2			0.2	μA
Clamping Voltage	V_C	$I_{PP} = 15\text{A}$ (8 x 20 μs pulse), PIN1/PIN2 to PIN3			24	V
		$I_{PP} = 20\text{A}$ (8 x 20 μs pulse), PIN3 to PIN1/PIN2			20	V
Junction Capacitance	Cj	VR = 0V, f = 1MHz			55	pF

Electronics Parameter

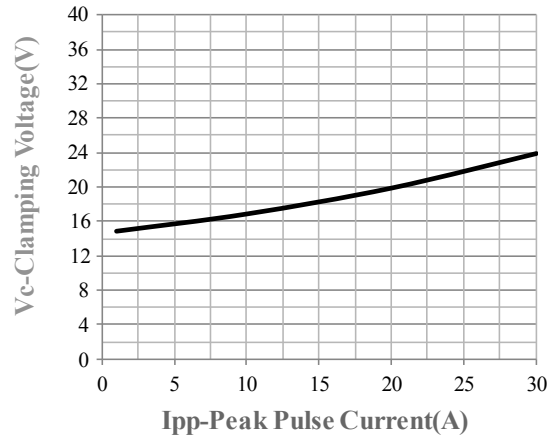
Symbol	Parameter
I_T	Test Current
I_{PP}	Maximum Reverse Peak Pulse Current
V_C	Clamping Voltage @ I_C
V_{BR}	Breakdown Voltage @ I_T
I_R	Reverse Leakage Current @ V_{RWM}
V_{RWM}	Reverse Standoff Voltage



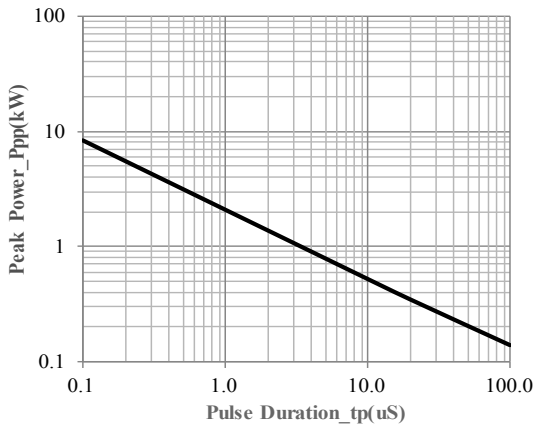
Typical Performance Characteristics ($T_A=25^\circ\text{C}$ unless otherwise Specified)



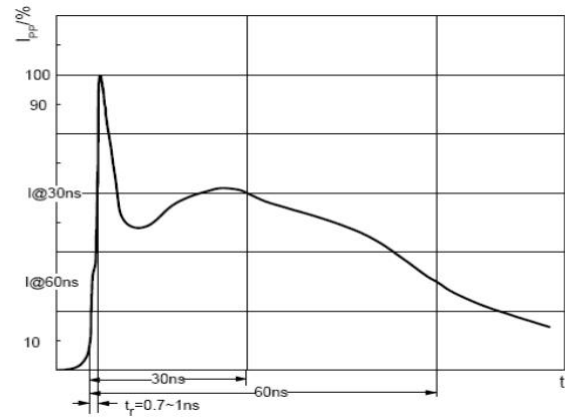
Junction Capacitance vs. Reverse Voltage



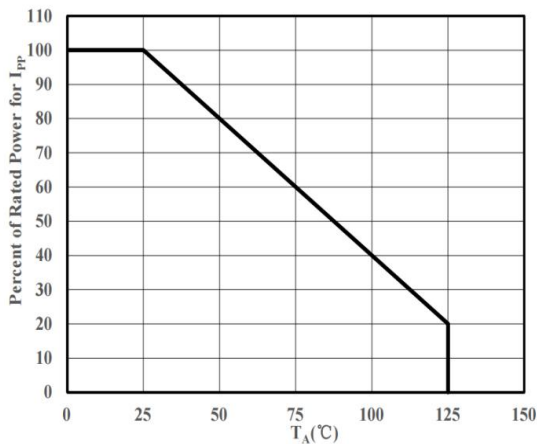
Clamping Voltage vs. Peak Pulse Current



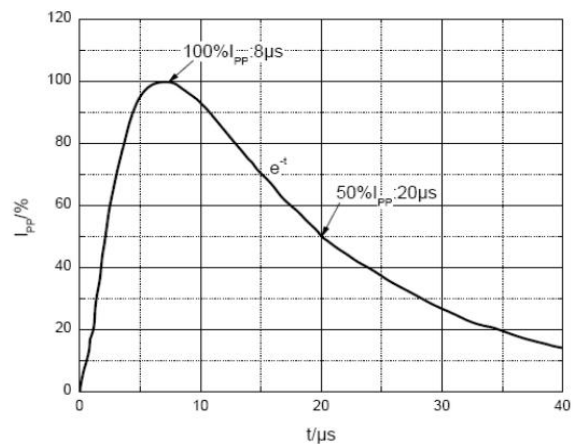
Peak Pulse Power vs. Pulse Time



ESD pulse waveform according to IEC61000-4-2



Power Derating Curve



8/20 μs pulse waveform according to IEC 61000-4-5