

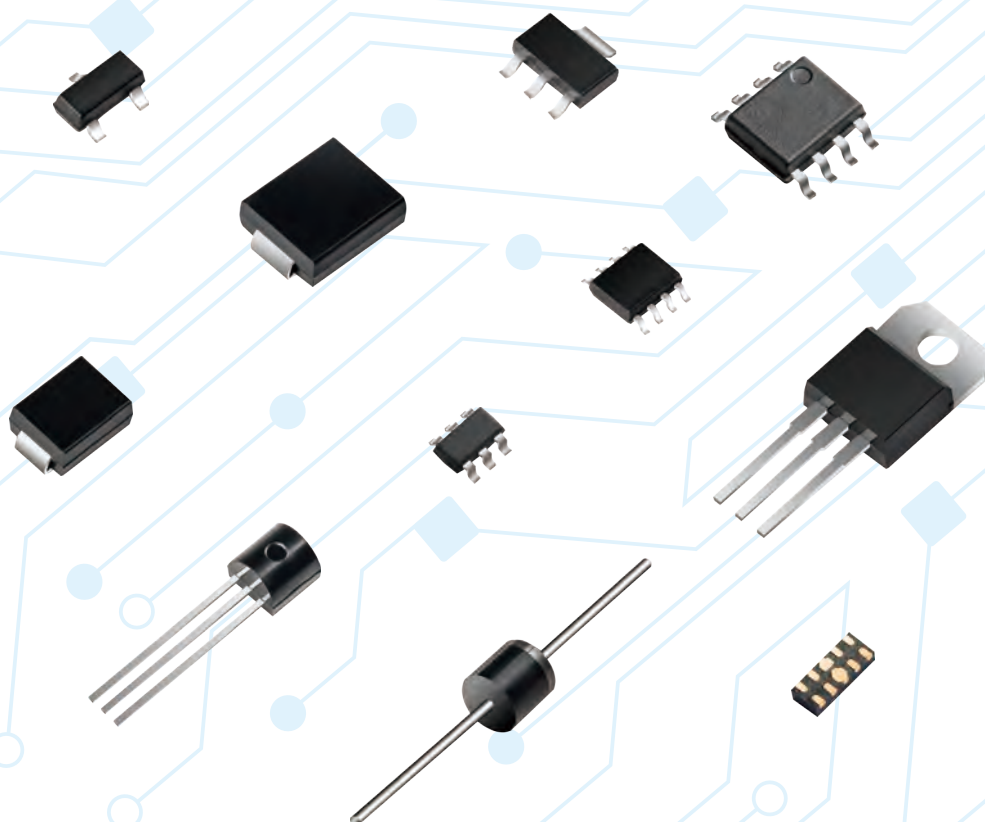
Jiangsu Semicon Champion Microelectronics Co., Ltd.

PROTECTION DEVICES

Portfolio of ESD with Automotive grade

Power TVS from 200W~30KW

Automotive power TVS



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ESD Protection Devices

Part Number	Package	Protected Lines	Peak Power Dissipation PPK(W)	Reverse Standoff Voltage VRWM(V)	ESD(kV)	Breakdown Voltage(V)	Maximum Clamping Voltage VC (V)	Maximum Peak Pulse Current IPP(A)	Junction Capacitance CJ(pF)	Internal Structure
CSH03LB	DFN0603-2L	1	80	3.3	25	3.7	10	8	15	Fig.1
CSH05LB	DFN0603-2L	1	80	5	25	5.6	10	8	12	Fig.1
CSH712E2B	SOT-23	2	350	12	30	13.3	26	17	55	Fig.2
CSHXXBB	SOD523	1	90~120	3.3~12	30	3.6~13	9~20	6~10	10~15	Fig.1
CSHXXCB	SOD323	1	225~400	3.3~36	25	3.5~38	16~75	3~25	25~150	Fig.1
CSHXXCU	SOD323	1	225~540	3.3~36	30	4~40	18~75	3~30	60~300	Fig.13
CSHXXFB	DFN1006-2L	1	80~240	3.3~24	30	3.6~26	10~48	5~8	15~20	Fig.1
CSHXXFU	DFN1006-2L	1	80~240	3.3~36	30	4~37.9	18~70	5~24	40~200	Fig.3
CSL05D2U	SOT23-6L	4	60	5	12~17	9.5	15	4	0.8	Fig.14
CSL05F2U3	DFN1006	1	80	5	10~15	9	25	4	0.6	Fig.15
CSL05FB	DFN1006-2L	1	80	6	10~15	6	18	4	0.35	Fig.1
CSL05G4U	DFN2510P10	4	60	6	4	6	21.5	4	0.45	Fig.4
CSL05U6U	DFN3514P14	6	60	5	20~25	6	21.5	4	0.8	Fig.5
SLVU2.8-4BTG	SO-8	4	600	2.8	30	2.8	20	30	2	Fig.6
SLVU2.8-8BTG	SO-8	4	600	2.8	30	2.8	20	30	2	Fig.16
 ASHXXCB	SOD323	1	225~400	3.3~36	30	3.5~38	16~75	3~25	25~150	Fig.7
 ASHXXCU	SOD323	1	280~456	3.3~36	30	4~38	8~55	4~24	50~300	Fig.3
 ASHXXE2U	SOT-23	1	260~375	3.3~36	30	4~38	15~65	4~25	50~200	Fig.8
 ASL05FB	DFN1006-2L	1	80	5	10~15	6	18	4	0.35	Fig.1
 ASL05H2U6	DFN1610-6L	4	60	5	12~17	9.5	15	4	0.8	Fig.9
 ASLXXCB	SOD323	1	220~340	3.3~24	30	4~26	20~55	4~17	0.8	Fig.10
 ASLXXCU	SOD323	1	220~340	3.3~24	30	4~26	20~55	4~17	0.8	Fig.11
 ASLXXE2B	SOT23	1	220~380	3.3~24	25	4.5~26	20~55	4~19	0.8	Fig.12
 ASL24FB	DNF1006-2L	1	80	24	10~15	26.5	53	1.5	0.3	Fig.1
 ASHXXFB	DFN1006-2L	1	80~240	3.3~24	30	3.6~26	10~48	5~8	15~20	Fig.1

Internal Structure

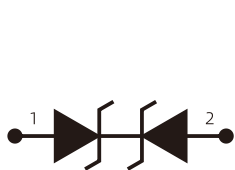


Fig.1

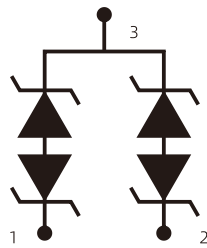


Fig.2



Fig.3

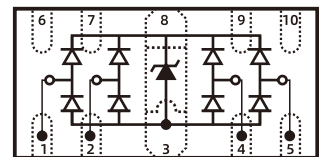


Fig.4

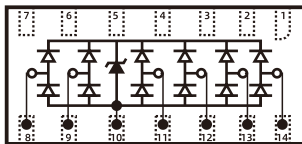


Fig.5

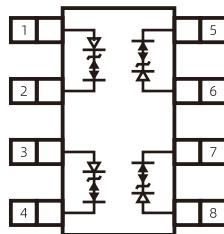


Fig.6



Fig.7

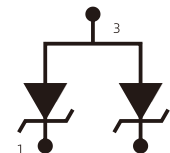


Fig.8

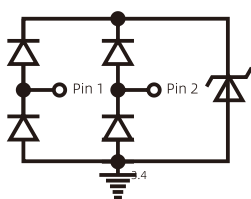


Fig.9

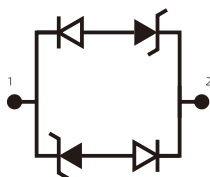


Fig.10

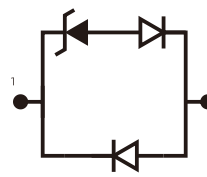


Fig.11

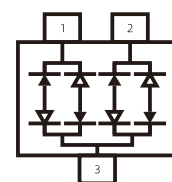


Fig.12



Fig.13

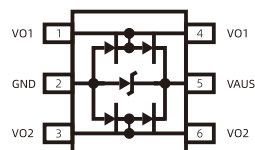


Fig.14

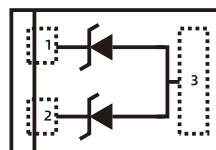


Fig.15

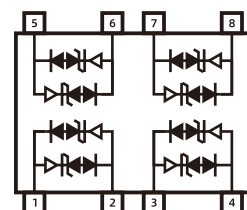


Fig.16

200W TVS

Part Number	Polarity	Package	Peak Pulse Power Dissipation	Reverse Standoff Voltage	Reverse Leakage	Max. Clamping Voltage	Peak Pulse Current	Breakdown Voltage	
			P _{PK} (W)	V _{RWM} (V)	I _R (μ A)	V _C (V)	I _{PP} (A)	V _{BR} (V) Min	V _{BR} (V) Max
SMF5.0A~SMF170A	Unidirectional	SOD-123FL	200	5.0~170	1~400	9.2~275	0.6~21.7	6.4~189	7~209
SMF5.0CA~SMF170CA	Bidirectional	SOD-123FL	200	5.0~170	1~400	9.2~275	0.6~21.7	6.4~189	7~209
SMF350A	Unidirectional	SOD-123FL	200	350	1	560	0.36	391	432

400W TVS

Part Number	Polarity	Package	Peak Pulse Power Dissipation	Reverse Standoff Voltage	Reverse Leakage	Max. Clamping Voltage	Peak Pulse Current	Breakdown Voltage	
			P _{PK} (W)	V _{RWM} (V)	I _R (μ A)	V _C (V)	I _{PP} (A)	V _{BR} (V) Min	V _{BR} (V) Max
P4KE6.8A~P4KE550A	Unidirectional	DO-41	400	5.8~495	1~1000	10.5~760	0.52~39	6.45~522.5	7.14~577.5
P4KE6.8CA~P4KE550CA	Bidirectional	DO-41	400	5.8~495	1~1000	10.5~760	0.52~39	6.45~522.5	7.14~577.5
SMF4L5.0A~SM4F85A	Unidirectional	SOD-123FL	400	5.0~85	1~400	9.2~137	2.2~43.5	6.4~94.4	7~104
SMF4L11CA~SM4F20CA	Bidirectional	SOD-123FL	400	11~20	1	18.2~32.4	12.35~21.98	12.2~22.2	13.5~24.5
SMAJ5.0A~SMAJ440A	Unidirectional	SMA	400	5~440	1~800	9.2~713	0.6~43.5	6.4~492	7~543
SMAJ5.0CA~SMAJ440CA	Bidirectional	SMA	400	5~440	1~800	9.2~713	0.6~43.5	6.4~492	7~543
P4SMA6.8A~P4SMA600A	Unidirectional	DO-214AC	400	5.8~513	1~1000	10.5~828	0.48~39	6.45~570	7.14~630
P4SMA6.8CA~P4SMA600CA	Bidirectional	DO-214AC	400	5.8~513	1~1000	10.5~828	0.48~39	6.45~570	7.14~630
SMA4L5.0A~SMA4L85A	Unidirectional	SMAF	400	5~85	1~100	9.2~137	2.9~43.5	6.4~94.4	7~104
TPSMF4L5A~TPSMF4L85A	Unidirectional	SOD-123FL	400	5~85	1~800	9.2~137	2.9~40.1	6.4~94.4	7~104

600W TVS

Part Number	Polarity	Package	Peak Pluse Power Dissipation	Reverse Standoff Voltage	Reverse Leakage	Max. Clamping Voltage	Peak Pulse Current	Breakdown Voltage	
			P _{PK} (W)	V _{RWM} (V)	I _R (uA)	V _C (V)	I _{pp} (A)	V _{BR} (V) Min	V _{BR} (V) Max
P6KE6.8A~P6KE600A	Unidirectional	DO-15	600	5.8~512	1~1000	10.5~828	0.75~57	6.45~570	714~630
P6KE6.8CA~P6KE600CA	Bidirectional	DO-15	600	5.8~512	1~1000	10.5~828	0.75~57	6.45~570	714~630
SMA6J5.0A~SMA6J58A	Unidirectional	SMA	600	5~58	1~800	9.2~93.6	6.41~65.2	6.4~64.4	7~71.2
SMA6J5.0CA~SMA6J58CA	Bidirectional	SMA	600	5~58	1~800	9.2~93.6	6.41~65.2	6.4~64.4	7~71.2
SMBJ5.0A~SMBJ440A	Unidirectional	SMB	600	5~440	1~800	9.2~713	0.9~65.2	6.4~492	7~543
SMBJ5.0CA~SMBJ440CA	Bidirectional	SMB	600	5~440	1~800	9.2~713	0.9~65.2	6.4~492	7~543
P6SMB6.8A~P6SMB600A	Unidirectional	DO-214AA	600	5.8~513	1~1000	10.5~828	0.72~58.1	6.45~570	714~630
P6SMB6.8CA~P6SMB600CA	Bidirectional	DO-214AA	600	5.8~513	1~1000	10.5~828	0.72~58.1	6.45~570	714~630
SMA6L5A~SMA6L85A	Unidirectional	SMAF	600	5~85	1~800	9.2~137	4.4~65.3	6.4~94.4	7~104
SMA6L5CA~SMA6L85CA	Bidirectional	SMAF	600	5~85	1~800	9.2~137	4.4~65.3	6.4~94.4	7~104
 TPSMA6L5.0A~TPSMA6L85A	Unidirectional	SMAF	600	5~85	1~800	9.2~137	4.4~65.3	6.4~94.4	7~104
 TPSMA6L5.0CA~TPSMA6L85CA	Bidirectional	SMAF	600	5~85	1~800	9.2~137	4.4~65.3	6.4~94.4	7~104
 TP SMB7.5A~TPSMB550A	Unidirectional	DO-214AA	600	6.4~468	1~500	11.3~760	0.8~54	713~522.5	788~577.5
 TP SMB10CA~TPSMB650CA	Bidirectional	DO-214AA	600	8.55~553	1~10	14.5~897	0.8~42.1	9.5~617.5	10.5~682.5
 TP SMB6.5A~VR~TPSMB440A~VR	Unidirectional	DO-214AA	600	6.5~440	1~500	11.2~713	0.9~53.6	7.22~492	798~543
 TP SMB8.5CA~VR~TPSMB440CA~VR	Bidirectional	DO-214AA	600	8.5~440	1~20	14.4~713	0.9~20	9.44~492	10.4~543

1000W TVS

Part Number	Polarity	Package	Peak Pluse Power Dissipation	Reverse Standoff Voltage	Reverse Leakage	Max. Clamping Voltage	Peak Pulse Current	Breakdown Voltage	
			P _{PK} (W)	V _{RWM} (V)	I _R (uA)	V _C (V)	I _{pp} (A)	V _{BR} (V) Min	V _{BR} (V) Max
1KSMB6.8A~1KSMB180A	Unidirectional	DO-214AA	1000	5.8~153	1~900	10.5~246	4.1~95.2	6.45~171	714~189
1KSMB6.8CA~1KSMB180CA	Bidirectional	DO-214AA	1000	5.8~153	1~900	10.5~246	4.1~95.2	6.45~171	714~189

1500W TVS

Part Number	Polarity	Package	Peak Pluse Power Dissipation	Reverse Standoff Voltage	Reverse Leakage	Max. Clamping Voltage	Peak Pulse Current	Breakdown Voltage	
			P _{PK} (W)	V _{RWM} (V)	I _R (μ A)	V _C (V)	I _{pp} (A)	V _{BR} (V) Min	V _{BR} (V) Max
1.5KE6.8A~1.5KE550A	Unidirectional	DO-201AE	1500	5.8~467	5~1000	10.5~760	2~144.8	6.45~522.5	714~577.5
1.5KE6.8CA~1.5KE550CA	Bidirectional	DO-201AE	1500	5.8~467	5~1000	10.5~760	2~144.8	6.45~522.5	714~577.5
SMCJ5.0A~SMCJ440A	Unidirectional	SMC	1500	5.0~440	1~800	9.2~713	2.1~163	6.4~492	7~543
SMCJ5.0CA~SMCJ440CA	Bidirectional	SMC	1500	5.0~440	1~800	9.2~713	2.1~163	6.4~492	7~543
1.5SMB20A~1.5SMB100A	Unidirectional	DO-214AA	1500	171~85.5	1~20	27.7~137.0	61.1~302	19~95	21~105
1.5SMB20CA~1.5SMB100CA	Bidirectional	DO-214AA	1500	171~85.5	1~20	27.7~137.0	61.1~302	19~95	21~105
1.5SMC6.8A~1.5SMC600A	Unidirectional	DO-214AB	1500	5.8~513	1~1000	10.5~828	1.8~144.8	6.45~570	714~630
1.5SMC6.8CA~1.5SMC600CA	Bidirectional	DO-214AB	1500	5.8~513	1~1000	10.5~828	1.8~144.8	6.45~570	714~630
 TP5MC12A~TP5MC250A	Unidirectional	DO-214AB	1500	10.2~213.75	1~5	16.7~344	4.4~91	11.4~237.5	12.6~263.16
 TP5MC12CA~TP5MC250CA	Bidirectional	DO-214AB	1500	10.2~213.75	1~5	16.7~344	4.4~91	11.4~237.5	12.6~263.16
 TP5MC11A-VR~TP5MC200A-VR	Unidirectional	DO-214AB	1500	11~200	1	18.2~321.1	4.7~82.5	12.2~224	13.5~247
 TP5MC11CA-VR~TP5MC200CA-VR	Bidirectional	DO-214AB	1500	11~200	1	18.2~321.1	4.7~82.5	12.2~224	13.5~247

3000W TVS

Part Number	Polarity	Package	Peak Pluse Power Dissipation	Reverse Standoff Voltage	Reverse Leakage	Max. Clamping Voltage	Peak Pulse Current	Breakdown Voltage	
			P _{PK} (W)	V _{RWM} (V)	I _R (μ A)	V _C (V)	I _{pp} (A)	V _{BR} (V) Min	V _{BR} (V) Max
SMDJ5A~SMDJ440A	Unidirectional	DO-214AB	3000	5~440	2~800	9.2~713	5.7~326.1	6.4~492	7~543
SMDJ5CA~SMDJ440CA	Bidirectional	DO-214AB	3000	5~440	2~800	9.2~713	5.7~326.1	6.4~492	7~543
 TP5SMD10A~TP5SMD85A	Unidirectional	DO-214AB	3000	10~85	2~5	17~137	21.9~176.5	11.1~94.4	12.3~104
 TP5SMD10CA~TP5SMD85CA	Bidirectional	DO-214AB	3000	10~85	2~5	17~137	21.9~176.5	11.1~94.4	12.3~104
 TP5SMD10A-VBR~TP5SMD85A-VBR	Unidirectional	DO-214AB	3000	10~85	2~5	17~137	21.9~176.5	11.1~94.4	12.3~104
 TP5SMD10CA-VBR~TP5SMD85CA-VBR	Bidirectional	DO-214AB	3000	10~85	2~5	17~137	21.9~176.5	11.1~94.4	12.3~104

4600W TVS

	Part Number	Polarity	Package	Peak Pluse	Reverse	Reverse	Max.	Peak Pulse	Breakdown	
				Power Dissipation	Standoff Voltage	Leakage	Clamping Voltage	Current	Voltage	
				P _{PK} (W)	V _{RWM} (V)	I _R (uA)	V _C (V)	I _{pp} (A)	V _{BR} (V) Min	V _{BR} (V) Max
	SM6S10A~SM6S43A	Unidirectional	DO-214AB	4600	10~43	5~15	17~69.4	66~270	11.1~47.8	12.3~52.8
	SM6S10CA~SM6S43CA	Bidirectional	DO-214AB	4600	10~43	5~15	17~69.4	66~270	11.1~47.8	12.3~52.8

5000W TVS

	Part Number	Polarity	Package	Peak Pluse	Reverse	Reverse	Max.	Peak Pulse	Breakdown	
				Power Dissipation	Standoff Voltage	Leakage	Clamping Voltage	Current	Voltage	
				P _{PK} (W)	V _{RWM} (V)	I _R (uA)	V _C (V)	I _{pp} (A)	V _{BR} (V) Min	V _{BR} (V) Max
	5KP5.0A~5KP440A	Unidirectional	P600	5000	5~440	10~5000	9.2~713	7~543	6.4~492	7~543
	5KP5.0CA~5KP440CA	Bidirectional	P600	5000	5~440	10~5000	9.2~713	7~543	6.4~492	7~543
	5.0SMDJ12A~5.0SMDJ170A	Unidirectional	DO-214AB	5000	12~170	5~800	19.9~275	18.2~252	13.3~189	14.7~209
	5.0SMDJ12CA~5.0SMDJ170CA	Bidirectional	DO-214AB	5000	12~170	5~800	19.9~275	18.2~252	13.3~189	14.7~209

6600W TVS

	Part Number	Polarity	Package	Peak Pluse	Reverse	Reverse	Max.	Peak Pulse	Breakdown	
				Power Dissipation	Standoff Voltage	Leakage	Clamping Voltage	Current	Voltage	
				P _{PK} (W)	V _{RWM} (V)	I _R (uA)	V _C (V)	I _{pp} (A)	V _{BR} (V) Min	V _{BR} (V) Max
	SLD10A~SLD60A	Unidirectional	P600	6000	10~60	10	17~96.8	61.5~350	11.8~68.4	13~75.6
	SLD10CA~SLD60CA	Bidirectional	P600	6000	10~60	10	17~96.8	61.5~350	11.8~68.4	13~75.6
	SM8S10A~SM8S43A	Unidirectional	DO-218AB	6600	10~43	10~15	17~69.4	95.1~388	11.1~47.8	12.3~52.8
	SM8S14CA~SM8S43CA	Bidirectional	DO-218AB	6600	14~43	10	23.2~69.4	95.1~284	15.6~47.8	17.2~52.8

8000W TVS

	Part Number	Polarity	Package	Peak Pluse	Reverse	Reverse	Max.	Peak Pulse	Breakdown	
				Power Dissipation	Standoff Voltage	Leakage	Clamping Voltage	Current	Voltage	
				P _{PK} (W)	V _{RWM} (V)	I _R (uA)	V _C (V)	I _{pp} (A)	V _{BR} (V) Min	V _{BR} (V) Max
	8.0SMDJ12A~5.0SMDJ110A	Unidirectional	DO-214AB	8000	12~110	5~800	19.9~177	45.2~402.1	13.3~122	14.7~135
	8.0SMDJ12CA~5.0SMDJ110CA	Bidirectional	DO-214AB	8000	12~110	5~800	19.9~177	45.2~402.1	13.3~122	14.7~135

15000W TVS

Part Number	Polarity	Package	Peak Pluse Power Dissipation	Reverse Standoff Voltage	Reverse Leakage	Max. Clamping Voltage	Peak Pulse Current	Breakdown Voltage	
			P _{PK} (W)	V _{RWM} (V)	I _R (μ A)	V _C (V)	I _{pp} (A)	V _{BR} (V) Min	V _{BR} (V) Max
15KPA17A~15KPA280A	Unidirectional	P600	15000	17~280	10~5000	29.3~452	33~512	18.9~311	20.79~342.4
15KPA17CA~15KPA280CA	Bidirectional	P600	15000	17~280	10~5000	29.3~452	33~512	18.9~311	20.79~342.4

30000W TVS

Part Number	Polarity	Package	Peak Pluse Power Dissipation	Reverse Standoff Voltage	Reverse Leakage	Max. Clamping Voltage	Peak Pulse Current	Breakdown Voltage	
			P _{PK} (W)	V _{RWM} (V)	I _R (μ A)	V _C (V)	I _{pp} (A)	V _{BR} (V) Min	V _{BR} (V) Max
30KPA28A~30KPA288A	Unidirectional	P600	30000	28~288	10~5000	50~469.9	64.5~606	31.28~321.7	34.24~352.2
30KPA28CA~30KPA288CA	Bidirectional	P600	30000	28~288	10~5000	50~469.9	64.5~606	31.28~321.7	34.24~352.2

SCAK/SMAC Package TVS

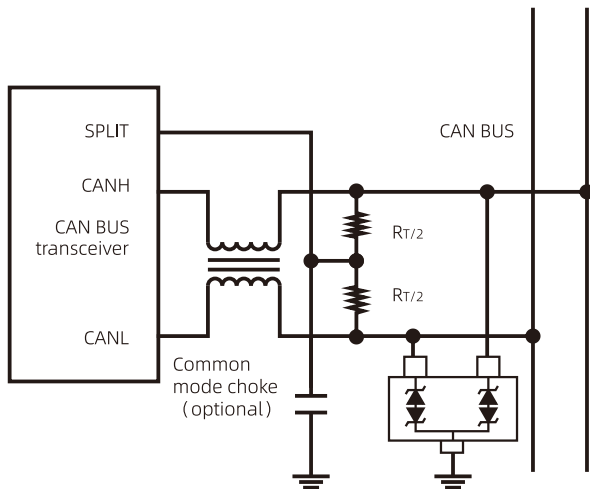
Part Number	Polarity	Package	Peak Pluse Power Dissipation	Reverse Standoff Voltage	Reverse Leakage	Max. Clamping Voltage	Peak Pulse Current	Breakdown Voltage	
			P _{PK} (W)	V _{RWM} (V)	I _R (μ A)	V _C (V)	I _{pp} (A)	V _{BR} (V) Min	V _{BR} (V) Max
SCAK1-076C~SCAK1-430C	Bidirectional	AK	-	76~430	10	140~625	1000	85~440	95~490
SCAK3-015C~SCAK3-430C	Bidirectional	AK	-	15~430	15	28~625	3000	16~440	19~490
SCAK6-030C~SCAK6-430C	Bidirectional	AK	-	30~430	10	90~625	6000	32~440	37~490
SCAK10-015C~SCAK10-530C	Bidirectional	AK	-	15~530	10	28~750	10000	16~560	19~619
SCAK15-058C~SCAK15-190C	Bidirectional	AK	-	58~190	10	110~290	15000	64~200	70~245
SMAC3-066C	Bidirectional	SMTO-218	-	66	10	120	3000	75	83
SMAC6-058-C~SMAC6-076-C	Bidirectional	SMTO-218	-	58~76	10	110~140	6000	64~85	70~95
SMAC10-058C~SMAC10-86-C	Bidirectional	SMTO-218	-	58~86	10	110~157	10000	64~95	70~105

Note: Some of latest new products and Patent products can be not included in this catalog, please contact Semicon Champion technical center directly for special protection requirement.

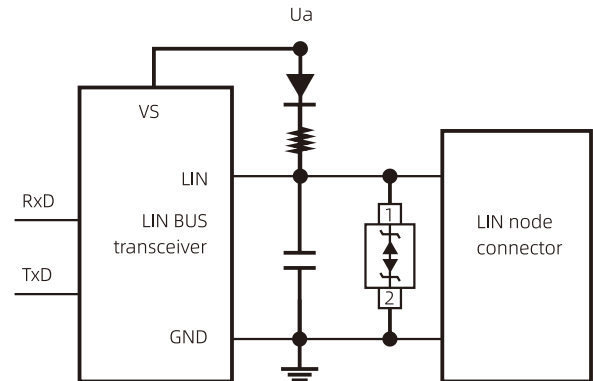
ESD Protection Devices

Typical Application

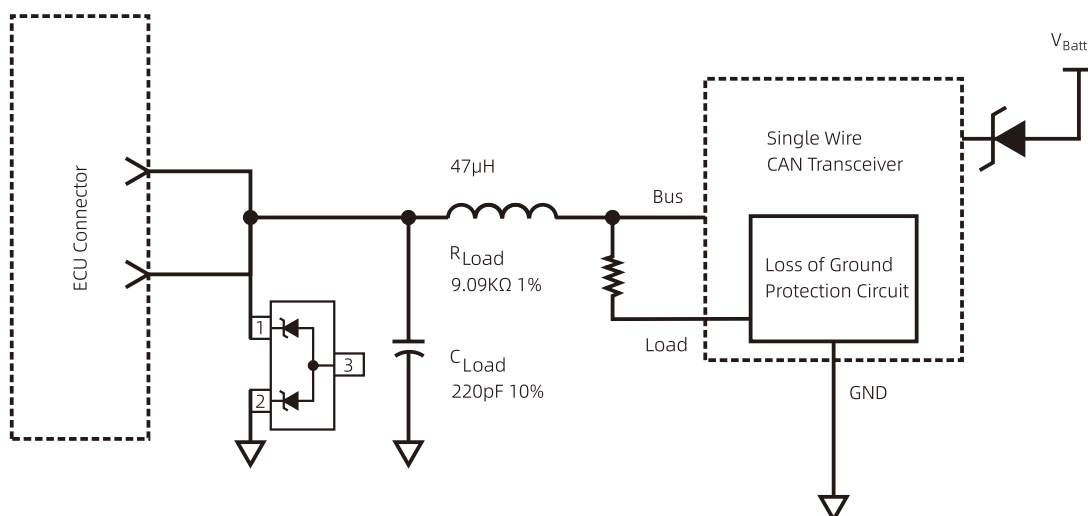
CAN bus protection



LIN bus protection



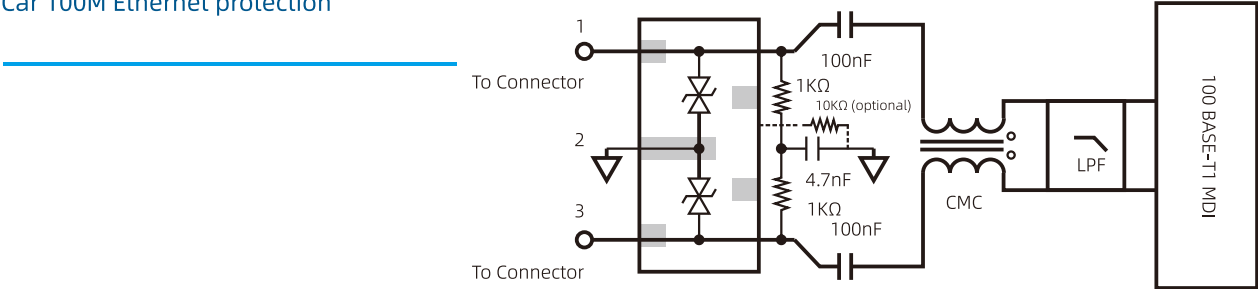
ECU Protection



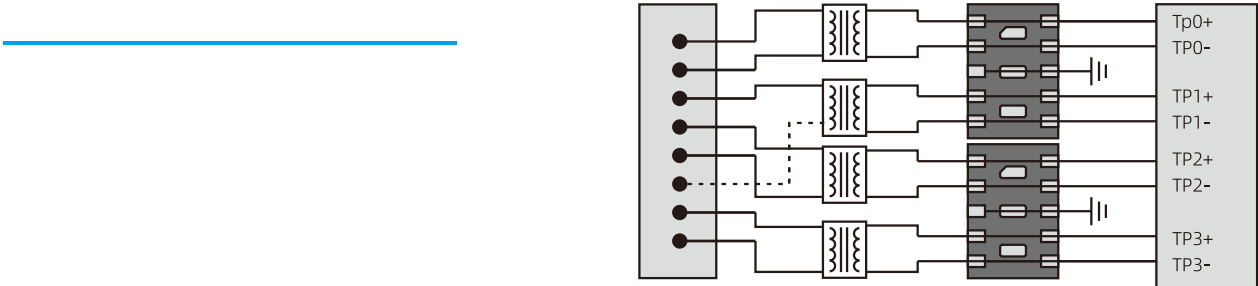
ESD Protection Devices

Typical Application

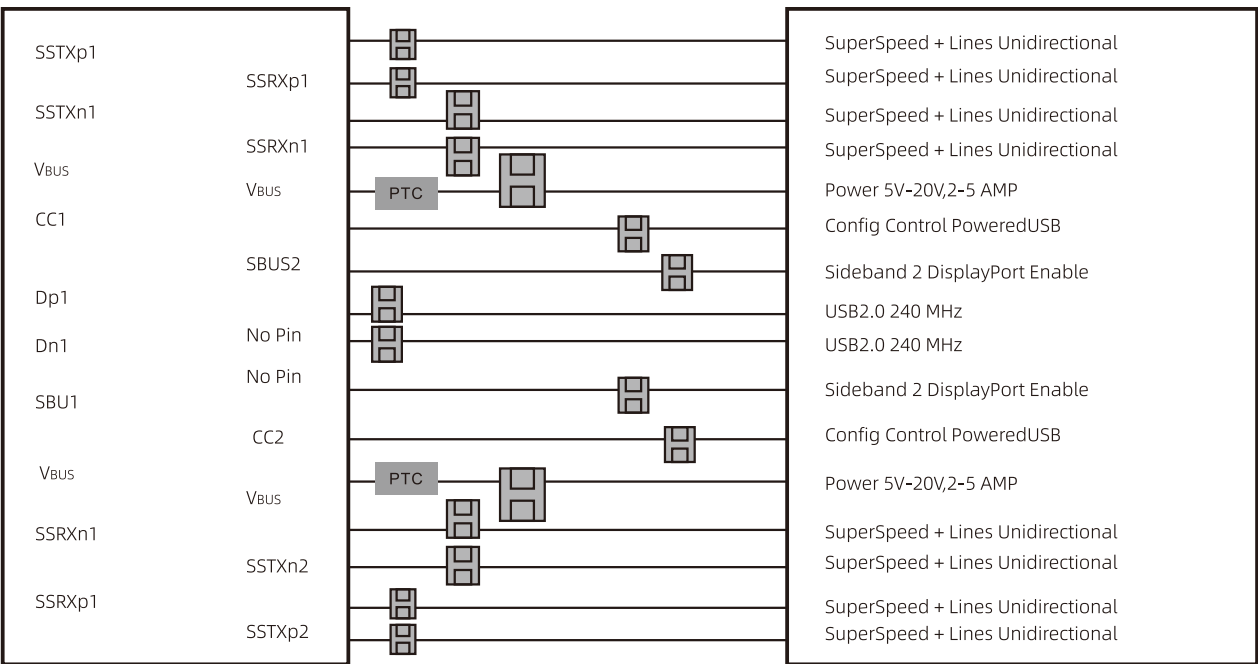
Car 100M Ethernet protection



1000M/10G Ethernet protection



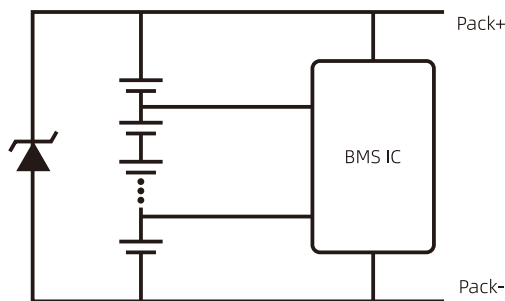
USB3.1 Port protection



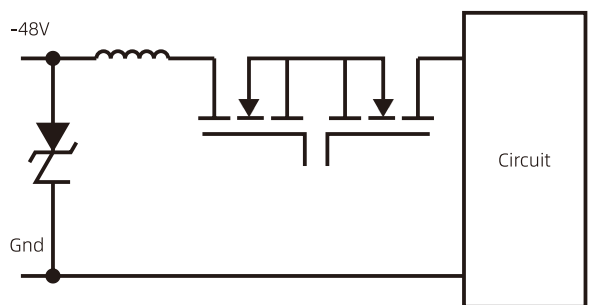
TVS Protection Devices

Typical Application

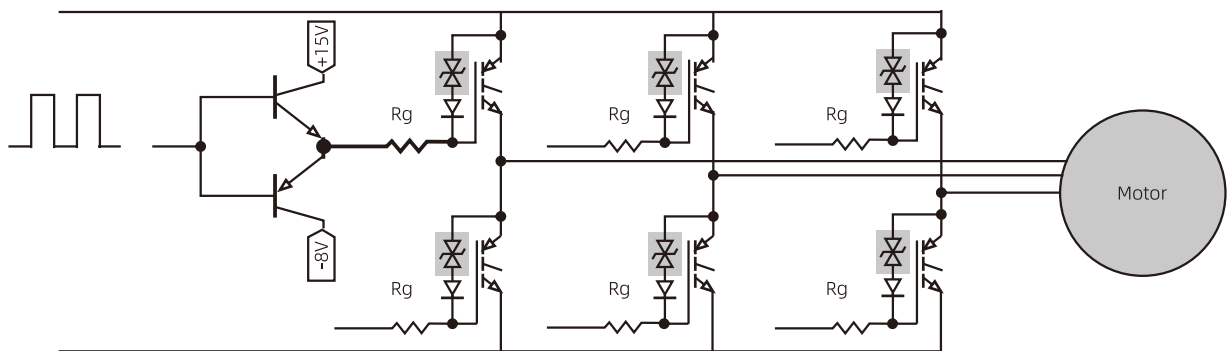
BMS protection



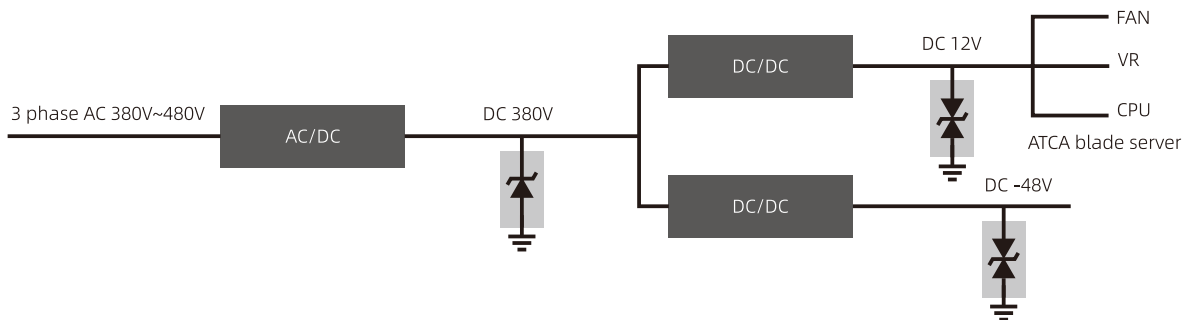
Base station -48V power protection



IGBT active clamp protection



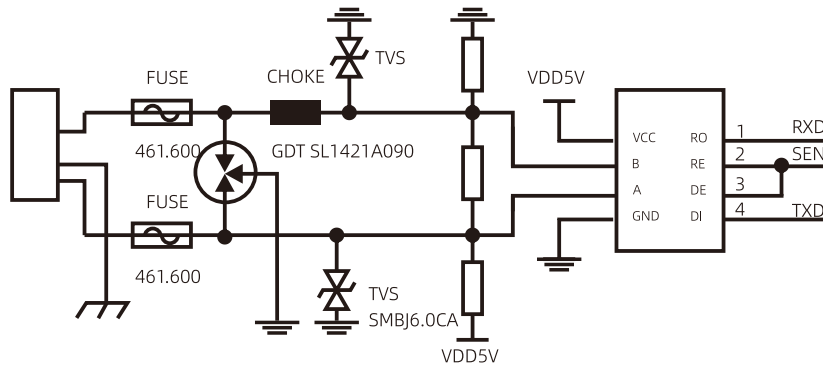
Server circuit protection



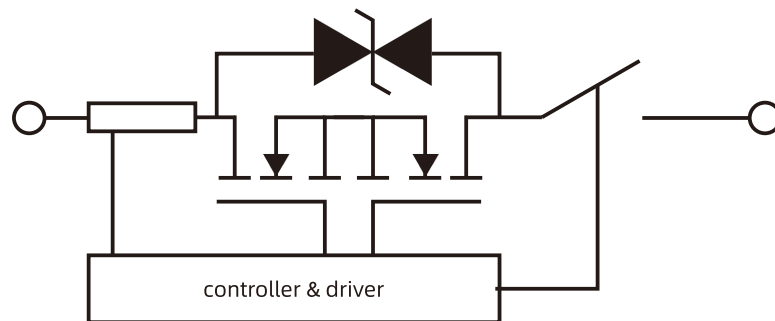
TVS Protection Devices

Typical Application

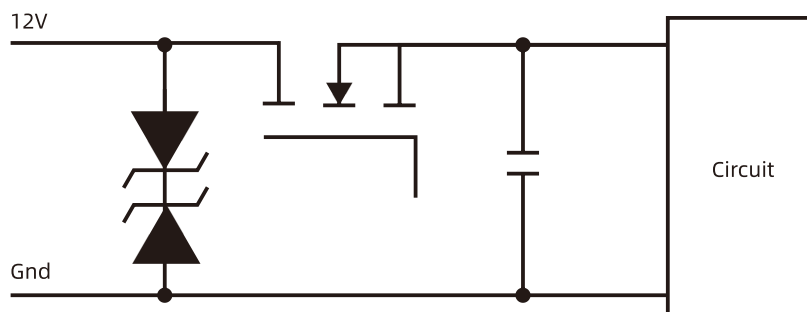
RS-485 port protection(GDT&TVS can be replaced by P0080SBLRP-LVS或P0080S1BLRP-LVS for middle level surge)



Solid-State Circuit Breaker protection



Automotive 12V system asymmetric protection





至晟品质 芯驰未来

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