

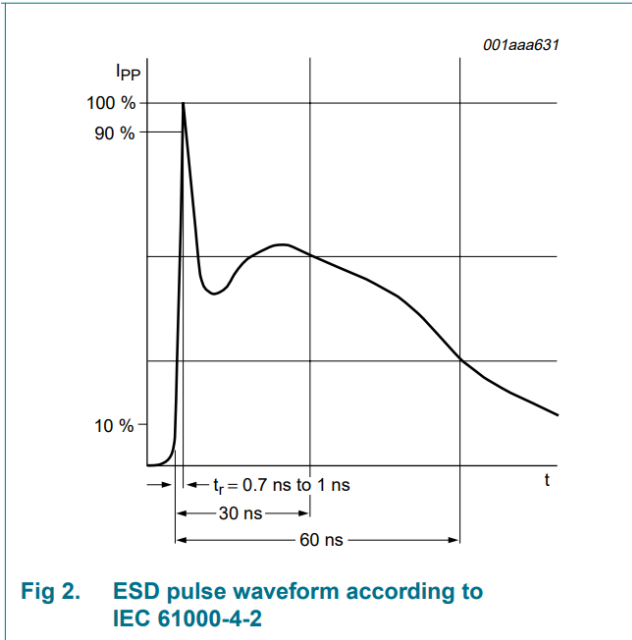
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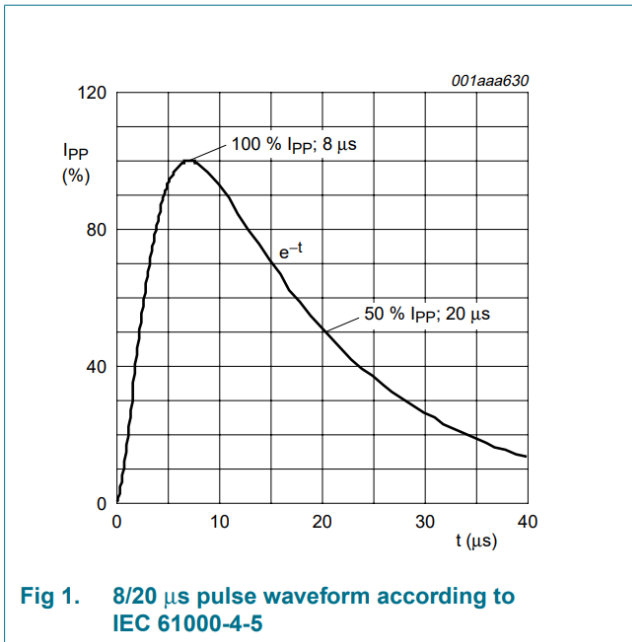


# TVS

basic ESD protection (IEC61000-4-2):



lightning event protection (IEC61000-4-5)



## Manufacturers

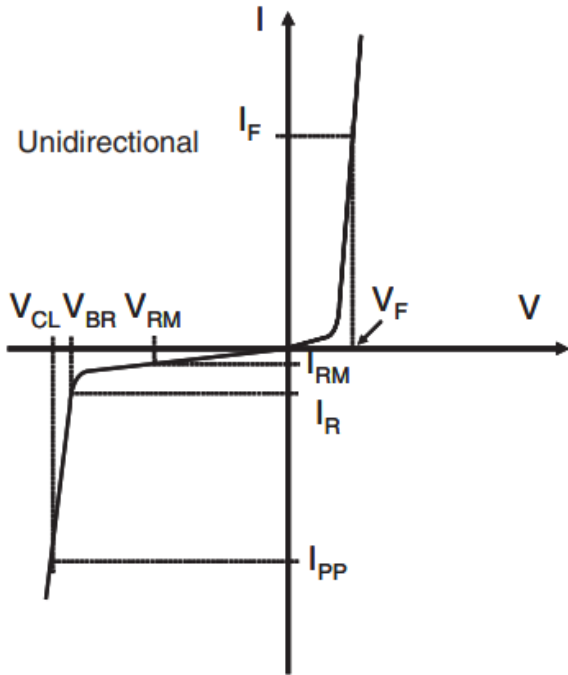
↓ Manufacturer	Country	Description	link	status	Tags
Bourns		Bourns	<a href="https://www.bourns.com/">https://www.bourns.com/</a>	blocked	surge-arrester, inductor, fuse-ptc, diode, diode-tvs

Kyocera AVX			<a href="https://www.kyocera-avx.com/">https://www.kyocera-avx.com/</a>		cap, cap-pol, diode, diode-tvs
Littelfuse		Littelfuse	<a href="https://www.littelfuse.com/">https://www.littelfuse.com/</a>		surge-arrester, fuse-ptc, diode, diode-tvs
Nexperia			<a href="https://www.nexperia.com">https://www.nexperia.com</a>		diode, diode-tvs
Onsemi			<a href="https://www.onsemi.com/">https://www.onsemi.com/</a>		diode, diode-schottky, diode-tvs
ST			<a href="https://st.com/">https://st.com/</a>		diode, diode-tvs
Semtech			<a href="https://www.semtech.com">https://www.semtech.com</a>		diode, diode-tvs
Texas Instruments	USA	Texas Instruments	<a href="https://www.ti.com">https://www.ti.com</a>	blocked	eth-phy, logic, diode, diode-tvs
Topdiode			<a href="https://www.topdiode.com/">https://www.topdiode.com/</a>		cap, cap-tant, cap-film, cap-cer, cap-al, trans, trans-npn, trans-pnp, diode, diode-schottky, diode-tvs, diode-bridge, diode-zener, igbt, trans-fet-p, trans-fet-n, trans-fet-n-n, trans-fet-n-p
Vishay			<a href="https://www.vishay.com/">https://www.vishay.com/</a>		diode, diode-tvs
szlansemi			<a href="http://www.szlansemi.com/">http://www.szlansemi.com/</a>		diode, diode-tvs

## Unidirectional

### Symbol Parameter

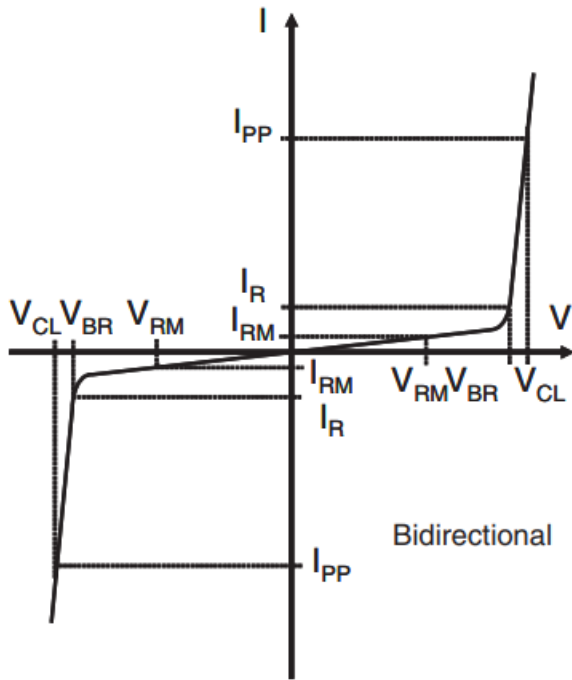
$V_{RM}$	Stand-off voltage
$V_{BR}$	Breakdown voltage
$V_{CL}$	Clamping voltage
$I_{RM}$	Leakage current @ $V_{RM}$
$I_{PP}$	Peak pulse current
$\alpha T$	Voltage temperature coefficient
$V_F$	Forward voltage drop
$R_D$	Dynamic resistance



## Bidirectional

### Symbol Parameter

V <sub>RM</sub>	Stand-off voltage
V <sub>BR</sub>	Breakdown voltage
V <sub>CL</sub>	Clamping voltage
I <sub>RM</sub>	Leakage current @ V <sub>RM</sub>
I <sub>PP</sub>	Peak pulse current
αT	Voltage temperature coefficient
V <sub>F</sub>	Forward voltage drop
R <sub>D</sub>	Dynamic resistance



## examples

SMAJ58A	SMA	58V	400W	<a href="https://sds.compel.ru/item-pdf/db4dae94831278d0992d4e9f4ce1f8dc/pn/yj~smaj100.pdf">https://sds.compel.ru/item-pdf/db4dae94831278d0992d4e9f4ce1f8dc/pn/yj~smaj100.pdf</a>
ESD03V32D-LC	SOD-323	3.3V		<a href="http://www.szlansemi.com/Download/ESDXXV32D-LC.pdf">http://www.szlansemi.com/Download/ESDXXV32D-LC.pdf</a>

firefly MB-JD4-RK3568

IF	PN	Size
<b>USB2</b>	ESD9X5VU	0402
<b>USB3</b>	ESD5311X	0402
<b>USB2,3 5V</b>	ESD5341N\ESD5451N	0402
<b>HDMI HS</b>	ESD5304D	2510 (m)
<b>HDMI misc</b>	ESD5341N	0402
<b>SIM</b>	ESD5451N	0402
<b>DP</b>		
<b>CAN</b>	NO	
<b>GPIO\UART\ADC</b>	ESD5451N	0402
<b>SDCARD data</b>	ESD9X5VU	0402
<b>SDCARD CD</b>	ESD5451N	0402
<b>CSI</b>	NO	
<b>DSI</b>	NO	
<b>RS232</b>	ESD9N12BA	0402
<b>RS485</b>	ESD9N12BA	0402
<b>BUTTON</b>	ESD5451N	0402
<b>5V</b>	AZ5825-01F	0402
<b>12V</b>		
<b>3.3V</b>	AZ5825-01F	0402
<b>1.8V</b>	AZ5825-01F	0402

IF	P\N	Size
MIC\HP	ESD5451N	0402
SPEAKER	ESD9N12BA	0402

ESD9X5VU	0402	USB2, SDCARD data
ESD5311X	0402	USB3 HS (<0.4pF)
ESD5341N	0402	USB2 5V, USB3 5V, HDMI misc
ESD5451N	0402	USB2 5V, SIM, GPIO\UART\ADC, SDCARD CD, BUTTON, MIC\HP
ESD5304D	2510 (m)	HDMI HS (<0.4pF)
ESD9N12BA	0402	RS2323, RS485, SPEAKER
AZ5825-01F	0402	5V, 3.3V, 1.8V

Diodes	DT1140-04LP-7	Will Semiconductor	ESD5304D	Onsemi	ESD7004MUTAG
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P\N	Mfg	Grade	Case	Marking	Cap
USBLC6-2SC6Y	ST	Automotive (Y)	SOT23-6L	UL2Y	1pF
USBLC6-2SC6Y	Tech Public	Automotive (Y)	SOT23-6L	UL2Y	2.5pF
USBLC6-2SC6	ST	Ind	SOT23-6L	UL26	2.5pF
USBLC6-2P6	ST	Ind	SOT-666	F	2.5pF