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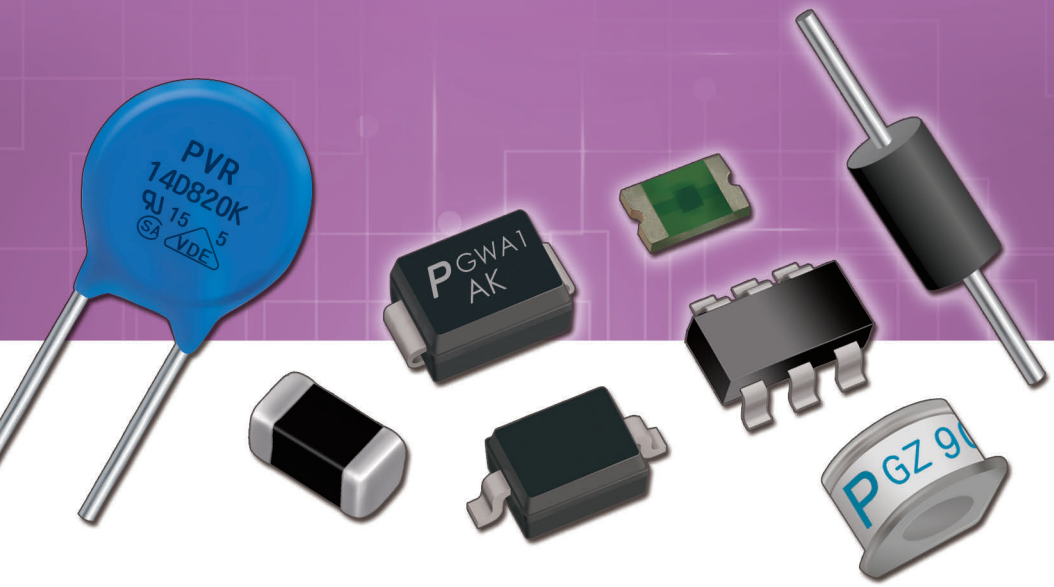
OVP

Over Voltage Protection

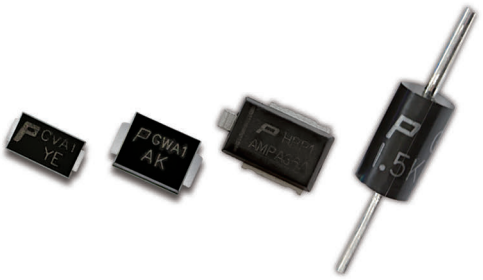
Product Brochure



We make it better and safer

TVS

Transient Voltage Suppressor



Standard Type

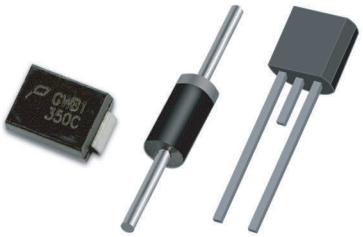
Series Name	Reverse Stand Off Voltage, V_R (V)	Maximum Clamping Voltage, V_C (V)	Package Type	Steady state Power Dissipation, $P_{M(AV)}$ (W)	Peak Pulse Power Dissipation, P_{PPM} (W)	Minimum Package Quantity (Pcs/Reel)
SMF	5.0~220	9.2~356.0	SOD-123	0.4	200	3000
SMAJ	5.0~440	9.2~713.0	DO-214AC	3.3	400	5000
SMBJ	5.0~440	9.2~713.0	DO-214AA	5.0	600	3000
SMCJ	5.0~440	9.2~713.0	DO-214AB	6.5	1500	3000
SMDJ	5.0~440	9.2~713.0	DO-214AB	6.5	3000	3000
5.0SMDJ	11~440	18.2~713.0	DO-214AB	6.5	5000	3000
P4KE	5.8~510	10.5~828.0	DO-41	1.5	400	5000
P6KE	5.8~510	10.5~828.0	DO-15	5.0	600	4000
1.5KE	5.8~510	10.5~828.0	DO-201	6.5	1500	1000
3KP	5.0~440	9.2~742.2	P600	7.0	3000	800
5KP	5.0~440	9.2~742.2	P600	8.0	5000	800
8KP	24~43	38.9~69.4	P600	8.0	8000	800
15KPA	17~280	29.3~454.5	P600	8.0	15000	800
20KPA	20~300	36.8~483.0	P600	8.0	20000	800
30KPA	28~288	50.0~469.9	P600	8.0	30000	800
PH	12~500	28.0~868.0	DIP	-	3kA~20kA (*I_{PP})	-

Automotive Type

Series Name	Reverse Stand Off Voltage, V_R (V)	Maximum Clamping Voltage, V_C (V)	Package Type	Steady state Power Dissipation, $P_{M(AV)}$ (W)	Peak Pulse Power Dissipation, P_{PPM} (W)	Minimum Package Quantity (Pcs/Reel)
ASMAJ	5.0~100	9.2~162.0	DO-214AC	3.3	400	5000
ASMBJ	5.0~100	9.2~162.0	DO-214AA	5.0	600	3000
ASMCJ	5.0~100	9.2~162.0	DO-214AB	6.5	1500	3000
ASMDJ	10~43	17.0~69.4	DO-214AB	6.5	3000	3000
5.0ASMDJ	10~58	17.0~93.6	DO-214AB	6.5	5000	3000
AMPA	10~43	17.0~69.4	DO-218AB	8.0	6600	750
AMPB	14~36	23.2~58.1	DO-218AB	6.0	4600	750
AMPC	14~36	23.2~58.1	DO-218AB	5.0	3600	750

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} @ 10/1000μs 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
PxxxxEA	6~440	25~600	TO-92	45	20~50
PxxxxEB	6~440	25~600	TO-92	80	35~65
PxxxxEC	6~440	25~600	TO-92	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} @ 10/1000μs 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

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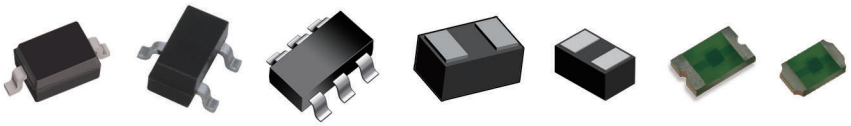
ESD

Electrostatic Discharge Protector

Silicon Type

Model Name	Package	Number of Protected Lines	IEC61000-4-2 ESD Capability (Air/Contact)	V_{RWM} (V_{dc})	Peak Pulse Current, I_{PP}(8/20μs) (A)	Clamping Voltage, Vc @ I_{PP}(V_{dc})	Typical Junction Capacitance, C_J(pF)	Reverse Leakage Current, IR (μA)	Main Application
S23T05C	SOT-23	2	25kV / 15kV	5	22	20	65	0.5 max	CAN bus, C/L
S23T12C	SOT-23	2	15kV / 10kV	12	12	30	45	0.5 max	CAN bus, C/L
S23T24C	SOT-23	2	15kV / 10kV	24	6	60	18	0.5 max	CAN bus, C/L
S23T36C	SOT-23	2	15kV / 8kV	36	4	75	15	0.5 max	CAN bus, C/L
PT712M	SOT-23	2	15kV / 8kV	7/12	12	10/20	60	1.0 max	RS485, C/L
PT05MLC	SOT-23	2	15kV / 11kV	5	5	20.5	0.25	1.0 max	High speed D/L
PTLC03D-B	SOD-323	1	15kV / 8kV	3	22	18	1.0	1.0 max	Ethernet
PTLC05D-B	SOD-323	1	15kV / 8kV	5	20	19	1.0	1.0 max	Ethernet
PTLC12D-B	SOD-323	1	15kV / 8kV	12	8	30	1.0	1.0 max	Low speed D/L
PTLC24D-B	SOD-323	1	15kV / 8kV	24	4	60	1.0	1.0 max	Low speed D/L
PT03D3CE	SOD-323	1	30kV / 15kV	3	20	24	100	1.0 max	3V Vbus
PT05D3CE	SOD-323	1	30kV / 15kV	5	20	21	60	1.0 max	5V Vbus
PT12D3CE	SOD-323	1	15kV / 8kV	12	8	30	30	1.0 max	12V Vbus
PT24D3CE	SOD-323	1	25kV / 20kV	24	6	56	18	0.5 max	24V Vbus
PT36D3CE	SOD-323	1	15kV / 8kV	36	4	75	15	0.5 max	36V Vbus
PT05D5B	SOD-523	1	30kV / 15kV	5	20	20	35	1.0 max	5V Vbus
PT05D5CE	SOD-523	1	15kV / 8kV	5	9	16.5	15	1.0 max	5V Vbus
PT05D5BC	SOD-523	1	15kV / 8kV	5	5	15	5	1.0 max	5V Vbus
PTLC05D5B	SOD-523	1	15kV / 10kV	5	3.5	11	3	0.5 max	5V Vbus
PTUC05D5B	SOD-523	1	20kV / 15kV	5	5	20.5	0.2	0.5 max	High speed D/L
PT4V5NLV	DFN1006	1	25kV / 15kV	4.5	11	8	18	0.2 max	4.5V Vbus
PT4V5NH	DFN1006	1	30kV / 30kV	4.5	45	11	70	0.1 max	4.5V Vbus
PC1025B	DFN1006	1	20kV / 15kV	5	4	6	0.5	0.5 max	High speed D/L
PT0521NB	DFN1006	1	15kV / 10kV	5	18	11.5	25	0.5 max	5V Vbus
PTUC0521NC	DFN1006	1	15kV / 10kV	5	4	25	0.2	0.5 max	High speed D/L
PTLC0521NT	DFN1006	1	15kV / 10kV	5	3.5	11	2.7	0.5 max	Low speed D/L
PT05NFC	DFN1006	1	30kV / 30kV	5	6	10	6.0	1.0 max	Low speed D/L
PT08V2DF-C	DFN1006	1	15kV / 10kV	8	19	19	45	0.5 max	8V Vbus
PT1201NT	DFN1006	1	30kV / 30kV	12	5	24	10	0.5 max	12V Vbus
PT1521NT	DFN1006	1	15kV / 8kV	15	3	35	20	0.5 max	15V Vbus
PT2421NT	DFN1006	1	15kV / 8kV	24	6	44	20	0.5 max	24V Vbus
PT3621NT	DFN1006	1	15kV / 8kV	36	4	70	25	0.5 max	36V Vbus
PT0321NS	DFN0603	1	20kV / 15kV	3.3	9	8	12	0.2 max	3.3V Vbus
PTLC0521NS	DFN0603	1	15kV / 10kV	5	3.5	11	2.7	0.5 max	Low speed D/L
PTUC0521NS	DFN0603	1	20kV / 15kV	5	5	20	0.2	0.1 max	High speed D/L
PT1201NS	DFN0603	1	15kV / 10kV	12	3.5	26	10	0.5 max	12V Vbus



Silicon Type

Model Name	Package	Number of Protected Lines	IEC61000-4-2 ESD Capability (Air/Contact)	V_{RWM} (V_{dc})	Peak Pulse Current, I_{PP}(8/20μs) (A)	Clamping Voltage, Vc @ I_{PP}(V_{dc})	Typical Junction Capacitance, C_j(pF)	Reverse Leakage Current, IR (μA)	Main Application
PTUC0518N	DFN3810	8	15kV / 8kV	5	3	10	0.2	0.5 max	USB3.X, Type C
PTUC0516N	DFN3310	6	15kV / 8kV	5	3	10	0.2	0.5 max	USB3.X / HDMI2.0
PTUC0534PT	DFN2510	4	15kV / 15kV	5	3	11	0.2	0.5 max	USB3.X / HDMI2.0
PTUC0524PA	DFN2510	4	15kV / 8kV	5	3	11	0.2	0.5 max	USB3.X / HDMI2.0
PTLC0524P	DFN2510	4	15kV / 10kV	5	6	16	0.3	0.5 max	HDMI1.4
PTLC0514TS	SOT23-6	4	20kV / 15kV	5	6	16	0.3	0.5 max	USB2.0
PTLC05R	SOT-143	3	20kV / 15kV	5	6	16	0.3	0.5 max	USB2.0

Ceramic Type

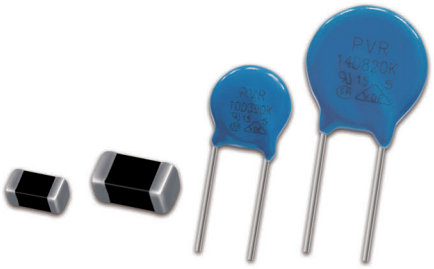
Model Name	Package	Max Allowable Voltage (V_{dc})	Varistor Voltage @ 1mA (V)		Peak Pulse Current, I_{PP}(8/20μs) (A)	Clamping Voltage, Vc @ 1.0A (V_{dc})	Capacitance @ 1.0MHz (pF)		
			Min	Max			Min	Typ	Max
PMV0402-5R0E015	0402	5.0	130.0	160.0	1.0	30.0	0.07	0.15	0.23
PMV0402-5R0E100	0402	5.0	20.0	30.0	1.0	50.0	5.0	10.0	15.0
PMV0402-5R5E5R0	0402	5.5	24.0	32.0	1.0	200.0	2.5	5.0	7.5
PMV0402-5R5E470	0402	5.5	7.6	12.0	1.0	25.0	-	47.0	-
PMV0402-180G	0402	14.0	16.2	19.8	20.0	32.0	-	85.0	-
PMV0402-220E500	0402	22.0	26.0	34.0	1.0	54.0	-	50.0	-
PMV0402-240E015	0402	24.0	110.0	130.0	1.0	250.0	0.10	0.15	0.20
PMV0402-330E3R0	0402	33.0	50.0	80.0	2.0	130.0	2.4	-	5.4
PMV0402-360E5R0	0402	36.0	40.0	60.0	1.0	200.0	3.5	5.0	6.5
PMV0402-420E3R0	0402	42.0	46.0	75.0	1.0	135.0	-	3.0	-
PMV0603-5R0E0R2	0603	5.0	120.0	160.0	1.0	50.0	0.10	0.20	0.36
PMV0603-5R5E5R0	0603	5.5	24.0	30.0	1.0	150.0	2.5	5.0	9.0
PMV0603-140E100	0603	14.0	18.0	28.0	1.0	55.0	-	10.0	-
PMV0603-240E0R5	0603	24.0	110.0	140.0	1.0	250.0	1.5	2.5	3.5

Polymeric Type

Model Name	Package	Typical Trigger Voltage (V)	Typical Clamping Voltage (V)	Rated Voltage (V_{dc})	Typical Capacitance (pF)	Response Time (nS)	Leakage Current (nA)
PTS0402V14T500	0402	500	50	14	0.1	<1.0	<10
PTS0603V24T500	0603	500	50	24	0.1	<1.0	<10

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	-	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

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