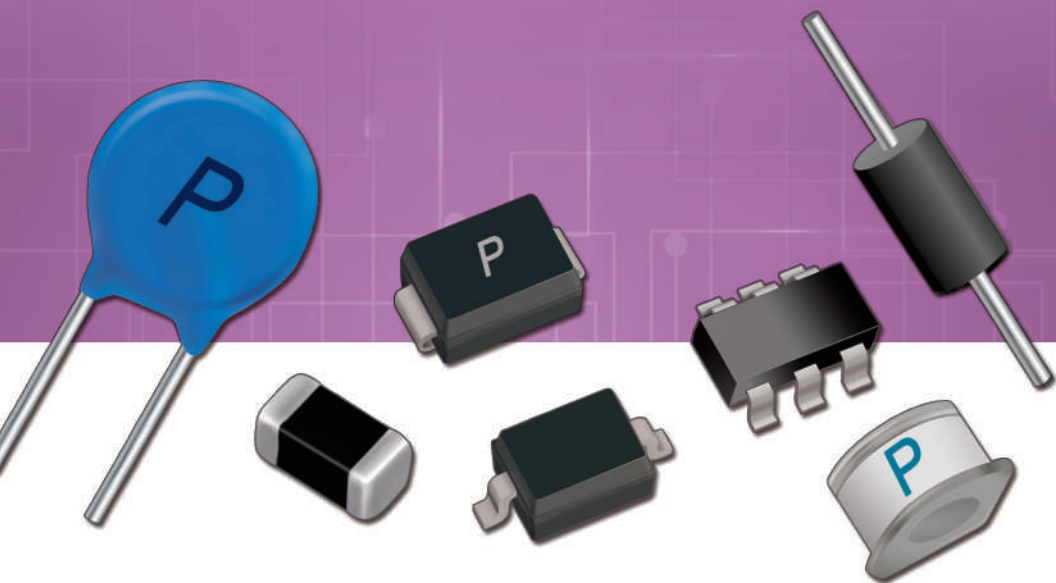


OVP

Over Voltage Protection Product Brochure



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PolyTrans[®]



TVS

Transient Voltage Suppressor



Standard Type

Series Name	Reverse Stand-off Voltage, V _R (V)	Polar	Package Type	Peak Pulse Power @ 10/1000 μs P _{PP} (W)	Minimum Package Quantity (Pcs/Reel)
SMP	10~43	Uni	SOD- 323/HE	3000	3000/7"
SMF	5.0~220	Uni/Bi	SOD-123FL	200	3000/7"
SMF4L	5.0~85	Uni/Bi	SOD-123FL	400	3000/7"
SMAJ	5.0~440	Uni/Bi	DO-214AC	400	5000/13"
SMA6L	5.0~58	Uni/Bi	DO-214AC	600	5000/13"
SMBJ	5.0~440	Uni/Bi	DO-214AA	600	3000/13"
1.0SMBJ	5.0~58	Uni/Bi	DO-214AA	1000	3000/13"
1.5SMBJ	15~85	Uni/Bi	DO-214AA	1500	3000/13"
3.0SMBJ	18~75	Uni/Bi	DO-214AA	3000	3000/13"
SMCJ	5.0~440	Uni/Bi	DO-214AB	1500	3000/13"
SMDJ	5.0~440	Uni/Bi	DO-214AB	3000	3000/13"
5.0SMDJ	11~170	Uni/Bi	DO-214AB	5000	3000/13"
8.0SMDJ	12~60	Uni/Bi	DO-214AB	8000	3000/13"
P4KE	5.8~510	Uni/Bi	DO-41	400	5000/13"
P6KE	5.8~510	Uni/Bi	DO-15	600	4000/13"
1.5KE	5.8~510	Uni/Bi	DO-201	1500	1000/13"
3KP	5.0~440	Uni/bi	P600	3000	800/13"
5KP	5.0~440	Uni/Bi	P600	5000	800/13"
8KP	24~43	Uni/Bi	P600	8000	800/13"
15KPA	17~280	Uni/Bi	P600	15000	800/13"
20KPA	20~300	Uni/Bi	P600	20000	800/13"
30KPA	28~288	Uni/Bi	P600	30000	800/13"
PH	12~500	Uni/Bi	DIP	-	box

Automotive Type

Series Name	Reverse Stand-off Voltage, V (V)	Polar	Package Type	Peak Pulse Power @ 10/1000 μs P _{PP} (W)	Minimum Package Quantity (Pcs/Reel)
TPSMF	5.0~220	Uni/Bi	SOD-123	200	3000/7"
TPSMF4L	5.0~58	Uni/Bi	SOD-123	400	3000/7"
TPSMAJ	5.0~440	Uni/Bi	DO-214AC	400	5000/13"
TPSMA6L	5.0~58	Uni/Bi	DO-214AC	600	5000/13"
TPSMBJ	5.0~440	Uni/Bi	DO-214AA	600	3000/13"
1.0TPSMBJ	5.0~58	Uni/Bi	DO-214AA	1000	3000/13"
TPSMCJ	5.0~440	Uni/Bi	DO-214AB	1500	3000/13"
TPSMDJ	5.0~170	Uni/Bi	DO-214AB	3000	3000/13"
5.0SMDJ-A	5.0~85	Uni/Bi	DO-214AB	5000	3000/13"
AMPC-H	16~58	Uni/Bi	DO-218AB	5000	750/13"
AMPB-H	16~58	Uni/Bi	DO-218AB	6600	750/13"
AMPA-H	16~58	Uni/Bi	DO-218AB	8000	750/13"

TSS

Thyristor Surge Suppressor



Standard Type

Series Name	Peak Off State Voltage, V_{DRM} (V)	Switching Voltage, V_S (V)	Package Type	Peak Pulse Current, I_{PP} @ 10/1000 μs Waveform (A)	Off State Capacitance, C_0 (pF)
PxxxxTA	6~440	25~600	DO-214AC	45	20~50
PxxxxSA	6~440	25~600	DO-214AA	45	20~50
PxxxxSB	6~440	25~600	DO-214AA	80	35~60
PxxxxSC	6~440	25~600	DO-214AA	100	45~90
PxxxxLA	6~440	25~600	DO-15	45	20~50
PxxxxLB	6~440	25~600	DO-15	80	35~65
PxxxxLC	6~440	25~600	DO-201	100	45~90

Low Capacitance Type

Series Name	Peak Off State Voltage, V_{DRM} (V)	Switching Voltage, V_S (V)	Package Type	Peak Pulse Current, I_{PP} @ 10/1000 μs Waveform (A)	Off State Capacitance, C_0 (pF)
P0080TA-LC	6	25	DO-214AC	45	10
P0080TB-LC	6	25	DO-214AC	80	10
P0080TA-MC	6	25	DO-214AC	45	20
P0080TB-MC	6	25	DO-214AC	80	20
P0080SA-LC	6	25	DO-214AA	45	10
P0080SB-LC	6	25	DO-214AA	80	10
P0080SC-LC	6	25	DO-214AA	100	15
P0080SA-MC	6	25	DO-214AA	45	20
P0080SB-MC	6	25	DO-214AA	80	20
P0080SC-MC	6	25	DO-214AA	100	35

ESD

Electrostatic Discharge Protector

Silicon Type

Model Name	Package	Number of Protected I/O	IEC-61000-4-2 ESD Capability (Contact/Air)	Reverse Stand-off Voltage V_{RWM}	Surge Capability 8/20 μ s I_{PP} (A)	Clamping Voltage $V_C @ I_{PP}$ (V)	Typical Junction Capacitance C_o , I/O-GND(pF)	Reverse Leakage Current, I_R (μ A)	Main Application
PTxxD3CE ^a	SOD-323	1	30 kV/30 kV	3~36	30~5	14~100	100~13	1	V bus, I/O
PTLCxxD-B ^a	SOD-323	1	30 kV/30 kV	3~36	20~3	18~80	1.0	1	Ethernet
PT05D5CE ^a	SOD-523	1	25 kV/25 kV	5	7	10	12	1	V bus, I/O
PT05D5BC ^a	SOD-523	1	25 kV/25 kV	5	5	12	5	0.2	I/O
PTUC05D5B	SOD-523	1	15 kV/20 kV	5	3	20	0.35	0.5	High speed D/L
PT07D5B ^a	SOD-523	1	30 kV/30 kV	7	15	25	60	1	V bus, I/O
PT12D5B	SOD-523	1	30 kV/30 kV	12	5	24	10	0.5	V bus, I/O
PT0382NH	DFN1610	1	30 kV/30 kV	4.5	160	17	390	0.5	V bus
PT0682NH	DFN1610	1	30 kV/30 kV	6	150	18	570	1	V bus
PT1241NH	DFN1610	1	30 kV/30 kV	12	85	19	98	1	V bus
PTES15TN	DFN1610	1	30 kV/30 kV	15	45	34	150	1	V bus
PT15NPAH	DFN1610	1	30 kV/30 kV	15	110	28	320	1	V bus
PT20NPA	DFN1610	1	30 kV/30 kV	20	40	35	70	1	V bus
PT0321NH	DFN1006	1	30 kV/30 kV	3.3	45	11	80	0.5	V bus, I/O
PT0321NLV ^a	DFN1006	1	15 kV/25 kV	3.3	10	8	17	0.5	V bus, I/O
PTUC0325B ^a	DFN1006	1	15 kV/20 kV	3.3/5	6	5.8	0.22	0.2	High speed D/L
PT05CFC	DFN1006	1	30 kV/30 kV	5	8	10	20	1	V bus, I/O
PT05NFC ^a	DFN1006	1	25 kV/25 kV	5	6	11	6	1	V bus, I/O
PTLC0522NH ^a	DFN1006	1	30 kV/30 kV	5	14	17	1.5	1	Ethernet
PC1025B [*]	DFN1006	1	8 kV/15 kV	5	4	6	0.65	0.5	High speed D/L
PTUC0521NE ^a	DFN1006	1	20 kV/20 kV	5	3.5	15	0.4	0.5	High speed D/L
PT0521NB [*]	DFN1006	1	30 kV/30 kV	5.5	16	13	40	0.5	V bus, I/O
PT1201NT [*]	DFN1006	1	30 kV/30 kV	12	8	16	10	1	V bus, I/O
PT1521NT [*]	DFN1006	1	20 kV/20 kV	15	8	32	20	0.5	V bus, I/O
PT2421NT [*]	DFN1006	1	25 kV/25 kV	24	6	44	20	0.5	V bus, I/O
PTUC2421NT ^a	DFN1006	1	15 kV/20 kV	24	4	8	0.45	0.5	High speed D/L
PC0321NS	DFN0603	1	30 kV/30 kV	3.3	10	8	18	0.5	V bus, I/O
PTUC0325NS [*]	DFN0603	1	15 kV/20 kV	3.3	6	6	0.22	0.2	High speed D/L
PC0428NS [*]	DFN0603	1	8 kV/15 kV	3.3	4	6	0.13	0.1	Thunderbolt 4/5
PT05EFC	DFN0603	1	30 kV/30 kV	5	8	10	20	0.5	V bus, I/O
PTLC0521NAA ¹	DFN0603	1	15 kV/15 kV	5	6	11	5	1	Data Line
PTLC0521NS	DFN0603	1	20 kV/20 kV	5	3.5	10	3.5	0.5	Data Line
PC1025NS [*]	DFN0603	1	15 kV/15 kV	5	7	6	0.75	0.5	High speed D/L
PTUC0525NS [*]	DFN0603	1	15 kV/20 kV	5	6	6	0.22	0.2	High speed D/L
PT1201NS	DFN0603	1	30 kV/30 kV	12	8	16	10	0.5	V bus, I/O
PTLC1221NAA ¹	DFN0603	1	20 kV/25 kV	12	4	15	8.5	0.5	Data Line
PTUC2425NS [*]	DFN0603	1	15 kV/20 kV	22	4	8	0.45	0.5	High speed D/L

^{*} Deep Snap-back I/V curve, not applicable to Vbus

^a Automotive available

¹ CSP package



Silicon Type

Model Name	Package	Number of Protected I/O	IEC-61000-4-2 ESD Capability (Contact/Air)	Reverse Stand-off Voltage V_{RWM}	Surge Capability 8/20 μ s I_{PP} (A)	Clamping Voltage $V_C @ I_{PP}$ (V)	Typical Junction Capacitance C_0 , I/O-GND(pF)	Reverse Leakage Current, I_R (μ A)	Main Application
S23TxxC ^a	SOT-23	2	30 kV/30 kV	3~36	24~4	18~110	100~18	1	RS485, CAN bus
PT05MLC ^a	SOT-23	2	30 kV/30 kV	5	3.5	12	0.4	1	High speed D/L
PTLC05M-B ^a	SOT-23	2	30 kV/30 kV	5	14	19	1.2	0.5	Data Line
PT712M	SOT-23	2	30 kV/30 kV	7/12	20/12	20/28	40	1	RS485
PTLC0514TS ^a	SOT23-6	2	15 kV/20 kV	5	6	14	0.6	0.5	USB2.0, SIM card
PTUC0544TC	SOT23-6	4	20 kV/22 kV	5	7	10	0.8	0.5	USB2.0, SIM card
PBS08145103	SO-8	4	30 kV/30 kV	3.3	25	18	2	0.01	RJ45
PTUC0513NT	DFN1006-3L	4	18 kV/20 kV	5	7	16	1.2	0.5	Data Line
PTUC3324PB ^a	DFN2510	4	8 kV/15 kV	3.3 (bi)	4	7.5	0.4	0.5	HDMI2.x, LVDS
PTUC3324PE ^a	DFN2510	4	10 kV/15 kV	3.3 (uni)	4.5	7	0.6	0.2	HDMI2.x, LVDS
PTUC3324PM ^a	DFN2510	4	8 kV/15 kV	3.3 (bi)	4	7	0.15	0.2	Display, USB3/4
PTUC3324PS ^a	DFN2510	4	30 kV/30 kV	3.3/5 (uni)	12	12	0.7	0.2	HDMI2.x, I/O
PTUC0524PC	DFN2510	4	25 kV/25 kV	5	4	10	0.7	0.5	HDMI2.x, LVDS
PTUC0524PA ^a	DFN2510	4	12kV/15 kV	5	3	10	0.36	0.5	HDMI2.x, RJ45
PTUC0524PR ^a	DFN2510	4	15kV/20 kV	3.3/5 (uni)	7	7	0.5	0.5	USB2/3, LVDS
PTUC0518N	DFN3810	8	12 kV/15 kV	5	3	12	0.2	0.5	LVDS, USB 3.x

Varistor Type

Model Name	Package	Max Allowable Voltage (V_{DC})	Varistor Voltage @ 1mA (V)		Surge Capability 8/20 μ s I_{PP} (A)	Clamping Voltage $V_C @ I_{PP}$ (V)	Capacitance @ 1.0MHz (pF)		
			Min	Max			Min	Typ	Max
PMV0402-5R5E5R0	0402	5.5	24	32	1.0	200	2.5	5.0	7.5
PMV0402-5R5E470	0402	5.5	7.6	12	1.0	25	-	47	-
PMV0402-220E500	0402	22	26	34	1.0	54	-	50	-
PMV0402-330E3R0	0402	33	50	80	2.0	130	2.4	-	5.4
PMV0402-360E5R0	0402	36	40	60	1.0	200	3.5	5.0	6.5
PMV0402-420E3R0	0402	42	46	75	1.0	135	-	3.0	-
PMV0402-510E3R0	0402	51	55	84	1.0	135	-	3.0	-
PMV0603-5R5E5R0	0603	5.5	24	30	1.0	150	2.5	5.0	9.0
PMV0603-5R5V100N	0603	5.5	11	21	1.0	40	7.0	10	13
PMV0603-140E100	0603	14.0	18	28	1.0	55	-	10	-
PMV0603-240E2R5	0603	24.0	110	140	1.0	250	1.5	2.5	3.5

Ultra-low Capacitance Type

Model Name	Package	Rated Voltage (V_{DC})	Typical Trigger Voltage (V_T)	Typical Clamping Voltage (V_C)	Leakage Current, I_R (nA)	Typical Capacitance @ 1.0 MHz (pF)	Response Time	Main Application
PCS0201Vxx	0201	5~24	300	30	10	0.1	< 1 ns	Bluetooth, Wi-Fi
PCS0201VxxT300LC	0201	6~30	300	20	10	0.05	< 1 ns	5G, NB-IoT
PCS0402Vxx	0402	5~24	300	30	10	0.1	< 1 ns	Bluetooth, Wi-Fi
PCS0402VxxT300LC	0402	6~30	300	20	10	0.05	< 1 ns	5G, NB-IoT
PTS0402V14T500 ^a	0402	14	500	50	10	0.1	< 1 ns	Antenna, 2G/4G
PTS0603V24T500 ^a	0603	24	500	50	10	0.1	< 1 ns	Antenna, 2G/4G

GDT

Gas Discharge Tube



Leaded Type

Series Name	Number of Electrode	Tube Length (mm)	Tube Diameter (mm)	DC Spark Over Voltage @ 100V/s (V)	Impulse Discharge Current 10 Hits of 8/20μs Waveform (A)
PG25Exxx-L05	2	5.0	5.0	75~600	5000
PG26MExxx-L05	2	6.0	5.5	75~600	5000
PG26Exxx-L05	2	4.2	6.0	75~600	5000
PG28Exxx-Lxx	2	6.0	8.0	75~4000	3000~20000
PG35Exxx-L05	3	7.6	5.0	75~600	5000
PG36Exxx-L10	3	8.0	6.0	75~600	10000
PG38Exxx-Lxx	3	10.0	8.0	75~600	10000~20000

Surface Mount Type

Series Name	Number of Electrode	Tube Length (mm)	Tube Diameter (mm)	DC Spark Over Voltage @ 100V/s (V)	Impulse Discharge Current 10 Hits of 8/20μs Waveform (A)
PG22Sxxx-M005	2	3.2	1.6 x 1.6	75~470	500
PG23Sxxx-M01	2	4.5	3.2 x 2.7	75~600	1000
PG23Sxxx-M02	2	4.5	3.2 x 2.7	75~600	2000
PG25Exxx-M05	2	5.0	5.0	75~600	5000
PG26Exxx-M05	2	4.2	6.0	75~600	5000
PG28Exxx-Mxx	2	6.0	8.0	75~4000	3000~20000
PG35Exxx-M05	3	7.6	5.0	75~1100	5000
PG36Exxx-M10	3	8.0	6.0	75~600	10000

MOV

Metal Oxide Varistor



Leaded Type

Series Name	Chip Size (mm)	Operation Voltage (V)		Varistor Voltage (V)	Max Surge Current @ 8/20μs (A)		Capacitance (pF)
		AC	DC		Standard	High Surge	
PVR05D	5 dia.	10~460	14~615	18~750	100~400	250~800	30~1400
PVR07D	7 dia.	10~460	14~615	18~750	250~1200	500~1750	65~1400
PVR10D	10 dia.	10~680	14~895	18~1100	500~2500	1000~3500	90~5600
PVR14D	14 dia.	10~1000	14~1465	18~1800	1000~4500	2000~6000	110~11100
PVR20D	20 dia.	10~1000	14~1465	18~1800	2000~6500	3000~10000	220~19000

Surface Mount Type

Series Name	Chip Size (mm)	Operation Voltage (V)		Varistor Voltage (V)	Max Surge Current @ 8/20μs (A)		Capacitance (pF)
		AC	DC		Standard	High Surge	
PMV0603	1.6*0.8	2.4~30	3.3~38	5~47	30	-	130~360
PMV0805	2.0*1.2	1.4~35	2.0~45	3~56	60~100	-	280~1200
PMV1206	3.2*1.6	2.4~320	3.3~415	5~510	80~200	200~350	160~1700
PMV1210	3.2*2.5	4~60	5.5~85	8~100	200~250	-	250~5000
PMV1812	4.5*3.2	6~300	9~385	12~470	500~800	-	42~9150
PMV2220	5.7*5.0	14~300	18~385	24~470	500~1000	-	195~11800
PMV3220	8.0*5.0	140~320	180~410	220~510	500~1200	-	35~490

Molding Type

Series Name	Chip Size (mm)	Operation Voltage (V)		Varistor Voltage (V)	Max Surge Current @ 8/20μs (A)		Capacitance (pF)
		AC	DC		Standard	High Surge	
PMVJ2220	6.5*5.0	10~460	14~615	18~750	100~400	250~800	30~1400
PMVJ3220	8.0*6.0	10~420	14~560	18~680		500~1200	75~2800
PMVJ4032	11*8.0	10~420	14~560	18~680		800~2500	150~5600

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